Chapter 2

Early Iron Age in India *vis-a-vis* Second Urbanisation

The present chapter is mainly aimed to draw a broad outline of the Early Iron Age in North and South India. Urbanisation and the formation of State which followed the Early Iron Age is the important point of discussion here. Special emphasis is laid on understanding the process of urbanisation in the Ganga valley since it is well documented. An attempt has been made to comprehend the importance, role and background of Early Iron Age in this process and see how far they can be applied to the area of present study.

The Early Iron Age in India marks the period of beginning of iron technology, subsequent production and its widespread cultural use along the subcontinent. Though initially, researchers had ascribed a date of about 7^{th}- 6^{th} cent BC to the emergence of iron in the Indian scenario (Wheeler 1946); now the dates for the same and its harness to the cultural development of the region go back in the early part of the second millennium BC (Tewari 2003). The use of iron led to change in the cultural milieu and also later ushered in the phase of urbanisation in Ganga Valley. This urbanisation which is popularly known as second urbanisation was characterized by coming up of cities and development of states in the Ganga valley and neighbouring regions and gradually in the entire subcontinent. Though as stated above, iron made an early entry, the urban characteristics are seen only around 7^{th}- 6^{th} cent BC. The period is known as NBPW period due to the presence of the Northern Black Polished Ware (NBPW) all over northern India and often found spread to far off regions including Sri Lanka. In other parts of India also, this period saw the emergence of urban centres such as Sisupalgarh (Odisha) (Mohanty and Smith 2012), Tamluk (West Bengal), Sannati (Karnataka) (Dhavalikar 1999), Adam (Nath 1992), Pauni (Maharashtra) (Deo and Joshi 1970) (Nath 1998), Kondapur (Andhra Pradesh) and Ujjain (Madhya Pradesh) (Banerjee 1965). The urban phase however, has a gradual growth with regional predominant characteristics and also had a prelude of agro-pastoral way of life at almost all places. It is the agro-pastoral base of these early cultures coupled with advancement achieved in technology and accumulation of wealth that led to the

development of internal forces of complexity. External factors also led to the development of urbanism depending upon ecological and human behavioural aspects.

Hence it is necessary to know the cultural background of the Early Iron Age period in India especially to know how it led to the phase of second urbanisation. Here it is necessary to look for the origins of iron working. Later an endeavour has been made to see how the advent of Iron Age contributed in the urbanism.

Origin and Dispersal of Iron

Iron technology was thought to have been brought to the Indian Subcontinent with the migration of Indo-Aryans. This has been suggested on Indo-European philological comparisons by scholars like Parpola (1995), Sharma (1999) and Witzel (1995). They have used similar occurring terms in the Indo- European language (either in Avesta or Rigveda) to show the cultural contacts. There are also literary evidences of iron being used, better known are the Boghazkeui inscription, correspondence between the Hittite and the Mittani Kings and also in between the Mittanis and the Egyptian Pharaoh (Tripathi 2001). These evidences of the 14^{th}-13^{th} cent BC have been used by many earlier scholars for the use of iron by Indo-Aryans and its gradual diffusion to the Indian subcontinent through the so-called Aryan migration towards India. However, the Aryan migration is now almost considered to be a myth and no convincing evidences are found for it.

There is mention of *Ayas* in *Rig-Veda* which is taken as iron by many scholars. But Banerjee (1927) thinks that *ayas* means either sharpness or strength or both. It also means malleable, ductile, and also very hard at times. All references to *ayas* in the *Rig-Veda* do not suggest only a metal or directly do not signify iron. *Ayas* refers to either a part of implement or weapon or object of daily use. It also suggests metallurgical processes. Many times it occurs as metaphors to suggest sharp, strong and powerful (Tripathi 2001: 64). Tripathi thinks that *ayas* does not mean iron but a metallurgical process. Moreover, she opines that win the wake of a well developed bronze technology, there was no need of wrought iron for implements and weapons (Tripathi 2001: 64-65). Also when one takes a look at the later Vedic texts (e.g. *Taittiriya Samhita* of *Yajurveda*) there are mention of *loha* (red or copper) and

shyama (black or iron) variously which suggests two different metals, namely copper and iron. Thus *ayas* probably means a metal or also a strong matter.

Apart from this, iron is found in earlier periods in Harappan and Chalcolithic contexts. Shaffer (1984) has reported iron in the form of distinct and indistinct objects in Afghanistan. Chakrabarti and Lahiri (1994) also give a list of 1500 objects having iron content varying from 50% to 2-3% from many Harappan sites and numerous other Chalcolithic and Copper Hoard sites. Sahi (1979) also points out objects of iron found at Ahar in the Chalcolithic levels. But Tripathi (2001) points out that there is a possibility of production of iron as a by-product of copper smelting. She points out the possibility of the use of iron rich copper ores and the use of iron dioxide as a flux in smelting siliceous ores.

Tripathi (2001) identifies seven different zones of early iron working in India. In identifying these zones she has used evidence appearing in the archaeological record, provenance of iron and chronology as supported by ^{14}C dates. They are:

Zone A: The region of NWFP and Baluchistan having sites like Moghal Ghundai, Ziwanri, Take Dap.

Zone B: The region of the Indo-Gangetic Divide having the PGW culture and well represented at sites like Jakhera, Bhagwanpura, Atranjikhera, Ahhihchhatra and Hastinapur.

Zone C: Black and Red ware culture of the Middle Ganga valley extending from Allahabad to West Bengal. It has important sites like Kausambi, Rajghat, Raja Nal–ka-tila and Pandu-Rajar-Dhibi in Bengal.

Zone D: This is the region of Central India where the Chalcolithic sites of Ahar and Eran as well as sites such as Prakash, Bahal, Nagda yielded early use of iron. The site of Ujjain also yields iron at an early level.

Zone E: The region of Vidarbha which yields a vast Megalithic and Early Iron Age culture.

Zone F: The region of Peninsular India beyond the Vidarbha region has almost 400 habitational sites and a large number of burial sites.

Tripathi (2001) thinks that there is not much to show that the use of iron was only at one centre and later dispersed to other centres. Though there were connections with central and western Asia, it is difficult to assume that the technology spread throughout the subcontinent very fast and was harnessed to production and manufacture by 12^{th} -11^{th} cent BC as witnessed in these various zones.

Iron production was not easy as copper working since the metal obtained had to be reheated and go through several critical processes and then hammered continuously for making it useful. Moreover, it did not melt at the same temperature as that of smelting. Mass production of copper/ bronze objects was possible through casting in a single smelt. However iron needed extensive man-hours to forge them and make functional artefacts. There was a need to add nickel or carbon while forging iron which is softer to make it hard. Carburization was achieved from an early period by quenching with water. Despite iron was also adopted due to its strength. Tools made of it were more efficient for working in contrast to the bronze ones. Therefore it was quickly adopted and spread in a very short span of time after its initial appearance.

Recent work carried out by the Uttar Pradesh State Department of Archaeology at sites such as Malhar, Lahuradewa have pushed back the antiquity and utility of iron in India. These sites in the middle Ganga valley have yielded dates going back to early second millennium BC (Tewari 2003). All these sites in the Ganga valley show a gradual agro-pastoral development from Neolithic-Chalcolithic period. The sites of Koldihawa (Ghosh 1980), Jhusi (Pal 1986) have yielded evidence of domestic rice, domestic animals and the use of cord impressed ware along with red ware and grey ware. These sites prepared a ground for the development of a proper sedentary lifestyle with agro-pastoral way of life. Similarly even in Peninsular India there was a well established agro-pastoral culture from the Neolithic period during the third millennium BC (Paddayya 1979: 347-352, 1992: 573-626, 1998: 141-153). Even in Rajasthan and Central India, there is a well established agro-pastoral base as evidenced at Ahar (Sankalia *etal*. 1964), Balathal (Misra 1997, Misra *etal*. 1997), Navdatoli (Sankalia *etal*. 1967) and Kayatha (Dhavalikar 1970, 1984). Thus it can be said that an agrarian base was already in force at various Chalcolithic sites contemporaneous with the Harappan culture or even earlier. It has already been observed by Tripathi (2001) that iron many a time might have been a by-product of

copper smelting at many of these Chalcolithic sites. It was later mastered over by craftsmen and metal workers. It is assumed that the pyrotechnologic uses of iron in copper and lead smelting led to the by-product of iron working (Wertime quoted in Tripathi). There are many early centres thus which might have led to the development of iron technology as in these centres iron was already brought in to use by 12^{th}-11^{th} cent BC.

Early Iron Age in India

The cultural background of Early Iron Age in India was first enunciated by Banerjee (1965). It is reasonably better understood due to a series of excavations, explorations and research carried out in the past two centuries. A brief review is undertaken to understand the development process of the early historic state in the background of the Early Iron Age society.

During the Early Iron Age in North India, across the upper Ganga- Yamuna valley PGW culture is found with settlements sprung up along the river banks. At some sites like Atranjikhera (Gaur 1983), Jakhera (Sahi 1978) there is a preceding layer of Black and Red ware which also continues to the succeeding phase. The sites are generally small in size not exceeding 2-3 hectares. Only a few sites like Jakhera, Atranjikhera were larger in size. In Kanpur (Lal 1984) there were 40 sites of 2-3 hectares in size. Only one site was above 5 hectares in size. Erdosy (1988) found only one site about 10 hectares in size i.e. Kausambi. But Makkhanlal (1984, 1986) found that the expansion in settlements took place in this period. Sites like Ataranjikhera, Kausambi and Jakhera expanded in the later part of the PGW period. Sites have also been found in the hills of Kumaon-Garhwal region (Nautiyal et al. 2001-02). The PGW people were using iron to extend the area of occupation, bring new land under cultivation and habitation and exploring new mineral zones. Iron tools like socketed tangs, chisels, axes, tongs, sickels, arrow-heads, spearheads, knives, points, shafts recovered from the excavations suggest expansion of the community activity. The water channel at Jakhera (Sahi 1978), the bunds at Ataranjikhera (Gaur 1983), Kausambi (Sharma 1960), Kampil and the water reservoir at Sringaverpur (Lal 1993, Lal and Dikshit 1997) were all an outcome of the developed iron technology. The eastern part of Uttar Pradesh, mainly the Middle Ganga region was dotted with Black

and Red Ware sites. These sites have yielded mostly axes, chisels and also some agricultural implements (recently at Malhar and Lahuradewa) (Tewari 2003).

Painted Grey Ware was first reported in the excavation at Hastinapur (Lal 1954). Further surveys and excavations have helped to ascertain the cultural identity and affinity of this culture (Tripathi 2001). In the excavations at Atranjikhera (Gaur 1983) during the painted grey ware phase, many iron implements and tools were recovered. The tools and implements included chisels, arrowheads, spears, tongs and similar iron artefacts which show advanced attainment in iron technology (Gaur 1983). The excavations conducted at the site of Bhagwanpura in Punjab (Joshi 1976: 178-80) yielded an overlap between Late Harrapan and Painted Grey Ware. This led to the better understanding about the origins of the culture. The beginning is now traced back to be around 1300 BC. The Painted Grey Ware culture has been studied to a great extent and when the settlement pattern is taken in to consideration, then it can be seen that settlements are having a hierarchy of large to small sites (Lal 1984; Erdosy 1985: 66-79, 1988; Tripathi 2001). The settlements revealed structures of rectangular and circular shapes, beads of semi-precious stones as well as remains of rice. The use of horse along with the earlier domestic animals was also an added advantage to these people.

The Department of Archaeology, U.P. State, has carried out a series of excavations in the Middle Ganga plains. Their investigations at these sites like Lahurdeva, Raja Nal Ka Tila, Dadupaur and Malhar have brought to light evidence stretching the dates of beginning of the Iron Age to around late half of the first half of second millennium BC. (Tewari 2003: 536-544). The Black and Red ware phase, with which this early usage of iron is associated, has a well-developed iron technology; used for agricultural and domestic purposes. However, Black and Red ware culture of the middle Ganga plains is assigned a rural status based on the evidence available. This ware succeeds the Ochre colour ware in many sites. It is thus the formative phase of the social and economic ways of life of the Early Iron Age (Lal 1993, Lal and Dixit 1997: 303-307). It should be noted that similar Black and Red ware is also found from the megaliths excavated in Adwa valley (Mishra and Mishra 2002: 133-143) ascertaining their cultural contacts/relationship with the Black and Red ware people.

Another important aspect of Early Iron Age is the Megalithic Culture. The Early Iron Age in the Southern part of the country or rather the peninsular region is mostly known from the megalithic monuments erected in the memory of the dead. However the megalithic monuments were not restricted to South India only. The term means *megas* (huge) + *lithos* (stone). However, megalithic culture does not simply signify the use of huge stone appendages for accommodating the funerary remains of the dead. The ideological or conceptual background of these practices is more important and comes under the purview of megalithic culture. Hence there are some burials where there are no visible physical features, or burials with no funerary remains and only memorial in nature. They are found in many parts of the subcontinent.

The Early Iron Age/megalithic monuments are spread along the Indian subcontinent especially from Jammu and Kashmir, Uttar Pradesh, Bengal, Madhya Pradesh and Chhattisgarh to down south. However, they are mostly concentrated in peninsular India (Brubaker 2001) i.e. from Vidarbha to Kanya Kumari. Since their discovery for the academic world by Babington (1823: 324-30) in the Malabar region, they have been subjected to immense academic enquiry and study. However the actual academic investigation began only with the works of Taylor (1841, 1851, 1852, and 1862) at Jewargi and Vibhutihalli. Studies have been carried out on various aspects such as typology (Krishnaswamy 1949, Sundara 1979), socio-economic aspects (Moorti 1994), mortuary aspects (Walimbe 1992, Walimbe *etal*. 2011; Kennedy 2000), technology (Gogte 1982, 1984; Balasubramaniam 2006; Deshpande *etal*. 2010) and their general prospects and problems (Gururaj Rao 1972, Deo 1973, Leshnik 1974, Mohanty and Selva 2002). Now the total number of known sites ranges more than 2500 (Sundara in press) in the entire peninsula. The systematic excavations at around 100 such sites have contributed to a better understanding of the culture. The views being expressed are that the megalithic people are not indigenous in origin, they were mobile pastorals, they had a well developed iron technology, they had a sacred burial place attached to them, they later initiated tank irrigation and agriculture in South India (Sundara in press). The habitations are scarcely known and are mostly reported from the Middle Krishna-Tungabhadra basin, uplands of Tamil Nadu and also from Vidarbha region.

a) South India Megaliths

The Megalithic sites are known from their burials erected for the dead. There have been works on their typology (Krishnaswamy 1949, Sundara 1979, Moorti 1994). The different types can be broadly classified as: a) **Cairn circles with peripheral stone boulders:** Here a pit (sometimes even a chamber) is covered by a heap of rubble and encircled with the help of stone boulders b) **Cist (including cist with port hole, cist within a cairn circle, cist of different shapes (swastika, rectangular, transepted and chamber)**: A box or chamber is constructed with upright stone orthostats and buried in the ground up to top, with only a few inches above the ground and may or may not be within a cairn circle. **c) Sarcophagi:** They generally contain legged and un-legged jars with mortuary remains in them. They also include urn burials which accommodate mortuary remains. Apart from these sepulchral monuments (Moorti 1994, Mohanty and Selva 2002), there are some other monuments generally falling under the nomenclature of non-sepulchral monuments. They are: **menhirs, dolmens, stone alignments, avenues and anthropomorphic figures** (Moorti 1994, Mohanty and Selva 2002). In Kerala there are also found distinct burial types viz. *Toppikal, KoddaiKal* and rock cut cave chambers. Leshnik (1974) has tried to identify a chronological development amongst all these types. However, he has dated them around 2^{nd}- 3^{rd} century AD. Yet a general look at these different types itself suggests a social and ideological variation amongst the people.

There have been located more than 101 habitation sites in the entire peninsular region of India (Moorti 1994). But sites yielding such habitation were mostly known from Vidarbha, Krishna-Tungabhadra region and upper Kaveri. But recently a habitation site associated with the megalithic monuments of Kerala where it was alluding is reported from Nachivayal in Marayoor region of Kerala (Das *etal*. 2012, 2013). This has opened a new avenue in the field of research on megalithic habitations in the coastal region.

The excavations of burials have yielded evidence of skeletal fragments, primary skeletons as well as secondary burial remains. Along with inhumation, there are evidences of post-crematory bones at some sites like Kanyatirtham, Khairwada (Walimbe 1988, Mohanty and Selva 2002). Unlike the evidence from the Neolithic-Chalcolithic of Deccan and South India, the evidence regarding the funerary remains

of children is scarce in this period. Instead mostly the skeletal remains of middle aged (18-35) are found from the burials (Walimbe and Mohanty 1993). Thus it can be assumed that everybody was not given a ritual megalithic burial in those days. This brings out the social and economic dimensions of the community.

The south Indian megalithic sites have yielded a rich ceramic repertoire including Black and Red ware, red ware (both polished and slipped), black polished ware and also micaceous red ware at some places (Moorti 1994, Rajan 1996, Mohanty and Selva 2002). The burials generally yield Black and Red ware along with red polished pottery. The red polished pottery is mostly in the shapes of four-legged jars whereas the black polished ones have the hour glass stand and conical lids among them. The Tungabhadra region is mostly known from its white painted red ware. It has been argued that the white painted russet coated painted ware has its origin in this ware (Sundara 1975). Pottery from Kodumanal has also yielded some graffiti marks of Tamil Brahmi alphabets (Rajan 1994).

The burials have also yielded a variety of iron and copper artefacts which formed a part of the grave offerings. The iron artefacts include axes with cross fastener rings, swords, daggers, spearheads, spikes/lances, arrowheads, blades, sickles, hoes, ploughshares, chisels, adzes, nails, nail parers, plough coulter, cauldrons. All these artefacts suggest a well developed iron technology. The megalithic craftsmen were also aware of the steeling process and evidence for it has been found at sites in Vidarbha (Gogte *etal*. 1984, Deshpande and Mohanty 2008), Komaranhalli (Agarwal *etal* 1990, Biswas and Biswas 1996: 228) and also Kodumanal (Rajan 1990, 1994). Iron working sites have been found at 108 places (Moorti 1994), but the evidence of furnace come from Naikund, Banahalli, Kodumanal and Khuntitoli (Mohanty and Selva 2002). Along with iron artefacts, other artefacts found include horse bits, stirrups and copper ornaments for both humans and horse (Ramachandran 1961: 170-172). The copper/bronze artefacts were high tin bronzes (Gogte 1984) suggesting a well developed craftsmanship and technological advancement, suited for a complex society. The burials also yield quite a good number of beads; prominently among them being the etched carnelian beads (Rajan 1994). The beads were probably a major object of long distant exchange and commerce amongst the megalithic sites (Thakuria 2010).

The settlement pattern of this period suggests an inclination towards inhabiting area close to major resource zones such as favourable arable land, water sources, good pasture lands, vicinity of forested lands (for wild animals, timber), iron ore zones, raw material of precious stones (Moorti 1994, Mohanty and Selva 2002). The Megalithic sites in South India are located on hill slopes or on small hills near some source of water (either rivers or lakes) and an arable strip of land nearby. The excavations at sites like Brahmagiri (Wheeler 1947: 180-310), Piklihal (Allchin), Maski (Thapar 1957) have yielded houses both circular and rectangular in shape. The excavation generally yields a successive habitation at these sites suggesting continuous occupation. On the basis of the evidence the sites are categorised (Moorti 1994) such as: **a) Habitation:** Veerapuram (Andhra Pradesh), Narsipur (Karnataka), Malapaddi (TamilNadu); **b) Burial sites:** Hashmapet (AP), Sanur (TN), Guntakal (AP), Tadakanahalli (Karnataka); **c) Habitation-cum-Burial sites:** Brahmagiri, Piklihal, Maski, Hallur (all Karnataka), Yelleshwaram, Satanikota, Ramapuram (all AP), Paiyampalli, Kodumanal (TN).

The megalithic people of South India were good agriculturalists as it can be visualised from the archaeobotanical evidence as well as agricultural tools from various sites like Veerapuram (Kajale 1984), Maski (Vishnu-Mittre 1957; Ghosh and Chowdhury 1957), Adichanallur (Swamy 1972), Kunnatur *(JAR* 1957-8: 38),Jadigenehalli (Seshadri 1960), Kaundinyapura (Vishnu-Mittre 1968), T. Narasipur (Swamy 1971), Hallur (Vishnu-Mittre 1971; Kajale 1988-9), Guduvancheri (IAR 1977-8: 93), Mauapadi *(JAR* 1977-78: 92), Kodumanal (Kajale 1994) and Koppa (Kajale 1997; see also Kajale 1991). There is evidence for both *kharif* and *rabi* cropping. The sites have also yielded agricultural implements like hoes, ploughshares and sickles. The setting of the sites is generally on the major rivers and tributaries or close to water bodies (Moorti 1994). Systematic investigations have exposed the remains of rice, barley, wheat, kodo millet, job's tear, common pea, lentil, grass pea, horse gram, red gram and Indian jujube from the Megalithic sites (Kajale 1991; Vishnu-Mittre 1989). The association of sites with many tanks has compelled people to associate the megalithic people of South India with tank-irrigation (Moorti 1994, Mohanty and Selva 2002). However, they maintained a considerable degree of pastoralism or animal wealth, either for use in agriculture and also for subsistence purpose. They exploited wild fauna as it can be demonstrated from the remains of

bones of wild animals. The highest percentage of cattle followed by sheep/goat suggests a well established agro-pastoral way of life (Nath 1957, 1963, Thomas 1984, 1992, 1993; Thomas and Joglekar 1994).

Moorti (1994) has also identified other ways of subsistence in the megalithic period. They include metal working, bead making, basket-mat making, oil crushing, stone cutting and pottery making.

The chronology of this period was a major bone of contention till a series of ^{14}C dates were available from many sites in South India. Pearse (1869) had given a date of 1200 BC to the megalithic period. He took the dates of Alexander's invasion, the date of Buddha and the Sutra texts in account to date them to around 1200 BC. But later researchers did not take this date very seriously. Thus Wheeler gave the date of 400-200 BC to the beginning of Iron Age (Wheeler 1947: 180-310) while reporting the findings from the site of Brahmagiri. But it was the excavation at Hallur (Nagaraja Rao 1971) which gave the ^{14}C date of 1100 BC and stretched the use of early iron as far as the second millennium BC. Subsequently several dates are now available, which place the megalithic culture between 15th century BC to the early centuries of the Christian era (dates from Veerapuram, Ramapuram, Hallur, Kodumanal; see Moorti 1994; Mohanty and Selva 2002 for details).

b) Megalithic Culture in North India

Megalithic monuments are reported from Jammu Kashmir, Kumaon region, Uttar Pradesh, Bengal, Madhya Pradesh, Chhattisgarh and the Peninsular India (Nautiyal *etal*. 2000-01; Brubaker 2001:253-302). In North India, the research on megalithic culture still needs more attention. Megalithic monuments in north India are reported from the Vindhyan region i.e. Mirzapur and Allahabad districts (Misra 1972, Mishra 1988, Mishra *etal*. 1997, Gupta 1972, Sharma 1985:477-480, Singh 1985: 473-476), Jangan Mahal (Gupta 1972, Pant 1985: 481-484), Kaimur Range (Pant 1985: 481-484), Adwa Valley (Mishra and Mishra 2001-02: 133-143) in Uttar Pradesh. Some sites yielding megalithic monuments of the Early Iron Age are also found in the foot hills of Himalaya in Kashmir to central Himalaya in Kumaun region and Leh (Sharma 1991:107, Francke 1909-10: 104 as cited in Gupta 1972, Agrawal & Kharakwal 1998). At the site of Amreli in Gujrat, burials having affinity to

Chalcolithic and Iron Age period are noticed (Gupta 1972). But the occurrence of RPW in the cairns at Amreli suggests their contemporaneous nature with the Early Historic period. Occurrence of megaliths is also noticed in Rewa, Satana, Hoshangabad and Sidhi district of Madhya Pradesh (Sharma 1969: 43-45, IAR 1963-64:39, 1979-80:46 & 49, 1980-81:70, IAR 1963-64:39, 1975-76:44, 1979-80:41, IAR 1975-76:27, IAR 1982-83: 58-59). In North-eastern part of the country, there are various communities which still practice living megalithism. There are sites which need to be documented which have the remains of previous generations of such living ethnic communities (Singh 1985: 491-496, Devi 1993).

Settlements of the Iron Age have been reported in the upper levels at Gufkral and also in the Kumaon region (Kennedy 2000). In the Vindhyachal and the Ganga-Karmanasa region cairn circles with or without chamber and stone circle are main megalithic types. The megaliths of Kakoria and Kotia were excavated which revealed that they belong to a single culture group chronologically (Sharma 1985:477-480; Singh 1985: 473-476; Misra 1989: 191-193). The beginning of these monuments is considered to be around the end of the Chalcolithic phase in the middle Ganga plains. They however expanded during the Iron Age and have been dated to 1500 B.C. to 1000 BC and 800 BC to 3rd century BC respectively (Singh 1985: 475; Sharma 1985:480).
This brief discussion about the Early Iron Age in India has pointed to some very important facts:

1) The Early Iron Age people (both in North and South) were a well settled community.
2) There was well developed iron technology.
3) Iron technology was not only used for specialized implement production but also for general and domestic purposes.
4) Agriculture was probably heavily influenced by the introduction of iron.
5) The settlements were of a varying nature: short duration, long duration, pastoral oriented and also were characterised by agriculture, crafts specialisation and burials in vicinity of some of them.

During this period the Ganga valley witnessed an urbanisation around 7^{th}-6^{th} century BC. The literary references found in the Buddhist texts inform about the existence of sixteen *Mahajanapadas* during the time of the Buddha. The texts also tell about the

struggle for supremacy amongst them, when Buddha and Mahavira were preaching. By the end of 6th century BC, the major *Mahajanapadas* were absorbed by the Magadhan expansion. The state was in a full-fledged status with all its parameters. It can be said that this state formation process had been initiated in the Early Iron Age period. The Early Iron Age forms the true prelude to the Early Historic State.

The process of the origin and development of the state is very complex to visualise on a general level. In the background of these various evidences, various scholars have tried to interpret the process of development of urbanism.

Understanding Second Urbanisation and the Role of Early Iron Age

1) **The Marxist Approach**: The Marxists generally believe in the Asiatic Mode of Production, wherein there is an absolute ruler who holds supremacy and ownership of land and resources. He employs the general masses in activities of production and deprives them of the production by means of the regulating authority. D.D. Kosambi (1952) was the first to highlight the importance of iron technology in the process of urbanisation. But, Kosambi does not agree with the Asiatic Mode of Production concept of Marx and Engels. However, in his writings there is much reliance on the mode of production or the relations of production. He relies on these relations of production to identify the emergence of State. Thus, he has an outlook of the Marxist. Kosambi (1965) points out that Magadha was located very close to the sources like iron ore (ChhotaNagpur) and copper (Singhbhum). He was of the opinion that the conflict between the Magadha and Kosala was due to the trade and commerce. According to him, the nature of society was changing. The absolute monarch was more essential to regulate the changing occupations and also to keep a strict control and ownerships of the resources. The monarch was also responsible for forest clearance and bringing new land under agriculture. This conflict of resources led to development of states. Thus one can understand that though Kosambi does not follow the Asiatic Mode blindly, he has tried to highlight the importance of the authoritative class which controls production and thus facilitates class structure. Sharma (2007) in his writings reflects the growth of material culture as a major factor causing urban growth. He is of the opinion that the advent of iron technology facilitated the agriculture in the hard alluvium of the middle Ganga plain. It might have increased the existing rice cultivation. Sharma also points out that the Buddhist texts mention

about the increased area under rice cultivation. Apart from rice cultivation, wheat, barley, gram and such other crops came to be cultivated. The iron technology also facilitated the cutting down of trees on a large scale which cleared the forests of the Ganga valley. Sharma feels that all this created a surplus and led to the division of labour and occupations. Occupational groups engaged in lapidary, wood working, arts and crafts, smithery increased. The surplus generated could maintain the rulers, priest, artisans and traders. Sharma (2007) also feels that the use of iron increased the military strategies and warfare techniques of the warriors, thereby elevating their position. The trade increased due to increase in production. Since trade and smooth movement of trading activities was not much preferred in *Brahmanism*, Buddhism started flourishing. Wealth started getting accumulated in the hands of traders and merchants. Hence the *Kshatriyas* started collecting taxes and were regarded as the protector of fields and lands. Thus, even Sharma is trying to put forth the concept that an absolute monarchy accelerating the state formation and thus not deviating much from Kosambi. Thapar Romila (1990) in her celebrated work, 'From Lineage to State', tries to put forth the same concept of despotism. She uses textual references from the Early Vedic texts to show that the society was based more on pastoralism with cattle being the wealth and a measure of social differentiation. Such cattle wealth necessitated the ruling class to protect it and gave importance to clans which protected them. The people in turn presented the cattle to this class. The Later Vedic texts show an increasing trend towards agricultural way of life. The chief of such clans now becomes a *Raja*, who wields power over land and ultimately they start controlling the relations among people. The lineage (a group which is guided by rituals, common ancestor, and exercising ownership over the resources) is an important component which controls the mode of production. The lineage is now an extended form of the clans and they are engaged in production. These lineage groups are engaged in conflict. This may be true for the agricultural communities. The king belongs to the enlarged group of the agricultural producers of lineages. The agricultural producers or the *vish* were a group up on which the rulers thrived. But she believes that the lineage groups were constituted amongst the *vish* and some portion gained power due to common interests such as protection, expansion and maintaining social structure. She also enunciates the control on a prime aspect like irrigation which can lead to many social and economic differences.

The ideas emerging from the Marxist approach are enlightening. Kosambi actually does not follow the Asiatic Mode concept; however, he follows the idea that the basis of all social formations is the differential access to production. The need of an authority is to retain this structure and the nature of this authority may change from time to time as per the conditions. This in fact reflects the Marxist influence. These scholars have tried to put forth the importance of rulers and chiefs in the light of the production processes. There are differences among their analysis but they have not moved away from the idea of the social relations and factors of production. Yet, the research of this school has brought forth the less highlighted aspect (relations of production) about Urbanisation of Ganga valley.

2) **Concept of Surplus:** The idea of surplus has guided almost all thought processes analysing the emergence of urbanisation (Childe 1950: 3-17). Surplus was responsible for all the economic and social variations. But there is also a line of thought that such developments are inevitable and not due to the internal conflict. Such changes were due to the technological development and led to the emergence of cities and urban centres. The surplus in fact led to a synthesis of the factors like social changes, technological advancement and the authority needed.

3) **Technology leading to Urbanisation:** Though it was Kosambi who pointed towards iron technology at the outset, his approach was guided by the Marxist thought. Later Agarwal (1967-68) has highlighted the role of technology in the region of hard alluvium of Ganga valley. The ecology of Indus valley where an immense groundwater resource is available is different than Ganga valley, where dense forests were present. These forests could be cut down only with the help of iron axes and tools. Agarwal (1967-68) also believes that there is a possibility that the people might have inherited the technological base from the OCP people. Thus Agarwal thinks that the deforestation helped agriculture and facilitated surplus output. But forest clearance in Ganga valley is almost a myth now (Makkan lal 1986). Tripathi (2001) supports the view that economic development was due to the technological development. The use of iron during PGW phase was limited. It was used for making hunting weapons and also warfare weapons. But by the Mauryan-Sunga period, the warfare objects were specialised ones like armour, shields, helmets and swords. Even in the case of agricultural tools, the simple hoes and sickles of the PGW period continued, but the

ploughshares were also introduced. The domestic tools also increased during the NBPW phase which were found in the PGW phase in a small quantity. Thus she feels that the technological base for the NBPW was prepared by the PGW period. Tripathi (2001) feels that technology is the true accelerator for all social and economic development. She argues that it was only iron technology which has helped to increase production by many a fold. Iron was used to increase agricultural output and only technological progress could influence the craft expertise and production. Only then an economy progresses. And only then such an economy tends for political aspirations. The polity controls the technology, but initially the society should have such a technological know-how. Craft production centres do not become cities; in fact they prepare the background for the growth of cities. The technological know-how influences the settlements away from the rivers by artificial irrigation. Sahi (1987: 29-35) in his paper points out that the cultivation of wheat required irrigation as well as tilling the land 4-5 times. This was possible due to iron hoes and ploughshares. The axes were used to bring new land under cultivation. Though crops of the earlier period continued later, it was the use of iron which facilitated their increased production. Thus the strong base for an agrarian economy was prepared and was it possible due to the use of iron (Sahi 1987: 29-35). In fact technology itself necessitates the need for a better organisation and security from the political point of view. Thus the chiefs start becoming powerful. Thus iron technology itself was a social product according to Tripathi (2001) and it further made social relations complex.

4) **Social and Political Process:** There are certain scholars who have pointed out that the surplus was not a technical product (Ray 1978, 2006, Ghosh 1973, Makkhan Lal 1984, 1986, Erdosy 1988, Chakrabarti 1992). Ghosh (1973) suggests that political authority is the most important factor in economic and social stratification. He suggests that a farmer may not produce a surplus out of his own needs. It is the authority which can compel him to do so and part with a part of his share for some other people. Thus even if surplus is essentially required for social stratification, it may not appear at the time when the capacity to produce it may be there. He agrees that the social stratification can culminate in a state. But to form such social classes, a coercive authority is necessary. Hence wherever the use of iron for increasing production was controlled through an authority, there was the growth of urbanism. Chakrabarti (1992) is of the opinion that the use of iron did not bring any such change

in agriculture. It might have influenced agriculture, but its presence did not create a stir in the social life. He thinks that if the use of iron became abundant only during the NBPW phase; the role of polity and social classes was much more important leading to urbanism than that of technology. He feels that iron technology no doubt brought about many social and economic changes but, it was the political authority which ushered urban phase. Ray (2006) also feels that iron technology brought in many changes but its real effect in the social realm could be felt only by the Magadhan expansion. Thus it is again influenced by the social and political ideology. Lal (1984, 1986, 1988) has explained in detail as to how the Doab region might have been colonised by the PGW phase. There were reported 99 sites of the PGW phase separated by a distance of 9-10 km. These sites were ranging in size from less than 2 hectares, 2-4 hectares and some sites well above 4 hectares. Similarly Erdosy (1988) has surveyed the Allahabad region. He found that maximum sites were on the river bank and they were mostly agricultural. But sites in an ephemeral zone like Kausambi, Jakhera became centres. This may be because they were located on the boundary of two ecological zones. This suggests the agricultural colonisation and the land required for sustaining such site was available around the river banks. There was not much need of an iron ploughshare to till this soil. Hence he believes that certain social, economic and political factors which were operating for many centuries culminated to give rise to the need of surplus and its circulation. This itself suggests the importance of political authority in urbanism.

5) **South India:** The scholars have tried to understand the role of megalithic culture in development of urbanism. Especially Gurukkal (1981, 1989: 159-176) and Rajan (1994) have discussed about the various areas of interaction. Rajan's (1994) work in Tamilnadu has helped to trace the development and continuity in the Early Historic period. The excavations at Brahmagiri (Wheeler 1948: 180-310) and Watgal (Devraj *etal*. 1995) have already established the cultural development in the Early Historic phase in that region. Gururraj Rao (1972), Moorti (1994) have contributed a great deal to the understanding of the social and economic life of the Early Iron Age/ Megalithic culture of India. Moorti (1994) has assigned a status of a rank-based society to the culture. All this suggests that kin groups had emerged in the later state. But the role of external factors such as Magadhan invasion, the contacts with the North also were considered important for the cultural growth.

Observations

The review of the Early Iron Age in India and the theoretical approaches to understand the development towards the State shows that there have been different ways to trace this cultural development. The cultural development towards a well developed state is difficult in true sense since each region will reveal a different story about the process.

In the first instance, it should be kept in mind that at many places both in the North at sites like Bhagwanpura, Ataranjikhera, Ahihchhatra and Hastinapur (OCP-BRW-PGW-NBPW) and in the South at sites like Brahmagiri, Veerapuram, Kodumanal, Adichannallur, Nagarjunakonda, Yelleswaram (NEO-MEG- EH) have given evidences of continuous cultural sequence.

Then it is known from the evidence revealed from the excavations at PGW sites as well as the Megalithic sites of South India, that expertise was achieved in iron technology. There are evidences of iron smelting, iron objects used for crafts, agriculture and mostly warfare. The use of iron bits and stirrups also suggest the multiple uses of horses. The role of iron in this surplus generation was much more than any other factor. The technology was much advanced since they had achieved almost steeling by the process of carburization (Gogte *etal*. 1984, Deshpande *etal*. 2010). This suggests the importance given to the technology and its use in economic and social life of the people.

The settlements from this period have not revealed huge structural evidence but there is public architecture found in excavations whereas the evidence of megalith building also suggests the investment of labour and resources.

The people mostly subsisted on agricultural produce; however, probably pastoral population formed a major portion of this community. Agriculture was facilitated by rivers in the Ganga plains, whereas in south India the rivers as well as tanks and lakes were used.

There existed a craftsmen group which was specialised in varied crafts such as smithery, lapidary, wood-work, oil-crushing, domestic constructions and also trade and exchange to smaller extent.

There did exist some authority in the form of chiefs. It can also be witnessed from the literary references to chieftainship in the later Vedic texts (Thapar 1990). The epics like Mahabharata also refer to the period when such political authorities were getting institutionalised. Hence it can be said that the period of Early Iron Age was the true precursor to the political states of Early Historical period.

It can be said that the period was marked by a change in the economic and technological fields of life. Such changes had led to social changes and can be seen in the form of the participation of classes in sacrifices such as *Rajasuya and Asvamedha*. The concept of the twelve *ratnins* which comprised these classes also suggests the intensification of social process. Such processes were based on social changes brought about by iron. Thus use of iron in fact created a surplus which was a social product and not only technical. The use of technology was in fact more important for this social process but the technology was probably appropriated and controlled by the elite class. This can be said since the non-domestic tools surpass the domestic tools everywhere. As Chakrabarti (1992) suggests, iron did not create a spur in the scenario but it did bring such social changes, it can be said with conformation that the technology helped in proliferation of settlements, the varied use of resources for production and also helped to strengthen the social structure. Thus Chakrabarti is not totally incorrect but it has to be said that iron technology was a major factor in creating a social and political class change which culminated in the form of cities and states. The concept of absolute monarch to control such factors of production and distribution also might have taken root. But whether such chieftainship was deliberate or an outcome of the social system cannot be said with conformity. The need of such a chief was to control over the various social processes, generate and concentrate the surplus for social and economic needs. The interaction and exchange between various natural zones in Tamilnadu also suggests the same (Gurukkal 1989: 159-176). There are early inscriptions (dating to the 3rd cent BC) near Madurai mentioning the various merchant groups such as those trading salt, gold, iron, ploughshare, textile and toddy. The sangam texts suggest various types of subsistence in different physiographic

zones. Populations practised hunting, fishing, cattle plundering, stock raising and plough agriculture. All this suggests that along with primitive methods such as hunting, fishing there was agriculture, animal husbandry and commodity production. Rajan (1994) worked extensively in Kongu region where similar interaction can be seen between cattle pastorals and hunting communities. Rajan has also found many evidences of short *Tamil Brahmi* inscriptions indicating the complexity in the community. Commodities such as metals and pottery were more important. This production is testified by the material from burials and suggests production and exchange. This production was guided by hereditary kinship ties and even in this agricultural production dominated due to kinship ties. There was exchange and redistribution in this kinship groups and sometimes managed and maintained by local chieftains. Thus a semi-complex system is seen even in south India (Gurukkal 1989: 159-176).

Thus the political and social processes go hand in hand with the concept of surplus and crafts specialisation. As discussed above in the context of Early Iron Age in India, there were these various processes which helped in the development of complex societies and urbanisation.

Around the same time Vidarbha was experiencing a well flourished Iron Age. It later culminated in the formation of state and urban centres. Whether any such processes were preparing a prelude to the State or not is the major focus of the present work. Therefore it is essential to first take a review of the research carried out in the Early Iron Age period of Vidarbha.

Early Iron Age in Vidarbha

Vidarbha is the name given traditionally to the region comprising of most parts in central part of India. The region is famous in ancient Indian history and is well known through various literary texts especially the Mahabharata (for details see Sawant 2006). This region is also known for its rich mineral deposits and good agricultural production which has made the region as one of the most prosperous regions of Maharashtra. On the archaeological map Vidarbha is well known for its widespread

Megalithic/ Early Iron Age culture. The region is also well known due to the Early Historic rulers like the Satavahanas and the Vakatakas. It was in fact the major activity zone of the Vakatakas who ruled during 3rd-6th cent AD. Thus it can be easily deduced that the region of Vidarbha was under human occupation from the end of second millennium BC till today. This complete social and cultural development was only possible through the initial seeds that were sown during the earliest agro-pastorals of the region. Since very meagre data has seen the light of the day on the Chalcolithic (IAR 1988-1989: 51, Nath 1989, 1992) culture of the region it is not biased to consider the Early Iron Age/ Megalithic people as the earliest agro-pastorals of the region.

Introduction to Early Iron Age/ Megalithic Culture in Vidarbha

Use of such loose abundant stone started on a wider scale only in the Early Iron Age period of the peninsular India to commemorate the dead. These may extend to the Early Historic period in the extreme southern tip of the Indian peninsula (Mohanty and Selvakumar 2002). There is also a known fact through various researches carried out that there are sites which may yield the cultural material of the megalithic culture but may not yield burials. Yet they are called megalithic due to their cultural affiliation. Though this may not be a common practice and some may also refer them as only Early Iron Age sites. Yet they are all part of a contemporary and a common culture within a given region though there may difference in the record available (Mohanty and Joshi 1996; Mohanty and Selvakumar 2002). This short discussion about the terminology has been done here only to avoid confusion which may arise when one reads through this dissertation. The term Early Iron Age and Megalithic culture have been used here substituting each other wherever it is facilitating.

Researches began in the peninsular region as mentioned earlier. Such work also started around the same time in Vidarbha by Rev. Stephen Hislop and the research though incipient was not guided by the interest in antiquity hoarding and adventure (Sawant 2010; Thakuria *et al*. 2012). The real impetus however came after the investigation at Brahmagiri and Chandravalli (Krishna 1931, 1941; Wheeler 1948: 180-310). The megalithic monuments were later searched, documented and classified (Krishnaswami 1949; Sharma Y.D. 1956). The excavations, surveys and documentation work done later has helped to pile up an immense data about the burial

architecture, typology and the sites associated with them (Dikshit 1969; Leshnik 1974; Sundara 1979; Agrawal 1982; Allchins 1983; Moorti 1994; Rao K.P. 1988, Mohanty and Selva 2002). Moorti (1994) has given a very detailed yet lucid classification (Moorti 1994: 2). Among all the types only the stone circle with cairn filling which is a part of pit burials is extensive in Vidarbha. There are sporadic references however to other types such as dolmens and menhirs (Mohanty and Selvakumar 2002; Thakuria 2010; Sontakke 2011, 2012, 2013; Pawar 2012). The dates of the Early Iron Age go back 1200 BC (Nath quoted in Tewari 2003) whereas the younger dates range near 400 BC (Deo 1998).

The Beginning of Megalithic/ Early Iron Age Research in Vidarbha

Research on the Vidarbha megaliths began with the finding of the stone circles by Rev. Stephen Hislop at a place called Takalghat and Khapa almost 25km south east of Nagpur on Hinganghat road. He excavated a few barrows in 1849 (Hislop 1857: 671-672) and later he was recalled as an expert when the site was again re-excavated by Captain H. Mackenzie in 1863. However while returning from the site, he met an accident and died on the spot. Recently his work was highlighted (Sawant 2010, Thakuria *et al*.2012) to show that he was not a mere antiquarian but a person who was really interested in understanding the cultural dynamics of these megalith builders. His observations have been recorded by his biographer (Smith 1888):

1. The large number of circles and tumuli suggests a large of number of population.
2. The dead were either burned and then buried or buried directly.
3. They used iron since a pan/cauldron and spear head were found along with flint arrows and pottery.
4. They were migratory in nature yet a major part of the population resided at a certain place for a considerable period of time since many burials are found.
5. At some instances there were multiple burials within the same burial.
6. They were worshippers of some spirits or elements or some sacred grooves.

This observations show us his outlook towards their culture which cannot be called as antiquarian. He however called these as Druidical burials based on the studies carried out in Europe.

Rivett Carnac surveyed the site of Junapani and was impressed by the huge number of burials over there. He excavated the site of Junapani and published a report (Carnac 1879). Carnac writes about the burial types, gives their sketches and also prepared a

site map. He documented the cup marks. In the excavation were found iron tools, pottery as grave goods. According to Carnac, “

1) Shapes of tumuli in India and Europe are the same
2) Barrows are always South facing as they are in Europe.
3) The remains in the burial are similar to those found in European counterparts.
4) The Cup marks are similar to the European counterparts.”

Carnac was more inclined to assign the authorship of these barrows to the same people who were responsible for their erection in Europe. The European megaliths were generally assigned to Celtic- Druidic people.

Major Pearse was an officer in the British Army. He excavated a stone circle at Kamptee (Kamthi) in 1869 (Pearse 1869). He has given excellent and long lasting observations. In short they have been enlisted below.

The megalithic people were, “

1. Pre 330 B.C. and they can go back up to 1200 B.C.
2. Neither Buddhist nor Hindus.
3. Civilized
4. Tall and Strong
5. Numerous in number
6. Makers best of steel
7. Agriculturalist
8. Eating food like wheat cakes and fried food.
9. Users of oil
10. Possessing goldsmiths and horses.
11. Drove chariots or carriages
12. Users of Potter’s wheel
13. Gave fair representation of animal and birds
14. Copper smelters
15. Traders of various items (cocoanut)
16. Makers of systematic burials.”

All these observations show that Pearse had a reasonably good understanding of the culture. His observations though at a very initial stage are much relevant till today.

Carey (1871) explored and reported the site of Khairwada for the first time. It is a very extensive site known for its burials more than 1600 in number and also an

extensive habitation of more than 5ha in size. The interest continued; Hunter (1933) explored the stone circles of Mahurjhari. He feels that since not many stone circles were excavated properly and scientifically archaeologists should start studying them before they get destroyed by various human activities. He also has recorded the cup marks on these burials which according to him were sacrificial tokens and religious in nature. Along with this he has also recorded that the burials especially Dolmens (Pimpalgaon) are associated with the Telis and Dimaris.

After an overview of the early colonial workers in Vidarbha it is clear that they have shed a comprehensive light on the megalithic culture though their work was in an incipient stage. Their research about the burial practices brings to the notice of the researcher that:

1) These colonial researchers though impressed by the antiquarian values were scientific in their approach.
2) They had a deep influence of the religious approach towards mortuary practices which was later conceptualized by Durkheim.
3) They compared the burial traditions with those found in European countries which show that the diffusionist approach was dominating their research.
4) They however were also interested in understanding the technology, subsistence and culture in general. For this they also resorted to ethnography. Pearse observes the continual use of bird motifs on Indian lamps and utensil lids which he found on the copper lids. He also tried to understand whether they were agriculturist, traders on the basis of the evidence of ploughs found and the find of cocoanuts which are not locally produced.
5) Almost all of the writers were concerned about the nature of sedentism which these people might have achieved. They discuss about the group size, occupational pattern which might have shaped the economy and society.
6) They also discuss about the religious beliefs of the megalithic people.
7) Pearse is also credited with giving a very close date of 1200 BC to this culture. He argues with help of the known historical dates like invasion of Alexander, date of Buddha.
8) Pearse was also aware of their technological advancement since he records the steeling achieved in ploughshares and also the good quality of bronzes. He was thus not only interested in the artefacts and cultural material but also in the cultural attainment of the people.

In the post independence period research had began on the same lines of cultural history paradigm since it was dominating the then researcher's mind. However, the approach to know the dark periods and the chrono-cultural approach was adopted in Indian archaeology due to the leadership of Sir Wheeler (Wheeler 1946). The same can be seen in Vidarbha where early excavations at Junapani (IAR 1961-62: 32-34) and Kaundinyapur (Dikshit 1968) were directed towards the same goal. At Kaundinyapur, Dikshit was the first excavator to identify a distinct cultural deposit of the megalithic period. He did it on the basis of etched carnelian beads and the Micaceous red ware found in the lowermost layer of the excavated trench. He leniently ascribed it a date of 2000 BC. Around the same time Paunar was excavated (Deo *et.al* 1968) in Wardha district. Over here too the excavators found a distinct layer yielding painted pottery and black and red ware which could be related to the megalithic phase. They dated this phase to around 1000 BC since the next phase yielded iron and the antiquity of iron was believed to be around 800 BC in those days. But these excavations helped to fix a chronological and stratigraphical position for the culture in Vidarbha. This excavation also encouraged further work and Deo excavated the site of Takalghat and Khapa (Deo 1970a). Deo thinks that the studies in megalithic culture till that period have led only to understand typology and also the advanced iron technology. However, the burials form an important constituent since they are monumental in form, rich in content and have a living tradition (Deo 1970a: 1). He writes that this excavation was undertaken since the ceramics from the burials and the habitation were similar and also to confirm whether the earliest phase at Kaundinyapur, the stone circles of Junapani and the earliest phase at Paunar which show affinity with each other have the same cultural relation with the cultural material at Takalghat and Khapa or not. This excavation was also helpful to know the earliest cultural substratum of the region and to know the indigenous cultural growth. Soon Deo continued to investigate the megalithic culture of the region by a series of excavations which contributed to the better understanding of the culture. He excavated the sites of Mahurjhari (Deo 1973b, IAR 1978-79: 71), Naikund (Deo and Jamkhedkar 1982), Borgaon (IAR 1980-81: 40), Khairwada (IAR 1981-82: 51-52), Bhagimohari (IAR 1982-83: 61-62, 1983-84: 57-58, 1984-85) and Raipur (IAR 1984-85: 53-55). Raipur was also later excavated by Deglurkar and Lad (1992). They also excavated Bhagimohari for a second time (Deglurkar and Lad: unpublished field

notes, Deccan College). A brief discussion of the finds is necessary to see how much it can contribute to the present research.

Junapani: Carnac excavated Junapani, basically known for burials, in 1867 (Carnac 1869). His excavations yielded iron tools including axes with cross fasteners. Later it was excavated by ASI (IAR 1961-62: 32-34). The excavation similarly yielded iron objects such as axes, spear, lance, chisel, ladle, copper bells and also equine remains along with human skeletal remains.

Kaundinyapur: It is located on the right bank of the river Wardha and a well known place mentioned in the Mahabharata. It is a settlement site. It was excavated by M.G. Dikshit, the then Director of Maharashtra State Department of Archaeology and Museums (Dikshit 1968). The earliest substratum was assigned to megalithic folk on the basis of the occurrence of megalithic ceramics and also etched carnelian beads.

Takalghat and Khapa: It is located on the Hinganghat road 32 km towards south-west of Nagpur. It is located on the banks of river Krishna. It was first noticed and excavated by Hislop (Hislop 1857: 671-72, Smith 1888, Sawant 2010, Thakuria et al. 2012). Later it was subjugated to excavations by Deo (1970a). A rich megalithic burial and habitation was tapped. The habitation had three distinct phases by the excavator. The phases only indicate some changes in habitational architecture. The excavation yielded pottery and cultural material which is akin to those found in the burials from Khapa. Pottery included micaceous red ware, black and red ware, black burnished ware and painted black on red ware. The ceramic evidence established the relationship of this period with the earliest phase of occupation at Paunar and Kaundinyapur excavated till then. Khapa also yielded the usual iron and copper grave goods and also horse remains.

Gangapur: It is an extension of the site of Khapa. It yielded similar cultural material which was found from the burials excavated at Khapa (Deo 1970a: 56).

In between Kaundinyapur and Takalghat, Paunar was excavated by Nagpur University (Deo *et al*. 1968). The earliest phase here was dated to pre 800 BC on account of the absence of iron. The excavations at Takalghat helped to correlate this layer to the megalithic culture (Deo 1970a).

Mahurjhari: It is located 15km north-west of Nagpur city on the Nagpur-Katol road. Mahurjhari was excavated by Deo (IAR 1970-71: 24-25, 1971-72: 33-35, Deo 1973b) for two seasons initially and again for one season in 1978-79 (IAR 1978-79: 71). Initially 15 stone circles were excavated and later 11 circles were excavated. Mahurjhari yielded the richest grave goods in comparison to other megalithic burial sites. It was again re-excavated in 2000-04 by Mohanty (Mohanty 2002, 2003 a&b, 2004, 2005a and b: 106-107, 2006, 2008). It gave a new dimension since a new habitation which was alluding, was discovered near an ancient *nalla* and one km south-east of the early historic habitation. The excavation in habitation yielded evidence of habitation and floors along with hearths. There was mud plaster over bamboo and there were probably wattle and daub house structures found. Along with these three more burials were excavated. They yielded artefacts of common occurrence from the burials. However one tripod of copper with animal motifs was found in one of the burials and peripheral burials like those unearthed at Dhamnalinga (IAR 2000-01: 97-107, Ismail 2006) were also found (Mohanty 2005b: 106-107). But they differ from Dhamna since they are not peripheral or subsidiary to the main burial. They are in fact spread in the cemetery area and represent a different behaviour.

Naikund: Naikund is located on the left bank of the River Pench which is tributary of the Kanhan. It is 42kms to the north-east of Nagpur city. It was excavated jointly by Deccan college, Pune and Maharashtra State Department of Archaeology and Museums for two seasons in 1977-78 and 1980 (Deo and Jamkhedkar 1982). The habitation site is surrounded by stone circles. Six burials were excavated which yielded the similar type of grave goods yielded at Khapa and other sites. In the habitation were found house floors with lime plastering and mostly circular in shape unlike Takalghat where rectangular house plans were also found. The rewarding discovery at this site was however the iron smelting furnace which was found during excavation (Gogte 1982a, 1982b, 1983, 1984). Iron produced at this site seems to have travelled to other sites (Gogte 1982a, 1982b, 1983, 1984). This was the first megalithic site where some of the current scientific techniques were employed and results were arrived there on. Evidence of grains (Kajale 1982) and animal bones

(Badam 1982) suggests the agricultural and animal husbandry practices. It gives an idea of the presence of village life associated with burials.

Borgaon: It was excavated by Deccan College and Maharshtra State Department of Archaeology and Museums (IAR 1980-81: 40). It is 42km away to the north-east of Nagpur city. There have been 48 stone circles located and five were excavated. All were stone circle type. However in one of the stone circles a trough cut out of a huge boulder was found in the centre. Burial furniture is not much different than the burials from Vidarbha region, including iron tools, copper lid and bangles, gold earrings and beads.

Khairwada: It is located in Arvi taluka of Wardha district on the left bank of the river Dham, a tributary of Wardha. As mentioned above, it was first noticed and excavated by J.J. Carrey, an executive engineer in 1869 (Carrey 1871). It yielded ladle, axe and copper bells and earrings. Also horse teeth were found (Carrey 1871). It was excavated jointly again by Deccan college, Pune and Maharashtra State Department of Archaeology and Museums in 1981-82 (IAR 1981-82: 51-52). The habitation covers an area of 13 hectares and there are around 1760 burials reported from here. The habitation has been divided in three phases, the megalithic, the early historic and the medieval. Layer 4 at the site is termed as a transition from the megalithic to the early historic (Satavahanas) by the excavator. This is on the basis of the appearance of the thick black and red ware with shapes resembling those from Paunar, Nevasa and Nashik. Thus it is suggested that the site gives evidence of the contacts between the megalithic and the early historic people. New type of burial architecture within the stone circle was noticed where loose pebble filling without clay and sometimes with clay was the practice. The excavated burials yielded the similar cultural material of the megalithic burials.

Bhagimohari: It is located in Saoner taluka about 45 km from Nagpur city towards its north-west on the left bank of river Kolar. It was excavated for two seasons in 1982-83 and 1983-84 by Deccan College, Pune and Maharashtra State Department of Archaeology and Museums. It was re-excavated in 190-93 by Deccan College, Pune (Deglurkar and Lad: unpublished field notes). Bhagimohari was known for only 70 burials (IAR 1982-83: 61-62; 1983-84: 57-58, Thakuria 2010: 39). However the site

has almost 330 burials and all were well documented by Mohanty (Mohanty 2012). His intensive survey brought out to the notice of the archaeological world that within these stone circles there exist ten varieties or subtypes of burials (Mohanty 1993, 2012). Bhagimohari is an extensive habitation site with three mounds of which two belong to the megalithic period. The excavation in the habitation yielded several floor levels made of clay and plastered with lime. Houses were circular in plan with diameter ranging between 3.25 to 8.80m. There were circular post-holes found and within the houses were found clay semi-circular hearths. Three circular clay bins laid against a clay wall destroyed by fire was found. This suggests grain storage measures. The site yielded good evidence for agricultural practices of the megalithic people (Kajale 1989). The evidence of rice, barley and many such crops suggested good agricultural base for the community. The burials also yielded regular iron, copper objects along with semiprecious stone beads. Remains of horse in the form of teeth and also horse bits were recovered from the burials. The animal bones suggest the dominance of cattle along with other domestic animals such as pigs, buffalo and sheep-goat (Thomas 1993). In the later excavation remains of the early historic period were also found on the mound three but which is not well reported.

Raipur: It is 15 km south-west of Nagpur, on the Nagpur-Hingna road. More than 200 megalithic burials were recorded at the site. It was excavated by Deccan College, Pune in 1985 (IAR 1984-85: 48-50) and again in 1988-90 (Deglurkar and Lad 1992). Eight circles were excavated from the site. There were internal architectural features recorded within the burial. One burial yielded two central cists within whereas in another two burials there was a chamber of undressed stone. Along with the regular repertoire of iron, copper objects three burials also yielded horse remains and horse ornaments.

Similarly Arni (IAR 1978-79: 71-72, 1984-85: 47) in Yavatmal district and Tharsa (IAR 1985-86: 58-60) from Nagpur district also yielded remains from megalithic to the medieval periods. At Tharsa was also found an urn burial in the settlement similar to the Deccan Chalcolithic culture. According to the excavator at Tharsa there is a chalcolithic-megalithic culture where there is red slipped ware with white paintings.

Adam: Adam is located on the bank of the river Waghor a tributary of the Wainganga and is in the Kuhi taluka of Nagpur. It was excavated by the excavation branch of the ASI for four seasons (IAR 1988-89: 50-62; 1990-91: 45-50; 1991-92: 63-68, Nath 1992). The site yielded a cultural sequence beginning from the microlithic to the medieval periods. Period III is of the Iron Age and yields megalithic pottery types and iron artefacts. The site has also given a cal C14 date of 1225 BC (Nath quoted in Tewari 2003) for the Iron Age. The site is very important since it is fortified during the early historic period construction of which might have begun in the EI period. It yields evidence of coinage from Mauryan levels.

Dhamna-Linga: This site is situated on the southern banks of the Vena reservoir on Nagpur- Amravati road. It was excavated by Nagpur University (IAR 2000-01: 97-107). Out of the 50 burials located, 12 were excavated. The excavation was important since it was planned to know burial architecture in details and it gave a few associated burials which can be termed as peripheral boulders. The important find was sarcophagi of oval shape with post cremated bones of children in them and lids to cover them. An ear-stud of glass was also found in one of the sarcophagi. Peripheral burials had only a filling of yellow murrum and pebble capping to demarcate them.

Dhavalameti: It is located within the premises of the Ambajhari Ordanance factory on Amravati road. Only one burial out of 14 was excavated (Ismail 2006). It yielded new evidence of burial architecture. The outer circle had boulders supported by small rubble and cobbles. The inner circle was built of multiple courses of rubble and had an east-west oriented rubble structure inside. It yielded along with regular grave goods, horse ornaments and fragments of human skeletal remains.

Pachkheri: It is located about 60 kms south-east of Nagpur and was reported while explorations were conducted around Adam by the excavation branch of Nagpur of the Archaeological Survey of India (IAR 1988-89: 50-62, 1989-90: 61-65, 1990-91: 45-50, 1991-92: 63-68). It was subsequently excavated by the ASI's excavation branch (IAR 1992-93: 64-73, Nath 2002). The site has menhirs and stone circles associated with the habitation. At the habitation a five-fold cultural sequence was found starting from Mesolithic up to the medieval period. The period 2 is assigned by the excavator to the megalithic tradition on the basis of the cultural material. Menhirs were

excavated which were erected by digging a pit to erect a stone slab. One stone circle was excavated which yielded copper bowl, iron coiled rings, fastener and pottery similar to the other sites in Vidarbha.

Bhawar: It is located on the banks of Som *nalla* in taluka Pauni of Bhandara district. It is in the left floodplains of Wainganga. It was excavated in 1992-93 (IAR 1992-93: 55-62) by the excavation branch of the ASI. Megalithic burials are located on the north of the village whereas the village itself is situated on the ancient mounds. Pauni, Adam were already excavated and this site also correlated to earliest deposits at Adam with the earliest horizon being an iron free horizon and the later period belonging to the Iron Age.

Vyahad: It is another habitation cum burial site which is located 24km away from Nagpur on the Nagpur- Amravati National highway (no.6) and not very far from the burial site of Dhamalimga. The site was initially reported as a chalcolithic and megalithic site in 1960-61 (IAR 1961-62: 101-102). It was excavated in 2005-06 for excavation by Nagpur University (Ismail 2006). There are around 100 megalithic burials at the site and a huge habitation mound with remains extending from the megalithic period up to the British period. One of the excavated burials had a central rectangular chamber and another inner circle encircling it. Burial goods such as iron and copper objects along with horse ornaments were found during the excavation. Even here peripheral burials were found.

All this contributed by bringing out a lot of data about various aspects like settlements, technology, mortuary practices, subsistence strategies, social and economic organization.

Settlement system of the Early Iron Age/ megalithic period

The settlement pattern aspect of this period has been studied in detail only by Joshi (1993). Though some observations have been made by Deo (1970b, 1982, 1985), Joshi extensively wrote on the settlement system of the period. Deo (1982, 1983) suggests that burials are on the foothills or barren undulating landscapes since it was easy for burial building and habitations were situated on river banks (Deo 1991). He also feels that eastern Vidarbha was more preferred than the western one since the

eastern one was abundant in natural resources like coal, iron ore, manganese and forest lands (Deo 1985). Joshi (1993: 80-109) however analyses the various aspects influencing settlement pattern. He divides them into three groups: a) Burial sites (B) b) Habitation sites (H) c) Habitation cum Burial (HCB) sites. At another place attempt is made to emphasis on the importance of such diversity in sites as an important aspect suggesting cultural variation (Mohanty and Joshi 1996). In his analysis about settlement pattern however he considers the third group of HCB as one unit. Joshi in his analysis tries to relate the settlements with the environment. He provides data about the already reported and excavated sites with regards to settlement pattern. According to him it can be seen that almost 35% (28) sites are located in the Deccan trap zone of Nagpur while rest are in metamorphic zone (Naikund, Bhagimohari). The regions of Nagpur, Bhandara and Chandrapur have many iron ore sources. A few of them to name are Lohara, Pimpalgaon, and Bhivapur. The region near Naikund has also rich magnetite as well as manganese. He also takes in to notice the various landforms in which the sites are located. It shows that the plain of Nagpur and the upper Wainganga are more preferred. In Nagpur plain sites are not more than 5km away from each other. Upper Wainganga is an agricultural zone with alluvium deposit. However sites like Bhagimohari, Khairwada and Kaundinyapur are located in Arvi upland whereas Naikund is located in Ramtek upland. But the sites are close to the alluvium zone even in these regions. Except Takalghat and Khapa all other sites are located in the topography of 300-450 AMSL. The area of rainfall of about 1000-1200 mm is more preferred. The soil zone of deep black soil is more preferred for its use in burial rituals but alluvium is more favoured where there are only habitation sites. Piedmont and table lands are more favourite for burials. The region of dry deciduous forests is more preferred except Khairwada where there is a thick deciduous forest. Thus Wainganga system was more preferred by the people.

Joshi feels that the Nagpur plain being more favourable was more used and the Wainganga plain, Arvi- Ramtek uplands were moderately favourable. This shows that settlement was influenced by river valleys and iron ore. Joshi opines that the Megalithic/ Iron Age people were dispersed over the landscape for agro-pastoral purposes. They are not nucleated which is needed for defence and to meet the scarcity purposes. Joshi thinks that the community comprised of both the sedentary people and also of those pastoral and nomads. He says this because he points towards the three

groups of sites. He also indicates towards the evidence of agriculture coming from sites, iron smelting, mounds indicating continuous habitation and a series of C14 dates suggests sedentary lifestyle. He thinks they were also mobile due to many pure burial sites and also increased use of horses in burials. Along with that there are two factors namely lack of many habitations and their contemporanity with burials. These had led Allchins call them pastoral (Allchins 1983) and Leshnik (1974) calls them nomads. Deo (1985), Thomas (1992) calls them mobile pastorals and agro-pastorals whereas Walimbe (1992) thinks they are completely wanderers, hunter- gatherers. Joshi thinks that the Megalithic/ Iron Age people were having a dual cultural system where many people were mobile and remaining were sedentary. But he elucidates that this also shows a severe land bond among them. This same idea was elaborated and the importance of agricultural settlements was suggested by Mohanty and Joshi (1996).

Thus the analysis carried out by until date by various scholars suggests that the settlement pattern of these people was certainly influenced by resources. But Joshi does not specifically highlight the importance of any particular resource which might have influenced the settlement system. This in itself suggests that many types and varieties of resources were important. This is also an indication of a subsistence which is not only based on primary occupations.

Excavations at settlements like Takalghat (Deo 1970a), Naikund (Deo and Jamkhedkar 1982), Bhagimohari (IAR 1982-83: 61-62, IAR 1983-84: 57-58), Mahurjhari (Mohanty 2005: 106-107), Adam (IAR 1988-89: 58-60) have yielded many evidence about the structural activity of the period. The structures were mostly domestic in nature. Structures were both rectangular (Takalghat) and circular (Naikund) in shape. They were manufactured by using mud and rubble. At Mahurjhari chips of stones were used in paving the structures. The floors were plastered with lime and probably cow dung. The structures were wattle and daub in nature. But at Takalghat, Deo has noticed post-holes which could support a light roof above. He opines that the structures were firm in the earlier phase.

Technological

Studies in Megalithic technology have been carried out in various aspects so far such as ceramics, metallurgy, beads and transport techniques.

i) **Ceramics**: The whole repertoire of ceramics in Vidarbha is wheel made and kiln fired (Deo 1983: 75). The ceramics mainly include Black and Red ware (BRW), Black Burnished ware (BBW), Micaceous Red ware (MRW) and red ware (RW) painted on exterior. Megalithic Black and Red ware differs from the one found in chalcolithic cultures of earlier date. It differs because it has a glossy polished surface and thin sections. However it continues the tradition of black interior and black colour extending up to the rim and neck and the exterior body is red. Majumdar (1969) thinks that this double colour is achieved through double firing and the location of the pot in the kiln does not matter. Gogte (1992), Singh (1982) however thinks they were fired in inverted way thus oxidising the exterior and reducing the interior and there is no crucial role of the raw material as such. Major shapes among BRW are bowls with convex, straight or incurved sides having rimless or bulbous or beaked rims, dishes with convex and flaring sides and globular pots with bulbous body and funnel mouth. The black burnished ware does not differ much in fabric, texture, firing and shapes than the black and red ware. Plenderleith (quoted in Deo 1973a) thinks that the black polish on pottery is due to colouring clay in the form of an alkaline slip. Hodges (1964: 31) is of the opinion that burnishing was done by rubbing with a smooth round faced tool or water worn pebbles or bones or leather. This seems quite applicable to megalithic black and red ware and black burnished ware. Micaceous red ware is abundantly found in megalithic habitations and burials. It is thick in section, coarse in fabric and under- fired with a blackish core. It has profuse use of sand, hay and mica. The presence of mica in section and the exterior surface gives it a glittering look (Deo and Jamkhedkar 1982). Deo (1973b) thinks that the use of mica was for ritual purposes.

There is also Mica Slipped Red ware (MSRW) and it differs since it does not have mica in its sections. Among red ware with paintings on exterior there have been noticed four fabrics (Deo 1970a): a) thick fabric, gritty core, matt red slip externally or sometimes dull red exterior b) thinner than the earlier one but bright red burnished externally, c) burnished both sides otherwise similar to type a, d) having a medium thick section. Gogte (1992), Gogte and Kshirsagar (1992) have carried out studies on pottery such as XRD and chemical analysis. The XRD has helped to find out three groups within the burial pottery from Raipur which has led them to believe that either some people were socially and economically different or geographically from

different region. They also have said that probably some burials were contemporaneous and others might be later or earlier. Thus they have tried to highlight the cultural contacts of the megalithic communities.

ii) **Metallurgy**: They were makers of finest quality of bronze and steel and it was first noticed by Pearse (1869). Copper metallurgy was much advanced than the Chalcolithic cultures (Deo 1983). Artefacts include domestic utility objects such as bowls, lids, dishes, basins and finials having bud, bird and geese motif and ornaments such as bangles, rings, necklaces and horse ornaments. Horse ornaments are zenith of craftsmanship since the riveting is done by iron pins and it is of different type. There are pendants of various types and have been described earlier (Deglurkar and Lad 1992). Copper bangles were mixed with tin and zinc. Tin is found in Khapa (Deo 1970a) and zinc at Mahurjhari (Deo 1973b). Khapa copper has hence been termed as bronze. Casting by either open or piece moulds or lost wax techniques was probably the way of manufacture (Joshi 1993). Bangles were probably casted and then hammered against a tapering rod (Hodge 1964: 74) (Joshi 1993). Ornaments were joined by welding. Horse ornaments were sewn on a leather base probably to be mounted on the face of the horse. Engravings were done on such ornaments by various engravers.

Iron technology was very well advanced and it is evident in the finds. Iron was smelted which is a very complicated process which requires generating a temperature of around 1200 degrees to smelt iron out of its ore. This was achieved and such an iron smelting furnace has been found during the excavation at Naikund. The furnace is about 25 cm and having a diameter of 30 cm. The walls were made of clay and even two tuyeres were found. The evidence there suggests that 3-4 kilograms of iron could be smelted out of 10-12 kilograms of iron ore (Gogte 1982a and b). Iron was free from impurities and had almost 98% iron in it (Gogte 1982b). At sites this percentage went up to 93% (Gogte 1984). Yet it showed that iron was much pure in its content. Artefacts such as agricultural tools (hoes, sickles, ploughshares), craftsmen tools (chisels, adzes, nail parers, axes), offensive tools (spikes, spears, lances, daggers, swords, arrowheads, battle axes) all suggest the varied use of iron technology in everyday community life. These tools suggested status, specialised use and some suggested only domestic utility (Joshi 1993). He thinks in this way since

mostly these artefacts are associated with the burials as mortuary offerings. Gogte (1984) feels that these were all produced at Naikund and then transported or exchanged with other sites. The steeling of iron was achieved by these people (Gogte 1984, Deshpande *etal*. 2010). This suggests the multifarious utility of the iron artefacts. Along with these there was an advanced technology of manufacturing gold objects. Spiral rings, gold leaves and small pieces were recovered from burials.

iii) **Beads**: They were made out of semiprecious stones such as carnelian, jasper, chalcedony and terracotta and formed a part of burial goods. The etched carnelian beads having affinity to Megalithic culture of South India are found at Kaundinyapur (Dikshit 1968), Mahurjhari (Deo 1973b, Mohanty 1999: 59-69, 2008: 459-476) and also other sites. Beads of megalithic period are however studied in detail and it has been opined that beads were exotic items and not used by commoners. They were also probably not manufactured by the megalithic folk and were procured from outside for their ritual fulfilment or status symbol (Mohanty 1999:59-69, Thakuria 2010).

Subsistence Strategies of the Vidarbha Megalithic Culture

The excavations carried out have led to a better understanding of the subsistence strategies of the Vidarbha megalithic culture. Various scholars have written at length about the subsistence strategies (Deo 1982, 1985; Walimbe 1988; Kajale 1982, 1989; Thomas 1992a and b, 1993; Joshi 1993; Moorti 1994; Mohanty and Selvakumar 2002; Vaidya and Goyal 2008, 2012; Thakuria 2010). Deo opined a semi-nomadic base for Vidarbha Megaliths (Deo 1985). McIntosh (1982) suggests a gradual shift from a semi-nomadic economy to sedentary economy from early to later Iron Age phase. In Vidarbha there was a mixed economy of stock farming, hunting and exploitation of aquatic resources according to Thomas (1992b). This economy was however dominated by cattle. Kajale (1989) on the basis of archaeo-botanical remains asserts that the people were practicing double cropping and hence might be sedentary and settled at a place around the year. Dental pathological studies at Mahurjhari (Rao 1973; Lukacs 1981), Naikund (Badam 1982), Takalghat and Khapa (Rao 1970) and Raipur (Walimbe 1988, 1992) have revealed considerable information about diseases and dietary patterns.

Turner (1979: 619-636) gives the mean percentage of carious teeth which is 10.43% for agriculturists, 1.3% for hunter-gatherers and 4.84% for a mixed group depending upon both. Lukacs (1981: 234) suggests a mixed economy on the basis of 7.7% (n=196) carries on the teeth at Mahurjhari. The low proportion of masticatory stress on dentation suggests abundance of soft food. Thus a diet high in carbohydrates is suggested which can be related to an agricultural economy. However at Raipur (Walimbe 1992) has found severe wear exposing dentine patches on molar teeth, heavy accumulation of tartar and enamel hypo-plastic lesions in the form of a pit on the labial surface of RI. It shows nutritional deficiency of Vitamin D and also childhood stress. He has suggested moving around and hunting as the mode of life. Even Lad (1992) suggests that communities might be coming to this Raipur burial ground only for burial ritual.

Joshi (1993) feels that the economy was mixed since artifacts like hoes, sickles, ploughs used for agriculture and also weapons useful in hunting were produced. Along with this there are evidence of bins, dough plates, pestles, grinders, cauldron suggesting the use of plant food on a large scale. Soil is medium to deep black and conducive for cultivation. Rainfall is 1000-14000cm. Forests helped in hunting and gathering. The region also witnessed occasional floods and famines (Cox 1978) in which an either way is useful in surviving.

Opinions about subsistence can be summarised as agricultural subsistence (Lukacs 1981; Kajale 1982, 1989; Mohanty and Joshi 1996), Agro-pastoral (Deo 1985, 1991; Moorti 1994, Vaidya and Goyal 2012), Hunting and Nomadic (Walimbe 1992), Mixed economy (Thomas 1992, Joshi 1993). Some important observations:

i) Deo (1985, 1991): Agro-pastoral mode of life with large herds of cattle, mostly concentrated to rural sites, more pastoral and mobile, horse is a sign of Ahirs, Lamans who are nomads and has no significance to agro-pastorals, itinerant pastoralism also can be confirmed due to no brick structures and no large storage jars.

ii) Moorti (1994): Agro-pastoral economy and a ranked society with individuals bearing super-ordinate and sub-ordinate ranks in the society. These might be springing out from the economic activities such as agriculture, warfare and protection or smithery, carpentry, pottery making, lapidary, basketry, oil crushing, stone cutting, leather works.

iii) Mohanty and Joshi (1996); Vaidya and Goyal (2012): Agricultural economy coupled with pastoralism and animals used for multiple purposes than for only primary purposes. Animals such as horses and cattle were also responsible to create economic and social dynamics in the society through their utilities and the prerequisites they governed.

All these opinions are based on the finds of agricultural products, animal bones, craftsmen tools, weapons and ornaments like beads, bangles from the burials. Thakuria (2010: 59) suggests that making of bullock cart was very much a part of their professions since they have deep cutting chisels. Along with these he suggests that carpentry was advanced as one comes across different types of chisels (Thakuria 2010: 58) which might be used for deep cutting, cleaning and smoothening the deep cut surfaces, curving/ scooping and angular cutting.

Earlier to this Deo (1973b) had illustrated eight different types of chisels from Mahurjhari. He also suggested the use of chisels for making wooden posts for houses at sites (Deo 1970a). Thus it is understood that megalithic people were engaged in agriculture and pastoral activities simultaneously. Along with that they were also engaged in activities which required high quality of craftsmanship like blacksmith, coppersmith, goldsmith, carpentry, horse rearing, basket and bamboo work, stone working, lapidary, leather working, warfare and protection along with hunting. All these evidence point out towards a society which was rural in nature yet was engaged in some kind of specialized crafts which might have depended on this basic mode of subsistence to thrive and flourish.

Thus a social and economic stratification was possible in the society to maintain these crafts and backed by an agro-pastoral base. This has been suggested that the society was a stratified one with various occupational groups (Joshi 1993; Moorti 1994; Mohanty and Selvakumar 2002; Thakuria 2010: 63). Along with these Thakuria (2010: 64-67) and Joshi (1993) suggest that there were good exchange networks prevailing and trade was carried out. They point out the use of gold, the presence of eye beads, etched beads and also the use of iron from Naikund at all sites (Gogte 1982b, 1984) as an evidence of trade and exchange.

Along with these the established contacts is considered as a precursor to the standardization in tools especially chisels (Thakuria *etal.* in press). Thus Iron Age community was a well established rural community with a probable settled and probable mobile lifestyle. There were various occupation groups which might not be very strict in their disposition and continuance (Deo 1985).

Mortuary Practices

The culture is mostly known from its burials. The most dominant type of megalithic burial is the stone circle type. However there have been reported dolmens and menhirs (Sontakke 2011, Pawar 2012) in some regions. The abundance of the stone circle type firstly led to a feeling of lenient community differences. But the surface survey at Bhagimohari (Mohanty 1993, 2012) has helped to identify ten sub-types among the stone circles. Thus there existed varied mortuary practices.

The dead were buried in a pit, oblong or ovalish in shape. The pit was filled with black cotton soil which is actually black sticky clay. Then the grave goods such as iron and copper objects, pottery, ornaments, horse were interred. The grave was then filled with rubble and pebbles. The whole area was then encircled by stone boulders.

Within the pit there were primary as well as secondary remains of the dead. The burial also contained many secondary burials (Mohanty 2005b: 106-107) and multiple burials (Deo 1973b) too. Many a times, the burials were symbolic in nature.

The burials have helped to a large extent to the study of the palaeo-pathology of the period. The estimated age at death is between 18-32 on the basis of the evidence from burials (Mohanty and Walimbe 1993, 1996; Walimbe 1988). At Raipur, Walimbe (1992) has found severe wear exposing dentine patches on molar teeth, heavy accumulation of tartar and enamel hypo-plastic lesions in the form of a pit on the labial surface of RI. It shows nutritional deficiency of Vitamin D and also childhood stress. He has suggested moving around and hunting as the mode of life. The studies on the skeletal material of Mahurjhari have helped to identify that the people were active horse-riders (Kennedy quoted in Deo 1985).

It has been said that the element of racial affinity is difficult to know since at sites like Brahmagiri (Sarkar 1960) they have been associated with the Scythian-Iranian people whereas in the sites like Yelleswaram and Adichannallur there have been mixed results (Guha 1926: 307). The study of Kennedy and Levisky (1985) have however helped to refute the racial theory and showed that there was in reality a mixture of local populations by the Early Iron age and there are no evidences for any foreign invasion as such.

Ideas Guiding Research

After a brief review of the research on the Early Iron Age there is also a need to write a brief appraisal about the various lines of thought that have guided the research till today. During the colonial period there were people and scholars who were working at an embryonic stage about the Early Iron Age/ Megalithic period. The scholars were influenced by the religious approach which guided the studies of mortuary remains then (Binford 1971). This can be clearly seen when Pearse (1869) writes about the religious beliefs of the megalithic people and when Carnac also equates them with the ancestors of the Celtic folk (Carnac 1879: 10). The approach was also influenced by the principles of diffusionism. This is reflected when Carnac (1879: 10) tries to correlate the cup marks and orientation on the burials from Junapani to those found on European burials. They however wrote about nature of subsistence, sedentism and burial types and rituals in their own capacities.

However, as written earlier it was the appointment of Wheeler which changed the outlook of Indian archaeologists. He put forth the importance of cultural chronology and excavated Brahmagiri (Wheeler 1948: 180-310). Guided by the chrono-cultural approach of Childe and Wheeler, one can witness the same being applied in sites of Vidarbha megaliths. Dikshit excavating at Kaundinyapur wanted to put the cultural history of the region in stratigraphical way. Deo (1970a and b) writes how there is a problem in understanding the archaeology of Vidarbha megaliths. He says this because there is a distinct habitation layer of Iron Age at both Kaundinyapur and Paunar. Along with these Takalghat was excavated which was useful in establishing contact between the habitation, burials and the other two sites. Thus Deo paved a way for understanding the chrono-cultural aspect. Keeping this aspect in mind he tried to find some relation between the painted potteries from Takalghat with

Jorwe ware (Deo 1970b). But he found no striking similarities in fabric, firing and shapes. However his later excavations were directed towards understanding this aspect of contact and chronological development (Deo 1973b, 1973b, Deo and Jamkhedkar 1982). In his writing one can come across the mentioning of Scythian-Russian elements in the burials at Naikund and Mahurjhari (Deo 1973a and b). This shows that he still had the influence of the diffusionist idiom of research. But by this time there were scientific studies conducted such as Resistivity probe survey, floatation techniques, phosphorus test, chemical analysis of metal objects and skeletal analysis which aided in the understanding of the subsistence, technology in a better way.

Application of all these techniques came out of the increasing influence of New Archaeology propounded by Binford (1962). Binford also wrote about mortuary analysis (1971) which brought forth the ideas such as the *Social Persona* of the dead. These seem to have influenced Deo (1985) when he wrote in detail about the megalithic chronology, culture, technology and ecology. He made an analysis of the percentage and number of different tool types appearing in respective burials from Borgaon to show how the society was more dominated by the pastorals. Thus the influence of Binford and his social approach was seen in studies in Vidarbha. Moorti (1986, 1989, and 1994) has also categorized the tools according to technomic, sociotechnomic and ideotechnomic variety to find out the super-ordinate and subordinate individuals in the community. Moorti was deeply influenced by the methodology of New Archaeology and its workers. He has tried to understand the ranked society against the background of an agro-pastoral economy, a small representation of industry with ample raw materials from Vidarbha and possible trade routes. He also assigned ritualistic importance to burials. Thus there were attempts to identify the society and economy of the megalithic people. Later studies Joshi (1993) were also directed towards understanding these social perspectives.

However Mohanty (1993) and Mohanty and Joshi (1996) mark a change in the research methodology and the approach towards the megalithic research. Mohanty (1993) suggests in changes towards field based techniques and investigations to understand the megalithic burial ritual. He carried out an intensive surface survey at Bhagimohari. It shows a clear distinction in use of space by different communities,

the economic status and the period of burial construction. He documented and observed in a micro level ten different varieties among the stone circle types. Later he also enunciates the application of these sub-types in understanding the cultural and social dynamics. This is somewhere helping to understand the cognitive aspect of the burial builders. He tries to write more about their interaction with the environment, their utilization of the landscape as reflected in tools and also the burials. Mohanty and Walimbe (1993) have also brought the demographic approach in the research arena. They reconstructed a standard stone circle burial at Bhagimohari which helped to make out that 70-80 workmen were needed to work for 10 days to complete such a burial. This in a way suggests the number of working population, the total population of the settlements and the number of burials found. They also concluded that burial was a status symbol and not everyone got an elaborate burial. Mohanty and Joshi (1996) bring out a set of various questions related to the purpose of the erection of burials, its affiliation socially, geographically and culturally, the system of management of the various social and economic activities and also the ritual beliefs.

These reflect the cognitive approach which might have built up upon the earlier social approach. This might have developed since the understanding of the individual mind was also the new trend in research due to post-processualism. There was now an addition upon the way the research was carried out. The result was seen when a new settlement of megalithic period was found at Mahurjhari (Mohanty 2004, 2005: 106-107) and also peripheral burials were found at Dhamna-Linga (IAR 2000-01: 97-107, Ismail pers. Comm.) and Mahurjhari (Mohanty 2005b: 106-107). The burials at Mahurjhari were not actually peripheral. The excavation was taken in the surrounding area. It was intended to look for the activities in the burial ground. Peripheral burials were associated with the central burial which is not the case at Mahurjhari. The burials were found away from the stone circles, thus reflecting the normal burial, which is a variation of the megalithic culture. The work of Ismail especially at Dhamna-Linga and Vyahad has also reflected the cognitive aspect. Similarly Mohanty's research at Bhagimohari (1993, 2012) and Mahurjhari (2005: 106-107) has also been a result of this cognitive aspect. This can be said since the peripheral burials have helped a new understanding of the mortuary system altogether. The possibility that burial building was not done all of a sudden and the time needed was compensated by such simple burials or the disposal system of the lower status

groups were now thought upon by these scholars while excavating such burials outside the stone circles. Thus there was now an attempt to highlight and find the different evidence which can provide markers for further social groups, economic activities and also resource utilisation. But above all, an attempt is made probably to understand the person for whom all such effort of burial construction was made. Thus they have moved above of studying only social process or social identity. These new trends in research have influenced recent researches (Vaidya and Goyal 2012; Thakuria 2010; Sontakke 2011, 2012) in this field to a large extent.

Along with these a distinct Iron Age phase has been identified at sites from Tapti basin like Prakash (Thapar 1965) and Bahal (IAR 1956-57: 17-18). At both these sites this identification has been done on the basis of black and red ware which is burnished in appearance. This Iron Age tradition seems to be an independent one than the Vidarbha region. Along with these, burials have also been reported from Bhosari (Sankalia 1939: 67-93) and Theur region (Kosambi 1962: 65-67) near Pune. But they do not convincingly resemble to the Vidarbha ones. Recently it has been pointed out elsewhere that they are not actually megalithic burials (Vaidya and Thakuria 2010). A group was however found while exploring the region near Inamgaon at Pimpalsuti.

Pimpalsuti: This is outside the core region and is located close to Inamgaon. It was found and one out of the nine burials was excavated by the Deccan College (Dhavalikar and Ansari 1976-77: 87). It yielded black and red ware along with grey ware and coarse red ware and one iron arrow head. The use of horse is also associated with these people. Thus there was an intrusion of the megalithic burial custom in western Maharashtra. But apart from this no other site has been reported from the region till date. However there is a possibility to find sites yielding Iron Age material and for which more field based research is essential.

In Tapti basin, Prakash was excavated where the excavator assigned the period III to the Early Iron Age on the basis of the lustrous Black and Red ware. Similar evidence were found in Pd. IIB at Bahal (IAR 1956-57: 17-18) and Tekwada (IAR 1956-57: 18). The site of Tekwada yielded urn burials assigned to Chalcolithic culture

of Deccan by the excavators. However at Bahal was found the same Black and red ware which was a typical characteristic of the Early Iron Age. But similar evidence needs to be searched and highlighted from the region.

Summary

To sum up, the period of Early Iron Age in Vidarbha was a period marked by differential social relations and economic activities. It was the period when Vidarbha experienced an occupation of the different ecological niches like river basins, mineral zones, pasture lands and other resource zones by a population which was technically advanced. The community used this technological advancement in widening the range of production and also to increase it. The period was characterised by a society which was tied up to its ties by rituals and belief patterns. Thus the society was a kin-based kind of society and where there was a differential arrangement of the production system. The subsistence though was essentially primary it had sown the seeds of a subsistence based on exchange and production. The social relations and economic activities are well reflected in the burial or mortuary rituals of these people. They suggest that the society was mainly agro-pastoral and also had a larger population of craftsmen.

Sawant (2006, 2012) has called this period of incipient state and identified the early Iron Age with the *Ashmakas*. She did this by trying to correlate the literature and archaeology. But as discussed above, there are several things to be known about Vidarbha Iron Age. The paucity of habitation sites, the lack of concrete knowledge about social organisation and social relations, the lack of understanding of landscape use and the varied subsistence strategies and also their effect on the community are all necessary to trace the development of the complex society within. Hence many a times what is proposed by scholars in other regions is considered to be more apt about urbanisation in Vidarbha and Deccan being an external influence and aggression (Kosambi 1965, Sharma 1968, Thapar 1990, Chakrabarti 2002; Ghosh 1973). Whether the early Iron Age in Vidarbha had the roots of complexity in economic and social behaviour which might have probably led to the development of a complex urban character characterised by some big urban centres is the major question. Were such processes, as discussed above in the section about Early Iron Age in North India, really active in Vidarbha and to what extent was their effect is another important point

for discussion. Above all it is needed to be assessed first that whether the landscape of the Wardha-Wainganga valley was used extensively by the Early Iron Age dwellers and how much was it used.