Urban origins in India

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Introduction

India, in the context of south Asia as a whole, presents an interesting case study for early urban origins. The three main ecological areas present very different pathways to urbanization. In northwest India (including Pakistan), which is semi-arid, one witnesses the phenomenon of the mighty Indus civilization (the Harappan culture). In the Gangetic valley there was a dense monsoonal forest which required iron technology to usher in the Gangetic urbanization. In the tropical south there seems to have been a sudden jump from the neolithic stage to the Iron Age without any significant chalcolithic transition phase in between. We thus see that the interaction of technology and environmental constraints have played an important role in the processes of urbanization in India. In this essay, I will try to delineate the different processes of urbanization in the three main regions of India between the third and the first millennia BC.

Indus civilization

The neolithic farmers of Baluchistan and the adjacent highlands lived in small settlements around perennial springs and streams in the fourth millennium BC. Probably population increase required colonization of nearby areas. Towards the east, there were vast tracts of fertile silt brought by the Indus river that were attractive areas to colonize. But shifting from the small intermontane valleys to the vast alluvial floodplains of the mighty Indus river required the development of bronze technology, calendrical knowledge as well as technology to control floods and large-scale irrigation. The semi-arid Indus valley had only gallery forests and pliable fertile silts to tackle. The new technologies enabled the neolithic farmers to colonize the Indus valley to generate enough agricultural surplus to initiate the urbanization processes (Agrawal 1982).

Three main processes have been claimed to be behind the success of the Harappan urbanization: (1) large scale canal irrigation, (2) a type of steppe pastoralism; and the most important was (3) the innovation of the kharif crop which allowed two seasons of basic subsistence cultivation (Possehl 1992, p. 131). The domestication of the horse, camel and donkey was included in the complex process accompanying the *kharif* cropping revolution (Meadow 1989, p. 61; Meadow 1992, pp. 294–322). Considering these facts, Gujarat seems to have chronological precedence which makes the independent urbanization of Saurashtra more plausible (Agrawal 1993, p. 451).

In the Indus valley, the floods were the main problem. Harappan architecture therefore shows that considerable efforts were made to control floods and protect settlements against the

ravages of the Indus. The distribution of the main Harappan cities shows a careful planning which ensured that any two metropolitan towns (of more than 80 ha area) were separated by a distance of not more than 300 km (Agrawal 1993, p. 448). The main cities were strategically located to control valuable economic resources or trade. For example, Harappa in the north, controlled the inland routes to west Asia as also the resources (including timber) of the hilly hinterlands. Mohenjodaro in the south seems to have controlled maritime trade. Rakhigadhi in the east probably controlled access to areas rich in copper ore. Ganveriwala in the centre seems to have been the epicentre of the Harappa 'Empire', though this site has not been fully explored so far. Dholavira in Gujarat seems to be a centre for maritime trade, timber, bead-making and copper-working. Considerable new evidence has recently come from Saurashtra (the peninsular Gujarat) which needs to be discussed afresh (Possehl & Raval 1989; Rissman & Chitalwala 1990).

Generally trade is considered to be a significant contributory factor in the genesis of urbanism. In the case of the Harappan culture, however, there are serious differences between different scholars about the role of external trade. Ratnagar claimed that 'the Harappans appear to have functioned mainly as suppliers of goods to the western markets' (Ratnagar as quoted by Chakrabarti 1990, p. 168) and emphasized its role in the genesis of urbanization, and Possehl seems to support this view in his book on the Kulli culture (Possehl 1986). On the other hand, Shaffer (as quoted by Chakrabarti 1990, pp. 167–70) seems to minimize the role of the external trade of the Harappans. Here I would like to emphasise my own observations: a look at the change in the distribution pattern of the Harappan sites between its early and mature phases clearly shows that the increase in the mature phase has been only in the coastal sites which, more than anything else, shows the important role of the external trade in the Harappan urbanization processes (Fig. 1). For a detailed discussion of these issues, Chakrabarti's brilliant work *The External Trade of the Harappans* (1990) provides a balanced analysis of the various viewpoints. For quite some time it was thought that the settlements in Saurashtra were essentially Harappan refugee settlements, but extensive dating of sites like Rojdi show that they are contemporary to the urban phase of the Indus civilization in Sindh. There are considerable differences between Saurashtra and the Sindh Harappan and no wonder Possehl (1992) prefers to call the former Sorath (Saurashtra) 'Harappan'. The differences are too strong to be accommodated by calling it a variant of the typical Harappan culture. At Rojdi there is no black-on-red painted pottery, no seals, and the staple food is millet rather than wheat and barley like for the Sindh Harappans. There also seems to be a regional chalcolithic tradition in Saurashtra which goes back to early third millennium BC; with the Sindh Harappans as close northern neighbours, there is inevitable contact but I hesitate to call it a variant of the Harappan culture.

We thus see that the Harappan culture was the end-product of interaction of new technologies, rich resources, trade and a semi-arid ecology enjoying the optimal mid-holocene

climatic amelioration. Post-mid-holocene aridity and ecological constraints and human pressures pushed this culture eastwards but as it could not adapt to the monsoon ecology of the doab it withered away (Agrawal 1992).

It appears that towards the close of the third millennium BC, owing to various pressures, e.g. environmental and invasions, the Harappans moved eastwards into the Sarasvati valley in Rajasthan (Agrawal 1992). Ecologically this valley was also semi-arid, but it received more precipitation than Sindh. Rajasthan also provided fertile alluvial plains, gallery forests, lakes and copper minerals for sustaining the Harappan urbanization.

The post-mid-holocene aridity affected the Harappan settlements in Rajasthan as well. The sweet lakes of Sambhar, Lunkaransar, and Didwana became saline. Owing to neo-tectonic movements the lineaments changed the courses of the rivers and, as a result, the main feeders of the river Sarasvati, namely the palaeo-Satluj and the palaeo-Yamuna, changed their courses and left the Sarasvati high and dry. Once again environmental pressures (Agrawal 1992) pushed the Harappans further east till they reached the fringes of the Gangetic doab. However, as mentioned above, the doab had a monsoonal ecology with which the Harappans could not cope, and this led to the demise of the Harappan culture in this area.

Urbanization in the south

South India is basically a tropical zone with large tracts covered by black cotton soil developed on the base of the Deccan trap rock. Recent C14 dates on the ash mounds, associated with the early neolithic cultures, go back to 8000 BP (calibrated). Artefact assemblages are dominated by ground stone axes and a sprinkling of minor copper objects. Towards the beginning of the first millennium BC, iron technology seems to have spread over wide areas and suddenly the burials associated with megaliths yield a variety and abundance of iron tools (Agrawal 1992, p. 257). There does not seem to be a chalcolithic transition or a fully developed Bronze Age in the south. There is a suddenness about the advent of the Iron Age. A large number of excavations of the different types of megaliths have led to a vast inventory of iron objects and also of the morphology of megalithic types (Chakrabarti 1992, p. 80). Unfortunately, the documentation, based on archaeological excavations on early urban centres is very sketchy so far to be able to understand the processes of urban origins in the south. On the other hand, the Gangetic valley urbanization is both more recent and better documented.

The Gangetic urbanization

As mentioned above, it appears that climatic deterioration around 1700 BC, problems of salinity and water logging, changing of river courses and perhaps the pressure of invaders pushed the Harappan people towards the Gangetic valley. One does find a sprinkling of Harappan sites on the western fringes of the Gangetic doab, but it is obvious that accustomed

as they were to the semi-arid ecology of the Indus and the Sarasvati valleys, they could not cope up with the dense monsoonal forests and swamps of the doab. We do get remains of the 'Copper Hoard Culture', but mostly in the form of caches (hoards) of copper artefacts, hence the name. But associated settlements have proved elusive so far. Early iron technology in the Gangetic doab made its appearance with the advent of the first millennium BC (Agrawal 1982, p. 251). Iron is not much superior to bronze, but its mass-abundance made it a powerful tool of agricultural transformation of the swampy, densely forested area of the doab, surfaced by a soil full of *kankar*, into a fertile area. By the middle of the first millennium BC, important towns (*janapadas*, city-states) made their first appearance (Chakrabarti 1995, p. 167). Ceramic technology reached its peak in the fine 'Painted Grey Ware' (PGW) and 'Northern Black Polished Ware' (NBPW). The Ganga river became navigable for large barges. One notices the emergence of a scientific frame of mind following the big technological strides in steel making and fine ceramic technology. For the first time, materialistic philosophies of Charvaka and Lokayata schools gained popularity. They ridiculed the metaphysical theories and explained everything in material terms, including the phenomenon of human death. New philosophies (religions) of Buddhism and Jainism are essentially revolts against the earlier Vedic ritualism and animal sacrifice as also the ideological expressions of the newly emergent agricultural and trading classes. Soon the Indian steel gained its reputation in the west Asian capitals. The urbanization of the Gangetic doab is the product of the mass abundance of iron artifacts in a high rainfall ecology with plenty of timber and iron minerals (Tripathi 1976; Agrawal 1982, p. 265).

Summary

The three main regions of India have followed essentially different pathways towards urbanism, conditioned both by technological innovations and ecological constraints. In the Indus and the Sarasvati valleys, the fertile alluvial tracts, perennial rivers, gallery forests, rich copper mineral belts, copper implements provided the inputs for the processes of urbanization. Peninsular India never seems to have gone through the proper copper-bronze age phase of development. It seems to have jumped from a neolithic phase to a full fledged Iron Age. Unfortunately, we know the south Indian early Iron Age more from the megalithic burials and their rich iron tool repertoire than from regular habitational sites. The Gangetic doab had a monsoonal ecology and when the Harappans were pushed into it they simply withered. A culture which used arsenical bronze existed in the doab but it is known only from its caches of copper artifacts, hence called the 'Copper Hoard Culture'. Nothing is known about their settlement sites. Urbanization in the doab had to wait till the middle of the first millennium BC, when iron technology, with its mass abundance of tools, made it possible to generate surplus food and gradually it lead to the second phase of urbanization in India; the first having been in the middle of the third millennium BC.

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