

Land Measurements in Dharwad Region

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Abstract: The history of Standard weights and measures is traced back to the Indus civilization. Then it developed in the Mouryan and later times. Study of Village community and land system goes hand in hand in a country like India. It consists and covers large number of people in ancient time. Agriculture is a main feature of Indian society and land being a main commodity of villagers having almost all the aspects of economic evolution, which was the first agent of production. Study of land measurements is introduction to study of land administration. Before proceeding to take up the measuring system, it is necessary to know the standard measuring units which existed in ancient days. Inscriptions and literary works contain numerous references such measuring units are *nivartana*, *mattaru*, *khamba*, *kamma*, *maru*, *pada*, *gavyuti*, *gorut* etc. Other than these units, measuring poles and rods were also in use. However it is the most interesting and wide subject for scholars to explore the things like there relevance.

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I. INTRODUCTION:

The boundaries of ancient Karnataka described in the *Kavirajamarga* of Shrivijaya as region between rivers *Kaveri* and *Godavari*. Historical and cultural evolved in the region and passed through various stages from stone ages to dynastic period and beyond. Here we find plenty of archaeological remains and inscriptions give us meaningful interpretation while they played magnificent role in constructing authentic history. But these have been built on the layers of regional segments. Even a smaller locality had its own historical definition. The old Dharwad district had 17 *talukas* with the area of 13750.2sq kms. In 1997, two new districts are Gadag and Haveri created out of Dharwad administrative territory. Here we find more than two thousand inscriptions¹, which give us vivid descriptions about history, culture and richness through the ages. On an average one third of inscriptions are related to land and its subject like land grants, ownership, revenue, land measurements, lease and so on.

II. LAND MEASUREMENTS

Detailed references of linear measurement of different varieties were given in ancient classical works, such as *Arthashastra* of Kautilya, *Manusmriti*, Rajavallabha's *Shilparatnakar*, *Abhidanvastukosha* of Nagavarma. The *Arthashastra* refer the smallest unit of linear measurement called as an atom (*paramavah*), a small unit of cell. The other particles are: *Paramanu*, *Yuka*, *Liksha*, *Yava*, *Angula*, *Dhanurmushti*, *Dhanurgraha*, *Vitasti*, *Pada*, *Kishka*, *Paurusha*, *Prajapatya*, *hasta*, *Vuama*, *Kamma*, *Danda*, *Dhanush*, *Goruta*, *Rajju*, *Bahu*, *Yojan*.² Manu, Yagnavalkya, Narada and Amarasimha trace the weight-length and capacity of measures in their works. In general liner measurements are considered mainly as bodily units. Various parts of human body were taken as unit. This concept was considered to be a standardize one. Nagavarma in his work, *Abhidana Vastukosha* stated nine different kinds of bodily measuring units.³

The various types of measurements are mentioned in epigraphs of the region are *nivartana*,⁴ *mattaru*,⁵ *khamba*⁶ or *kamma*,⁷ *gavyuti*,⁸ *gorut* etc.

Nivartana

Nivartana was one of the ancient units of measurement, which described in Sanskrit inscriptions. Kautilya has noticed that *nivartana* was equal to three *rajjus* or it could be a square measure⁹. Shrinivas Ritti in his work refers *nivartana* as a measuring unit which was used in agricultural land and corresponding to *mattaru*. Further says it was originally covered by a person, starting from a specified spot and returning to the same within a specified period.¹⁰ It availed among the inscription of Western Chalukyas of Badami. The earliest reference of *nivartana* was found at Puligere¹¹ (modern Lakshmeshvara) of Pulakeshi II, dated 6th century AD. It registers a gift of 500 *nivartana* land to the north of Puligere *nagara* for the worship of god Samkh Jinendra donated by Durgshakti Pandita.

Mattaru

The term *mattaru* was most popularly appeared in inscriptions of this region, as its earliest reference belongs to Kadambas of Banavasi.¹² Many scholars opined that *nivartana* is equivalent to *mattaru* and it's replaced by it. Lakkundi inscription¹³ of Irivebedanga Satyashraya dated 1007AD refers the donation of three *mattaru* garden land to the Jaina monastery constructed by Danachintamani Attimabbe. *Are Mattaru* is another term that can be divided into 'are' and 'mattaru'. *Are* means half, generally it describe that half of *mattaru* which is used by Chalukas of Kalyana¹⁴.

Khamba

There was also another term used in ancient times which was known as *Khamba* or *Kamma*. Evidently this term refers to a lower unit of land. The term *khamba* indicates a wooden stick or pole. It is used to measure both garden and agriculture land. Hulaguru inscription of 1245AD¹⁵ records donation of 900 *kamma* house sight land, Mallapur inscription dated 1105 AD¹⁶ mentions gift of 325*kamma* of agriculture land and koralhalli record¹⁷ of 1050AD reveals that the *kamma* as a measuring unit of garden land.

The linear measurements were more important than the above mentioned measurements. These are of a great variety and differed from place to place and region to region. However T. V Mahalingam¹⁸ and A. Appadorai¹⁹ stated that attempts were made in south India to standardize the measuring rods. Most of the rods were having suffixes like *gale*,²⁰ *kambha*,²¹ *mattaru*,²² *kolu*,²³ *hasta*,²⁴ *mana*.²⁵ There are around 42 different kinds of scales or rods or poles of measurements as given in below table:

SL	Measurements	Date	Village	Reference
1.	<i>Deseya Gale</i>	AD 1023	Lakshmeswar	SII XX, No. 83
2.	<i>Maleparimariya Kolu</i>	AD 1028	Hosuru	SII XI(i), No. 65
3.	<i>Kolu</i>	AD 1045	Eribetageri	SII XI(ii), No. 120
4.	<i>Kachaviya Gadimbad Kolu</i>	AD 1046	Medhuru	KI IV, No. 40
5.	<i>Kuritkuntey Kolu</i>	AD 1047	Bentur	SII XI(i), No. 81
6.	<i>Hombalad Kolu</i>	AD 1049	Hombal	SII XI(i), No. 84
7.	<i>Ippattentu Genin Gale</i>	AD 1053	Asundi	SII XI(i), No. 89
8.	<i>Rajamanadanda</i>	AD 1055	Shiggon	KI I, No. 17
9.	<i>Nagaresvar Gadimbad Kolu</i>	AD 1062	Mulagund	SII XI(i), No. 97
10.	<i>Ippattu Genu</i>	AD 1062	Yaraguppi	SII VIII, No. 68
11.	<i>Narendrapurad Hiriya Kolu</i>	AD 1063	Bankapur	SII XV, No. 230
12.	<i>Muvatmuru Genin Gale</i>	AD 1064	Asundi	SII XI(i), No. 100
13.	<i>Hattu Genin Kolu</i>	AD 1069	Chinchli	SII XI(i), No. 108
14.	<i>Annigereya Kolu</i>	AD 1071	Soratur	SII XI(i), No. 97
15.	<i>Muvattentu Genu Maryade Gale</i>	AD 1071-72	Gvarwad	EI XV, No. 23(A)
16.	<i>Maryade Gale</i>	AD 1071-72	Gvarwad	EI XV, No. 23(A)
17.	<i>Muvatmuru Genu Barchividiy Gadimbad Gale</i>	AD 1073	Annigeri	SII XV, No. 122
18.	<i>Ippatnalku Genin Kolu</i>	AD 1082	Kuratkoti	SII XI(ii), No. 127
19.	<i>Gunigan Mattaru</i>	AD 1088	Balmbid	KI IV, No. 25
20.	<i>Gangan Gale</i>	AD 1092	Mallur	SII XVIII, No. 9
21.	<i>Ippattu Genin Gale</i>	AD 1099	Chikkhandigol	SII XI(i), No. 147
22.	<i>Mulagund Malahara Mariy Kolu</i>	AD 1103	Hosuru	SII XI(i), No. 152
23.	<i>Purigerey Gale</i>	AD 1112	Lakshmeswar	SII XX, No. 74
24.	<i>Gadimbad Narayan Devr Gale</i>	AD 1123	Lakshmeswar	SII XX, No. 83
25.	<i>Kacchaviya Gale</i>	AD 1124	Honnatti	SII XVIII, No. 124
26.	<i>Hiriya Kolu</i>	AD 1138	Madanbhavi	SII XV, No. 16
27.	<i>Devar Totada Kolu</i>	AD 1142	Kanavi	SII XVIII, No. 146
28.	<i>Devar Totada Gale</i>	AD 1142	Kanavi	SII XVIII, No. 146
29.	<i>Vishnuvardhanan Kolu</i>	AD 1154	Tilivalli	KI II, No. 20
30.	<i>Annigerey Piriya Kolu</i>	AD 1156	Mallapur	SII XV, No. 53
31.	<i>Muvatmuru Genu Gadimba</i>	AD 1157	Annigeri	SII XV, No. 96
32.	<i>Muvattu Genin Gale</i>	AD 1184	Dambala	SII XV(i), No. 57
33.	<i>Rajahasta</i>	AD 1187	Dharwad	SII XV, No. 230
34.	<i>Hannodu Maru Gale</i>	AD 1204	Hirekerur	KI IV, No. 1

35.	<i>Hiriya Gale</i>	AD 1239	Tilivalli	KI V, No. 42
36.	<i>Bharan</i>	AD 1241	Satenhalli	KI IV, No. 2
37.	<i>Bharand Kolu</i>	AD 1241	Satenhalli	KI IV, No. 2
38.	<i>Prasannapurad Kolu</i>	AD 1245	Hulaguru	KI IV, No. 54
39.	<i>Gavrikadara</i>	AD 1245	Hulaguru	KI IV, No. 54
40.	<i>Gangana Mattaru</i>	AD 1263	Chavdadanapur	SII XVIII, No. 246
41.	<i>Gangan Kambha</i>	AD 1263	Chavdadanapur	SII XVIII, No. 246
42.	<i>Rajamana</i>	AD 735	Lakshmeswar	SII XX, No. 7

The standard measures were often called by the name of kings or villages or deity or specified numbering units. In this topography we found that linear measurements were classified and named by its regional centers. *Annigerey Piriya Kolu*²⁶ and *Annigerey Kolu*²⁷ are the popular poles in Annigere region at *Belvola-300* territory. Where as in Kuratkoti, *Kuritikuney Kolu*²⁸, in Kacchavi, *Kacchaviya Gadimbad Kolu*²⁹ and *Kacchaviya Gale*³⁰, in Lakshmeshwara region, *Purigerey Gale*³¹, in Mulagunda, *Mulagund Malahara Mariy Kolu*³². Other than these *Hombalad Kolu*³³, *Narendrapurad Hiriya Kolu*³⁴ and *Prasannapurad Kolu*³⁵ were mentioned in inscriptions.

Muvattu Genin Gale,³⁶ *Ippattentu Genin Gale*,³⁷ *Ippattu Genu*,³⁸ *Muvatmuru Genin Gale*,³⁹ *Hattu Genin Kolu*,⁴⁰ *Muvattentu Genu Maryade Gale*,⁴¹ *Muvatmuru Genu Barchividiy Gadimbad Gale*,⁴² *Ippatnalku Genin Kolu*⁴³ and *Muvatmuru Genu Gadimba*⁴⁴ are known by specified number of *genu* (a distance between thumb and fore finger of stretched hand) or *maru*(a distance between two middle fingers of stretched hand) of bodily units.

The term '*Rajamana*' is a royal measuring rod described in lakshmeswara inscription⁴⁵ of western Chalukyas of Badami. It might be issued by king. '*Rajahasta*⁴⁶(royal hand in term) and '*Vishnuvardhanan Kolu*⁴⁷(named by Hoysala king Vishnuvardhanan) are other rods connected with royal authorities. '*Gale*' is instrument which is used for agriculture. Measuring poles Connected with Gale are '*Hiriya Gale*',⁴⁸ '*Maryade Gale*',⁴⁹ and '*Kacchaviya Gale*'.⁵⁰

Usually the land surveyor used instruments like bamboo stick or rope to measure land. There are archaeological evidences of scales or poles in some temples. Like Someshwara temple at Dambal and Basavanna temple at Hangal, where we found local linear scales on there *kakshasana* or benches. It is also observed that varieties of scales were used in single area. However the length of scales differed with area or a dynasty, but exact value of the some of the units are not yet identified.

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