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பன்னாட்டுத் தமிழாய்வு மின்னஞ்சல்

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(Peer Review)பீர் ரிவியூ செய்யப்பட்டு பதிவு செய்யப்படுகிறது என்பதைத்  
தெரிவித்துக் கொள்கிறோம்.



# வந்தலாறு

## Indigenous Systems of Weights and Measures in Later Cholas

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### Abstract:

The unequal distribution of wealth was a significant Feature of Tamil Society from the beginning the richer people could be found in the royal court, in the merchant quarters and among the warrior class. The Brahmins and the ascetics consciously adapted simple life, while the vast majority of the common people were the victims of enforced poverty. On the economic aspect under the Cholas, Agriculture was the principal occupation. The village was primarily a settlement of peasants. We learn number less instances of alternation by Sale or gift of the lands by individuals from inscriptions. For measurement of agricultural lands were used, *Paddkka, kuli, Veli* etc were some of the measurements. *Veli* and *Kuli* were the most common measures. These are frequently in found in inscriptions that deal with gifts of land and provide to temples. The Later Cholas had a sophisticated and standardized system of weights and measures, crucial for their extensive administration, trade, and revenue assessment. This system utilized various units for land, volume, weight, and linear measurement, with standards often inscribed on temple walls. The Chola territories seemed to have had different but measures with many local variations.

**Key word's:** *Unit, Paddkka, kuli, veli, kol.*

### Introduction

Six hundred years after the Sangam age as a political force had come to the Close, the Cholas one of the three famous royal families which had ruled over Tamilagam and had decline of Consequent on the Kalabhra invasion revived. But the cholas lingened an as Subordinate chieftain in the neighborhood of their ancient capital Uraiyr. As a result of their decline.at the end of the Sangam age. From the middle of the 3<sup>rd</sup> century AD to the middle of 9<sup>th</sup> Century AD

nothing was known about the cholas. Six hundred year after the Sangam age came to a close the Cholas came back again on the stage of Tamil history as a determining factor when Vijayalaya established an Independent Chola Kingdom with Thanjavur as the capital. In this article we know about various information of weights and measures on later cholas. .

Land was extensively surveyed and classified for revenue purposes by officials called *naduvagaiseykira*. The '*nilam*' or '*veli*' was the unit measure of land. The measuring rod used was called 16 span kol, the *Kadaigakkalatty kol*, *Sri patha kol* and *MaligaiKol* Measurement rods (*kol* in Tamil, or *danda* in Sanskrit) were used, with specific standards like the *Nilamalandakol* or *Panneeradikol* (a twelve-foot rod) mentioned in 11th and 14th-century inscriptions.

Measures were used for food grains and gold measures. The smallest denomination of the measurement was known as '*Pidi*' meaning handful, '*Sevidu*' '*Todu*' '*Alakku*', '*Ulakku*', '*Uri*', '*Nali*', were some of the measures used to liquid and grains. '*Sevidu*' and '*Todu*' were also identified with weights. *Kalanju* was a weight equal to 45 to 50 grains '*Manjad*' was equal to 1/20 *Kalanju*. These terms were identical in weight gold, silver and other precious objects.

*Mulam* is a unit of measure of length and height. *Ayirapattam*, the royal elephant of the chola ruler is stated to be seven *mulam* in height. '*Kadam*' is another unit of measure of distance. '*Vil*' is another unit of measure of length. '*Tulai*' is mentioned as the scale or balance used for weighting goods. Land was measured by different length of measure rods. There was no uniforming in the actual units of gold currency in circulation or in the different areas for the regulations of local transactions.

### Common units of land area measurement

The extent of Kuli different with a length of measuring rod used. The number of *Kulis*, that made up a '*Ma*' or '*Seru*' the 20<sup>th</sup> of the '*Veli*' also varied considerably. The liquid and grain measures used in different parts were called '*Nali*' and '*Marakkal*'.

Generally we assume 360 days for year. But we find that it is marked as 365 days. There two types of predictions are also mentioned in the astronomical books '*SuriyaSiddhanta*' and '*Suddhanta Sirormani*'.

### Volume Measurement

Units for measuring the volume of grains and liquids included:

Sevidu	-	1 Pidi
5 Sevidu	-	1 Alakku
2 Alakku	-	1 Ulakku
2 Ulakku	-	1 Uri
2 Uri	-	1 Nali
8 Nali	-	1 Kani
2 Kani	-	1 Padakku
2 Padakku	-	1 Tumi or Kadi
3 Tumi	-	1 Kakm



### Weight and Currency Measurement

The system also standardized units for weighing precious metals, which formed the basis of their sophisticated currency system.

**Kalanju** and **Manjadi** were standard units of weight, with a *manjadi* theoretically weighing 72 normal-sized paddy grains.

**Pon** was often used as an equivalent to a full *kalanju* in gold weight.

**Kasu** was another popular unit for monetary value, with varying equivalences to *kalanju* over time.

### Aadu

The measurement of 'Aadu' was one of the measure of Chola regions. 1 'Aadu' equal to 1 pati of ghee per annum. In the period of Rajendra I, 22½ Aadu equal to 25 *Kasu* (refers that fractions less than 1 Aadu equal to cash).

**Weights of Gold**

One Manjadi	-	2 Kunri
10 Ma	-	40 Kani
20 Manjadi	-	One Kalanju (about 68 to 72 grain)

**Linear Measurement**

Units for linear measurement included:

**Viral****Jan**

**Mulam** (cubit)

**Ati** (foot)

**Saan** (span)

**Linear Measure used in measuring icons**

8 Totai (rice corn)	-	One viral (Finger)
12 Viral	-	One Chan (Span)
2 Chan	-	One Mulam (Cubit)

**Measure of the days**

7 ½ Nalikai	-	1 Samam
7 days	-	1 week
2 Pakkam	-	1 month
2 Ayanams	-	1 year
8 Samam	-	1 day

15 days	-	1 Pakkam
6 months	-	1 Aganam

### Land Measurement

16 sans	-	1 Kol
100 Kulis	-	1 ma
20 Ma	-	1 veli
18 Kols	-	1 Kuli
240 Kulis	-	1 Padagam

Measurement methods like land size system, weight measurement also differed according to the regions. 'Veli' was a measurement of land. Anbli copper plates denotes this method known as 'Vatika' in Northern language. It is further divided into 1/8, 1/20, 1/80, 1/320. It was further divided into few stages. They are divided into 3/320 and 1/320. a third mass (1/320) division is also Found.

How they land surveying system was able to defined to such a fine scale system is a matter of course. The 'Veli' system, which organised in the chola country, spread to the regions in the chola dynasty. It seems to have disappeared after the fall of chola. IT was only when the chola spread that the 'Veli' system of land measurement came to play.

### Variations of land Measurement

Pathinaru Adikol, Kadikai Kalantha kol, Sripatha kol and Maligai kol are followed the measurement of lands. As like as the size of kulis for the size of scale also differed. During the region of Rajendra I, 1 Ma land in Keezhur in south Arcot district was equal to 16 Adikol, 256 kulis. In the same year in Thiruvavaduthurai, Thanjavur district also 1 Ma land as equal to 100 kulis measure of Maligaikol. After twelve years later in Thiruvaimathur near keezhur, 1 ma land of equal to 16 feet kol was 200 kulis like the coins system, which was pitted, the land measure system had internal differences. The central government effort to spread the methods of Maligai kol, 100 'Kuli Ma' and 'Veli' beyond the chola country is clearly visible.

However, the effort to make common measures prevail in all areas under the chola regime did not succeed. Attempts to make all public measures available under chola regime have not been successful.

In Thiruvotriyur, in the year 1072 AD, 1 'Veli' was 16 feet *kol* measured by 2000 *kulis*. In 1204 AD the same was divided in Uttaramerur it is marked as equal to  $6 \frac{1}{8}$  Padagam. In 1074 AD Thirukadiyur, Marked as 1 *Ma* equal to 138 *kulis*. But 1100 AD, Thiruvavaduthurai refers that, 1 *Ma* equal to 128 *Kulis* measured in Vazhuvur in the period of Rajaraja II considered 1 *ma* equal to 513 *kulis*.

In the same is the case with the various *Nazhigai and Marakkal*. The system of measurement is indicated in the inscriptions. During this region of Rajaraja I, 'Adavallan' was the commonly recognized measure in Tanjore and Chola regions. It was also called as Rajakesari; Apart from the Rajakesari measure which was called 'Arulmozhidevan' during the time of Rajathiraja another measure called 'Veedhividankal' was also used in Rajarajan's period. In chengalpattu district, 'Komalam', and 'Katchipetu nintran' measures was also used.

### Conclusion

The existence of a centralized revenue department (*puravuvvari-tinaikkalam*) and regular land surveys, such as those ordered by kings like Rajaraja I and Kulothunga I, underscore the importance of this standardized measurement system in the administration of the Chola empire. A detail account of the above said chola's land measurement and their considerations will certainly reveal that their administration was a unique one. We have more information about royal revenue and finance during imperial chola times than for the earlier periods land survey was conducted throughout the empire and than all lands were surveyed and boundaries were fixed. They departed in techniques prevalent in Tamil land at the same time retained many idea of the Tamils.

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