



A history of Maldivian architecture: Part 2—Traditional lineal measurements



Measure is what controls the proportion, form and order of buildings. Architecturally, spaces are determined in relation to man himself. Thus, traditionally, most measurements are based on humans, such as spans and cubits. The average Maldivian is a bit shorter than Europeans though tall people are seen in every island. Except for height, there are few, if any, physical differences between the Middle East Aryans and the Maldivians, in terms of proportion. This is to be contrasted with East Asians whose arms are legs are slightly shorter compared to their torso length.

The following list of traditional measurements of length is derived from *Vanavaru* dated 15th March 1995 by Hassan Ahmed Maniku, an eminent historian.

[table id=1 /]

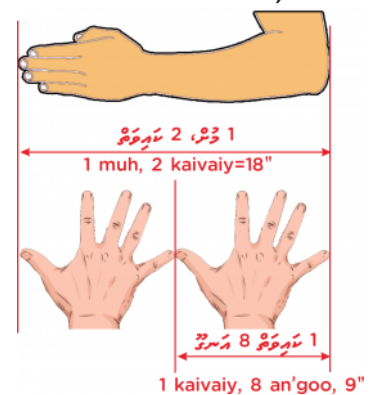


The basic unit of lineal measures in the Maldives was the *an'goo*, the distance between the third joint of the middle finger and its end. This length is now taken as 0.125 inches. However, an'goo is of not much use in architecture

because it is so short. There are names for various multiples of an'goo: 3 an'goo is an *oogu*; 8 an'goo make a span (*kaiva'iy*) and 16 an'goo make a *muh* and 24 an'goo make a *riyan*. The main measure used in architecture until very recently is the *riyan*.

A riyan is of convenient size to be used in architecture. In fact, riyan is the primary lineal measure used in building houses and boats. The use of riyan is somewhat unique. In ancient Greek, Chinese and Japanese architecture, the foot is the basic unit of length. In ancient Greece, the foot (*pes*) is then further subdivided into 4 parts (*palmus*, palm width), 12 parts (*uncial*, inches or 1/12ths) or 16 parts (*digitus*, finger widths). The Japanese foot was divided into 10 parts (*suns*).

It is interesting to study the origin of riyan for it is a bit long (27 inches) for common use. No doubt, the carpenters and the house builders must have found it very convenient. Was it derived from a Sri Lankan unit of measurement? In the *Transactions of the Engineering Association of Ceylon*, 1936, Ellepola notes the following on page 121:



8 paddy seeds = 1 finger end

12 finger ends = 1 viyata (span) = 9 inches

2 viyata (spans) = 1 cubit = 18 inches

4 viyata = 1 niska

2 niska = 1 dunna (bow, dhuni in Dhivehi)

1000 dunna = 1 kosa.

What is interesting to observe from the above is that 12 finger ends is made equal to a span. In some tables, Ellepola refers to finger ends as *angala* (a word somewhat close to Dhivehi *an'goo*). This evidently means that Sri Lankan definition of finger ends is different from the Maldives'. He also notes that the space between the thumb and the

forefinger stretched to the maximum extent is called *vigussa*. The Dhivehi word for this distance is *kolhithila*. The above definition of 1 *kosa* given above is very close to the Dhivehi definition of *koas*.

On page 122 of the document noted above, Ellapola notes additional details which further give useful information about the measures used in ancient Sri Lanka.

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10. (a) Pridham, an historian of early British times, makes reference to a "Bamba" and a "Bandara Bamba" as measures of length. The former is given as the length or distance an adult can reach by extending the arms horizontally on both sides, with out-stretched fingers, and measured from the finger tips on one side to the finger tips on the other. This measure according to the "Abhidhammappadīpikā" is the equivalent of the English fathom. The "Bandara Bamba" was the height from the ground a man could reach with the tips of his fingers, when the arms and hands were fully stretched above the head. This was considered to be nine feet in length and five hundred "Bandara Bamba" were given as equal to an "Hetekma" or a mile. A term of measure in common use in various parts of Ceylon is the "Wadu-riyane" so called as it was a measure in use amongst carpenters. This measure was equal in length to 24 "angalas," the Carpenters' "angala" being equal to the space between the second and third joint of the forefinger, seven such angalas being equal to one Viyata or span.

(b) Other terms of measures of length often encountered are the following :—

1. 'Viyangula', meaning a measure equal to the breadth of five fingers.
2. 'Miti-Riyane', which is the distance between the elbow and the knuckles, when the fingers are closed into the palm.

The above leaves little doubt about the equivalence of Sri Lankan *bamba* and Maldivian *bama*. The Dhivehi *Udu-bama* is invariably the *bandara bama* or the standing reach. The definitions of *Miti-Riyane* and *kuru-muh* of the Maldives are also the same. The *Wadu-Riyane* or *Carpenter's Riyane* is 24

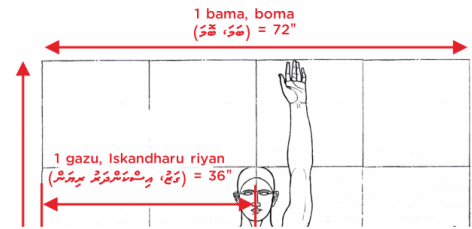
carpenter's
“angala” by
the definition
cited above.

Since 7 such
angala make
one span
which is 9
inches, then
24 angala
must be

$(9 \div 7 \times 24)$ or

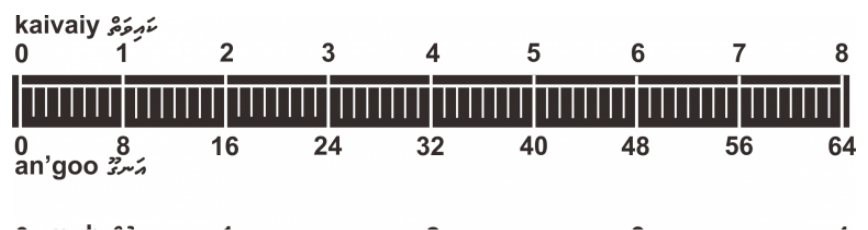
about 31 inches—4 inches longer than the Maldivian *riyan*. Although we can note the similarities between the riyane of Sri Lanka and riyane of the Maldives, the length is not the same. The Dhivehi riyane also has 24 an'goo, but the variation between the riyane and riyane is due to the varying definitions of an'goo; ours is shorter. The Sri Lankan definition of angala is the distance between the second and the third joint of the forefinger. This distance, or *angala*, is 1.286” whereas by the definition given by Hassan Ahmed Maniku, an an'goo is 1.125”. One wonders whether these two measurements were previously the same, and that the definition of an an'goo had changed in the Maldives with the passage of time from the Sri Lankan's. The odd length of riyane (27 inches) is by the length of a stretched arm. Since all adult males have the riyane standard with him, it is a handy measure.

Another possible theory for the length of 27 inches for a riyane may be due to the common Arab influence. It is well known that the Arab traders were visiting the Maldives and Sri Lanka long before the Portuguese invasion of these two countries. Both in Gujarat and in Bombay, the Islamic length *guz* was equal to 27 inches for centuries prior to 1900 (the *guz* was defined to be



36 inches much later in India. The *Ilahi guz* which was the standardized guz by Emperor Akbar was about 33 inches). The 27-inch long riyan could have been popularized by the Bohra communities from Gujarat and Bombay, who travelled and traded with these countries. The foregoing historical note is to illuminate the cause for the popularity of riyan and for its unusual length of 27 inches. Inches were not a standard by which other measures were defined in the past; an'goo was. However, today, the dictionary definition of riyan is 27 inches, not 24 an'goo.

By the mid 1980s, the riyan was becoming less and less popular as a measure for architecture and home building. This was due to the introduction of the metric system in the 1970s. However, one still finds that the riyan is frequently used among the old generation.



In both Greek and Japanese architecture, a module is used from which all other dimensions for architectural features are derived. In the case of Greco-Roman architecture, it is the diameter of the columns; in Chinese temples it is the width of the rafter. In Japanese room layouts, this module is the *ken* which is about six feet. The basic module for dimensioning wood members is, however, 4 *sun* which is about 121 mm [Engel, H. (1985). *Measure*

and Construction of the Japanese House. Tokyo: Tuttle Publishing]. In Maldives, neither the riyana nor any other unit seems to have been used as a module. However, further research, especially the old mosques features need to be measured to determine the existence of a module in the design of, at least, mosques.

In Part 3 of this series of articles, I discuss the types of shelters used in the Maldives and the construction of basic buildings.

3 Comments



W Chandana Deepal March 1, 2016 at 7:40 pm - [Reply](#)

Sri Lanka wadu(carpenter) riyana take as 31 inches today itself for traditional architecture(astrology)



ahmed ikram September 25, 2016 at 10:24 am - [Reply](#)

thanks for this info



Isabel Marant Fall 2014 June 7, 2016 at 9:18 am - [Reply](#)

You really make it appear so easy together with your presentation but I find this matter to be really something which I believe I would by no means understand. It kind of feels too complicated and extremely extensive for me. I'm taking a look forward to your subsequent publish, I will try to get the hold of it!

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