Traditional Methods and Systems Associated with the Paddy Cultivation in Ancient Sri Lanka

Uda Hettige

Introduction

Sri Lanka being an agricultural country from time immemorial definitely possessed various methodological and technological systems to promote, nourish, protect and safeguard their cultivations. At the outset it is necessary to analyse the climatic and environmental factors that prevailed in the island of Sri Lanka. This island is situated in the Monsoon region which provides seasonal rains during certain months of the year. The rest of the year, at times brings drought which dries up almost all the water sources in certain areas of the island. In ancient Sri Lanka the early agricultural settlers (Harris, D.R. 1969) preferred to set up their settlements in the dry zone, because these areas provided flat lands (Siriweera I, 1990) and less forests. However the main problem they had to face in this area was the non-availability of sufficient water for their cultivation. (Brohier, R.L. 1989) Since there are no rivers in Sri Lanka which provide a perennial water supply for the entire year, farmers had to depend on reservoirs built for storing water for agricultural needs. Hence a system of irrigation had to be devised in order to carry out the agricultural activities (Chang T.T. 1989).

In this paper an attempt will be made to explore the various methods and systems that the ancient farmers (Porters, R. and J. Barrau, 1981) devised to protect their cultivations from harmful elements such as insects, animal attacks (i.e. ravages by wild elephants) and environmental and climatic conditions (Harris, D. R. 1989). Our special attention will be directed to paddy cultivation as rice is the staple diet of Sri Lankans. Out of various methods they applied to protect their cultivation, the following devices will be discussed here i.e. *pälräkeema* (watching the paddy cultivation), *Pambayan situveema* (setting up of effigies), *Takaporu bandima, Appidi Lälla Bändima* (binding a clapping board), *Diyaholmana ätaveema* (erecting a water ghost), *Diya-yaka bändima* (binding a water demon), *Sulanholmana ätaveema* (setting up a wind ghost), *Pahan ugul ätaveema* (setting up a lamp trap), *Mässan atugä dämeema, Visa dum älleema* (spreading harmful smoke), *Hulan bambara bändima* (erecting a wind fan).

Ancient farmers adopted traditional methods of protecting and safeguarding their cultivation by watching the crops in the paddy field, when the young paddy pods are at risk from animals and insects.

Appidi Lälla Bändeema:

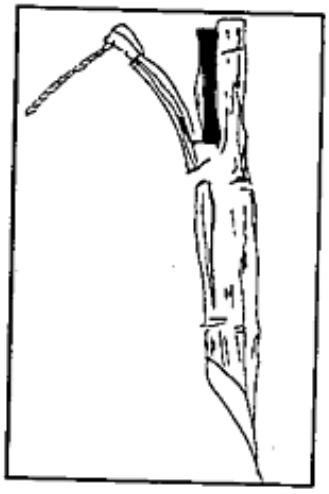

Figure No-1 - Appidi Lälla

This is a peculiar form of technique employed by farmers, especially in the up country area (ex. Meemure in the Kandy district) Appidi lalla or the clapper board is usually made out of bamboo wood. Bamboo wood is hollow inside, but it is separated by means of joints (Tikira, M. A.: 2004/09/07).

To make an Appidi lälla or clapper board a bamboo pole consisting of three or four joints are takend and creating a hole at the end of the bamboo wood a string is taken through it allowing the piece of bamboo wood to moves up and down. Hence when thisd bamboo piece move it begins to knock against the other creating a sound similar to clapping, thus making animals and insects disappear from the paddy field. This is also another form of fixing sounding bells *(See figure No. 1)*.

Diyaholmana Ätaveema: (erecting a water ghost)

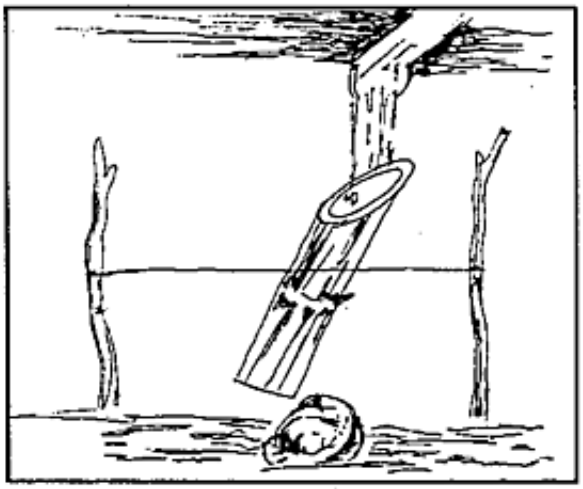

Figure No-2 - Diya Holmana

This device is adopted even today, in areas like the Hatara Korale, to expel rats and birds who destroy crops. There is a special method to make this device. The farmer uses a piece of bamboo with two joints. The piece of bamboo is tied on to two poles, planted on four feel apart by means of a string running through the hole created in the piece of bamboo. This bamboo tied in the form so as not to touch the ground. A stream of water is sent from the paddy field into this piece of bamboo so that the water will make the lower part of the bamboo strike against the piece of stone placed beneath it. When the piece of bamboo strikes against the stone it makes a sound. With the increase in the rate of water the piece of bamboo begins to strike against the stone, creating a sound which scares away harmful animals. This deviced works by means of the energy created by the stream of

water, and will work till the water is over in the paddy field. This is a simple method used by ancient farmers using minimum effort and labour. (Tikira, M.A., 2004/09/07) *(See figure No.2)*

Pambayan Situveema (The setting up of effigies):

Figure No-3
Pambayan Situveema

In this method birds and animals approaching the paddy field are frightened away thinking that there is a human being in the fields. The main purpose of setting up this scarecrow is a popular method the ancient farmers adopted. The birds and animals will not approach the paddy field for fear that the effigies will kill them. Some times if the paddy field is large more than one effigy would be set up. This is perhaps a method farmers have taken from the ancients who have drawn figures of animals in their hunting activities. (Disanayaka, Mudiyanselage Bandara, 2004/09/28) (See figure No.3)

Takaporu Bändeema or Atuväl Bändeema

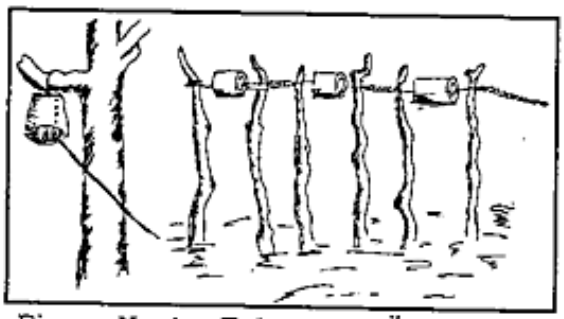

Figure No-4 - Takaporu Bändeema or Atuvàl Bändeema

Sounding bells are fixed in various places in the paddy fields. These bells are made out of tins by means of fixing a rod of iron or piece of tin, which could be pulled by means of a string or creeper attached to it. This sound creates fear in the animals, so that they will not remain in the

paddy fields. In areas like Bintenna and Wellassa, this method is called *Atuväl Bandeema*. This technique is commonly used in areas like *Raigama, Siyane, Pasyodun* and *Hevāgam korales*. Sometimes an iron ring tied to a pole will give a sound when pulled by a string. In this iron ring a bottle is hanged and a piece of palm leaf or arecanut leaf is tied onto it in a position which would catch the wind and will force it to make a sound by touching the iron ring. This will create a sound in the form of a 'rang', which creates fear in the minds of animals. As there is wind throughout the night this will always be active. This is a method employed by farmers to operate the device without using any extra effort or energy (Bandara, Tennakoon, 2004/10/12). *(See figure 4)*

Diyayakā Bändeema

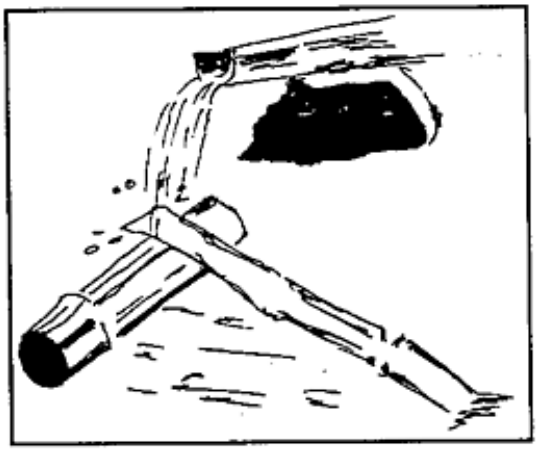

Figure No-5 - Diyayakā

This is another method employed mostly by farmers in the up-country areas to drive away harmful animals from their cultivations. It is called binding of the water devil. This contraption is made in a peculiar manner. A splinter of bamboo is fixed in a manner so that a stream of water would fall onto it. This fall of water makes the splinter strike against a piece of tin. This gives a terrible sound which drives away birds and other animals. *(See figure No.5)*

Diya Bambarā Ätaveema:

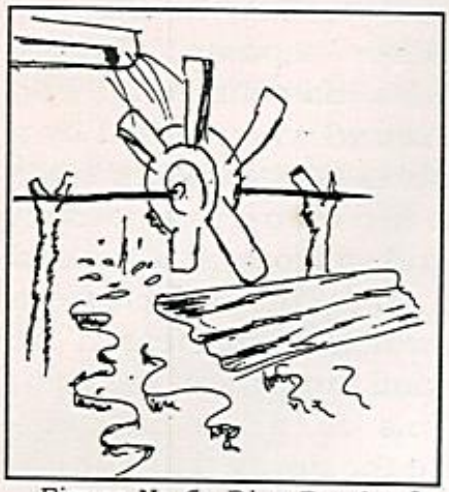

Figure No-6 - Diya Bambarā

A propeller made out of four bamboo splinters fixed onto a piece of banana trunk. It is similar to a fan, which rotates when the wind blows. This fan is fixed by means of a stick onto a piece of banana trunk and the banana trunk is setup by planting two poles, in a place where there is flowing water. The flowing water is made to fall on the blades of the fan making it to rotate. A small piece of tin or an iron rod is fixed onto them, thereby the rotating blades strike against the iron rod, creating a sound. The degree of sound can either be increased or decreased by reducing or increasing the water flow which makes the fan rotates. This device is commonly employed by the peasants of the Tunkorale in order to expel harmful insects and animals, from the paddy fields *(See figure No.6).*

Sulan Holmana Ataveema (Setting up of a wind ghost):

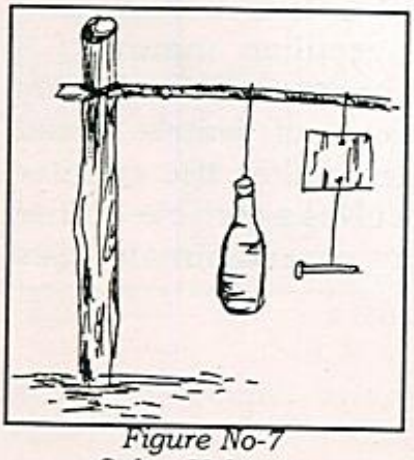

Figure No-7
Sulan Holmana

Another method used by farmers to frighten away the harmful insects and animals from the paddy cultivation is called the *Sulan Holmana Ätaveema.* This contraption is made by planting a pole with a stick tied into it horizontally in the paddy field. A palm leaf is tied to the end of the stick.

From the palm leaf a nail is hung and close to it a bottle is also hung. When the wind blows the piece of palm leaf is blown with the nail, which then strikes on the bottle which makes a sound. This frightening sound drives animals away from the paddy fields. This method is normally used in the *Raigam, Pasyodun, Siyane and Hevagam Korales (See figure No.7).*

Pahan Ugul Ätaveema:

The other traditional method used by ancient farmers of Sri Lanka was to light a series of lamps in order to dispel insects. These lamps are lighted using coconut oil, to which oils of various other seeds such as, *domba*, rubber and enderu are added, Oils such as *Dorana, Kohomba, Gona, Kekuna* and *Mee*, Sometimes farmers, especially from the Mavathagama area use five kinds of oils for this purpose. (Weerasekara Mudiyanselage, Piyadasa, 2004/09/30)

Poles made out of Kaduru wood are planted in eight corners of the paddy field. A lamp made out of raw papaw cut in half, is then fixed on to the pole, they are lighted throughout the night using the oils mentioned above. This system is normally used in Kurunegala, Kandy and Mahaveva areas. The insects are dispelled in two ways; some insects come near the flame of the lamp and are destroyed and some others attracted by the flame of the lamp and fall onto the water below and destroyed. (http://goviya.com/tennakoon.htm)

There is another strange method using lighted lamps; the lighted lamp is placed within a big pot which is pierced with holes. The insects try to fly into the pot through these holes seeing the rays of light and then fall onto the flames of the lamp and are destroyed.

Mässan Atugadämeema:

Another interesting method employed by farmers is called *Mässadn Atugadämeema* or sweeping away the insects and flies. In this method a pole of wood called batalee is prepared and the glue of the jack fruit or the milk of the daluk or vara tree is applied upon it. Then two persons carry the pole across the paddy field, so that it touches against the paddy plants. The insects and flies stick onto the pole of batalee. This is done several times until all the insects and flies are destroyed.

Besides this method, some farmers use tender coconut leaves woven together and apply either resin oil *(Dummala)* or glue from the jack fruit on it and then sweep these woven leaves across the paddy plants. All the insects and flies stick onto this mat made out of tender coconut leaves. (http://www.mssrf.org/fris 9809/SriLanka ch3-c.hym)

Another method called "*Danda Ädeema*" is used in the Pasyodun korale. Powdered resin is mixed with any kind of oil and applied onto a rope. Two persons then carry the rope, which touches the tops of the paddy plants making all the insects and flies stick onto it.

There appears to be another method used in areas like Arañayaka, Māvanella (in the Kegalle district) (Bell,Hcp.htm) and Laggala in the Matale district. In this method a dried coconut leaf is lighted (*Hulu-atta*) and carried close to the top of the paddy plants, thus destroying harmful flies and insects.

Visa dum Älleema: (Spreading of poisonous smoke)

Another method of dispelling harmful flies and insects is by spreading poisonous smoke. The farmers produce this poison by powdering a porcupine quill (*Itthäkuru*), the shell of the Indian Pangolin (*Käbällā*

katu), faeces of the elephant (*Alibeti*) and a medicinal herb called *kapparavalliya*, this powder is then dried in the sun. Afterwards this powder is wrapped in small parcels using *pinnakola* or *kändakola*. These parcels are then burnt and the smoke which spreads across the paddy fields dispels the harmful flies and insects.

In the Sabaragamuva province (ex. Ratnapura, Awissawella and Ruvanwella area) farmers use another method to drive away flies. They burn Perumkayam (Asafoetida), this smell drives away flies and other insects. Moreover in some areas flies are driven away by burning a flower called Käkuna.

Hulan Bambarā Bändeema:

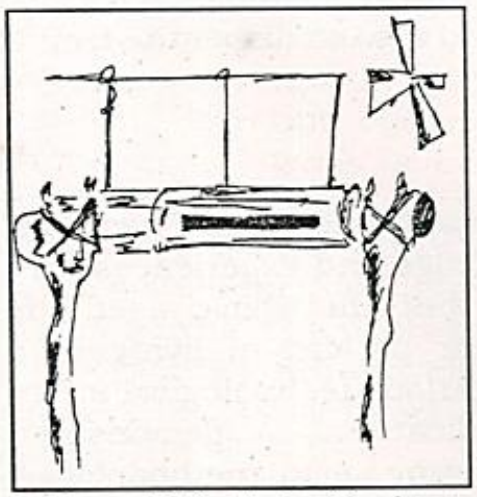

Figure No-8 - Hulan Bambara

The farmers especially in Hatkorale use a device called the *Hulan Bambara Bandeemä* (wind wheel). This device is made by taking a splinter of about 2 feet out of a piece of bamboo which is 3 to 4 feet long. Two holes are then drilled on either side of the bamboo and two wooden sticks are fixed onto them. Another stick is sent through the holes made at the end of the vertical sticks and a fan is fixed onto it. The piece of bamboo is setup on two strong poles so that it can hold the fan and the stick together. This fan begins to rotate by the force of the wind. A dried arecanut is also tied to the fan. When the fan rotates it strikes on the piece of bamboo creating a sound which dispels animals and insects from the field. The increase in the force of the wind leads to the increase in the sound. *(See figure No.8)*

Päl Rakeema

Figure No-9
Pål Rakeema

In order to prevent such harmful actions to the cultivation the farmer erects a small hut either on the branches of a tree or an elevated place, so that he can watch the entire field by staying in it. The farmers have adopted a system of reciting poems loudly whilst staying in these watch huts. On the one hand this prevents them from falling asleep and on the other it helps to drive away wild animals who try to destroy the cultivation. In the midst of this they light a huge fire to drive away wild animals and also to dispel the fear of darkness. *(See fig. No.9)*

Conclusion

The ancient farmers used to lead life a based on traditional practical knowledge and experiences they have gained. It appears that they have used the environment to make their pattern of living in a comfortable manner, The various technological methodologies that have been indicated above, demonstrate their technical skills, in creating useful methodologies (Boas, Franz 1911) and systems to avoid various dangers that come up during their cultivation activities (Malinowski, B ;1929). It is clear that all techniques created, are by using natural elements such as rain, wind, etc. Most of these methods and techniques are found in the upcountry areas of Sri Lanka, namely Meemure, Kaikavala, Vattegama, Jambagahapitiya in the Kandy District, Laggala in the Matale District and Makehelvala, Ambulugala in the Kegalle District, etc. It is important to note that the farmers have created

these technical methods by properly managing the rain water and other resources which would have washed away, (Tylor, E.B.; 1871) without being properly utilised. This is clear from techniques and activities such as the *Diyaholmana Ätaveema* or *Diyayaka Bändeeme* (setting up of the water ghost, or the binding of the water demon). Moreover it is clear that in creating and using these technological methods they have devoted their concern towards dispelling harmful insects and animals. Apart from this they appear to have maintained a healthy mental and physical balance (Firth R, 1957) enjoying the genuineness and beauty of their natural environment. Hence it could be said that they have never adopted harmful methods to destroy the lives of animals. It could also be said that methods such as erecting of effigies gives them entertainment and happiness. In the present day instead of erecting effigies, farmers hang pieces of plastic paper. What is important here is that the ancient farmers used these methods and techniques with the conviction and according to the needs of the day. By studying these methods one can understand that our farmers were always aware of the direction of the blowing wind and climatic conditions and its changes. (Personal Interviews - See the list of References)

The ancient farmers in utilizing methods such as *Visa dum Älleema, Pahan ugul Ätaveema and Mässan Atugadämeema* have been done with proper understanding of the medicinal values of the various hubs and plants. Hence such methods did not harm nature or the animal and plant life (Boas Franz, 1911). With the emergence of the modern world the Sinhalese village culture has gradually begun to modernize. This factor makes it difficult for us to understand these traditional methods and techniques employed by the ancient formers in order to safeguard their crops. Hu-

man experiences and traditional and practical knowledge have been equally applied with proper management and various elements with the idea of protecting and safeguarding their cultivation as well as plant and animal life.

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