

# MANAGING THE THREAT TO THE LOS' VERNACULAR QUALITY IN JAVA, INDONESIA<sup>1</sup>

Titien Saraswati

## Abstract

The tobacco plantation in the area of Klaten Regency (Central Java) and Jember Regency (East Java) has many huge barns which dominate the surrounding landscape since the year of 1850s, named Los. This Los is for drying tobacco. The Los(es) can be found in remote area in the villages; such as in Bendo Gantungan village within Gayamprit tobacco plantation in Klaten Regency; and in Ajong village within Ajong Gayasan tobacco plantation in Jember Regency. Both areas of tobacco plantations are under the management of PTPN X enterprise (government's enterprise).

It was confirmed from previous research of Los in Klaten Regency that the Los has high vernacular values, not only from its organization of space, but also from its form, its local materials, and its local techniques. But the vernacular quality of Los is threatened by the nowadays situation we never expect before. For instance, the global change of the climate makes the wind blows more severe. This has been damaging many Loses in Jember Regency due to the light materials the Loses have which could not be saved from the harm of harsh wind. The light materials apply to the main structure of the Loses are from bamboo materials. Moreover, there were also some Loses which accidentally burnt out because of

their vulnerable materials to the fire. In addition, there is a Los in Klaten Regency in which its main structure now was changed from bamboo piles to reinforced concrete columns, and so forth. It is unavoidably expected that in the future the vernacular quality of Los will be ruined.

This paper will explore the possible ways to reconstruct the Los in the future with very little destruction to its vernacular quality. This means that the vernacular traditions of the Los should be continued as much as possible.

**Keywords:** *Managing, Los, Threat, Vernacular quality, Java (Indonesia)*

## Introduction

According to Padmo (1994), there have been three areas of tobacco plantations and companies in Indonesia since the Dutch occupation in the year of 1850s, that still exist nowadays. They are a large Vereenigde Deli Maatschappij (VDM) in North Sumatra; NV Klatensche Cultuurmaatschappij in Klaten Regency, Central Java; and Landbouw Maatschappij Oud-Djember<sup>2</sup> (LMO) in Jember Regency, East Java. The development of private tobacco companies operating in those areas were from the 1850s to their take over by the Indonesian government in 1957. Tobacco in Klaten and Jember areas are high quality tobacco, are used only for cigars. Till now, there are three places in Indonesia which cultivate high quality tobacco, in Deli (North Sumatra), Klaten area, and Jember area. All are under the management of PTPN X<sup>3</sup> (Government Tobacco Plantation Enterprise X, Ltd. ). Kartodirdjo and Suryo (1991) also strengthened the above statements that high quality tobacco has been planted in the above areas.

The Loses which were the objects of this study are from Klaten and Jember tobacco plantation areas under the management of PTPN X<sup>4</sup>; they were Kebonarum/Gayamprit/Wedibirit plantation in Klaten (Central Java), and Ajong Gayasan/Kertosari plantation in Jember (East Java)<sup>5</sup>.

Brunskill (1993: 78-81) stated that the works of vernacular architecture comprises cottages and farm houses, farm buildings and associated structures, watermills and smithies, wayside chapels and some of the smallest and least pretentious of the parish churches. These vernacular buildings, humble though they

may be, are monuments to the persistence of traditional designs and traditional building practices in this proud and self-sufficient part of the country. Accordingly, the Los can be categorized as farm house; in this study is a building for drying tobacco leaves.

## Survey result

The appearance of the Los is saddle roof building, but very huge and large, dominating the landscape. Tobacco which is planted in Klaten<sup>6</sup> and Jember<sup>7</sup> are high quality tobacco for cigarette. So that it needs Los for drying it. Whereas tobacco in other areas such in Wonosobo (Central Java) and Selomartani (Yogyakarta Special Province) can be dried on the ground placed on woven bamboo because it is not high quality tobacco for cigarette.

Actually Los is used twice a year, that is during the months of July to September, and December to March. The remaining of the days for the Los are, sometimes, can be used for the process of making compost, whereas any other Los is remains empty. Los is still sturdy because when it is time for the Los to be used, the people repair it a little bit.

The Los in Klaten now is the Los that was constructed in 1994. Actually Los has been repaired lightly before the people use it. Every three years the building materials of the Los are changed, but the changed materials still use the same kind of building materials, for instance: bamboo, rapak or blabat (dried sugar-cane leaves<sup>8</sup>), etcetera. This also applied for the Los in Jember.

In the period of July to September, the Los is used for drying tobacco which was covered



with “see through” fabrics (strimin fabrics) during its growing-up in the ground. Whereas the period of December-March for the uncovered tobacco. Actually the Los has no differences for both kinds of tobacco, and also no differences whether it is in Klaten nor in Jember.

It was confirmed from previous research of Los in Klaten (Saraswati, 2008) that the Los has high vernacular values, not only from its organization of space, but also from its form, its local materials, and its local techniques. Although the Los in Jember was never studied for its vernacular quality; but its organization of space, its form, its local materials, and its local techniques are very similar to those in Klaten. So that the Los in Jember can be written here side by side along with the Los in Klaten, as in the following.

## *The form of the Los*

The Los in Klaten is rectangular, actually the length about 100 meters, the width 18 meters, and the height 12 meters. The roof is saddle roof<sup>9</sup> (pelana), with its slope about 45 degrees. A bundle of tobacco leaves comprises of 50 leaves, named dolok. One Los can accommodate approximate 20.520 dolok hung-up inside. The way to dry tobacco leaves is by fumigation with smoke in the night for 11 days consecutively, after that for every 2 days. The smoke can be produced from peeled skins of paddy seeds (sekam), packed of coals (briket batu bara), or timber (kayu bakar). The orientation of the Los always North - South in length, to prevent the harsh North - South wind entering the Los.

The Los in Jember has a bit different in size. The

standard length is 60 meters, comprises of 30 “rooms” in which 1 “room” is 2 meters in length. The width of Los can be 18 to 20 meters, the side height is 5 meters and the central height is 12,5 meters. The orientation of the Los also North – South in length, but there are also Loses which are East - West orientation in length. This is because of the limited land available for the site of the Los.

The plan of the Los is rectangle, as the plan of local people’s houses. The roof is saddle roof, as the roof of local people’s houses. Dakung (1983) stated that the type of Javanese house is rectangular or square in plan, and the roof is saddle roof, whereas there are any other forms of Javanese type of roofs. Saddle roof usually can be found among Javanese houses in the villages. It can be said that the Los had adopted the form and the roof of local people’s houses in the village, means that the Los is loyal to the local form. Furthermore, the form of Los is timeless, never changed, as Jackson (1984) said.

## *Organization of space*

The space inside the Los in Klaten is divided to the spaces for office, equipment’s storage, storage for peeled skins of paddy seeds (sekam) and timber, and – mostly – space for drying tobacco leaves. This space occupied the most inside the Los. There are no dividers among those spaces, except for office and storage. In the middle of the Los there is a space 6 x 6 meters square for “cooling” dried tobacco leaves before these leaves are ready to be stored to tobacco company. Main entrance of the Los is in its length side. Circulation path is in the centre of the Los.

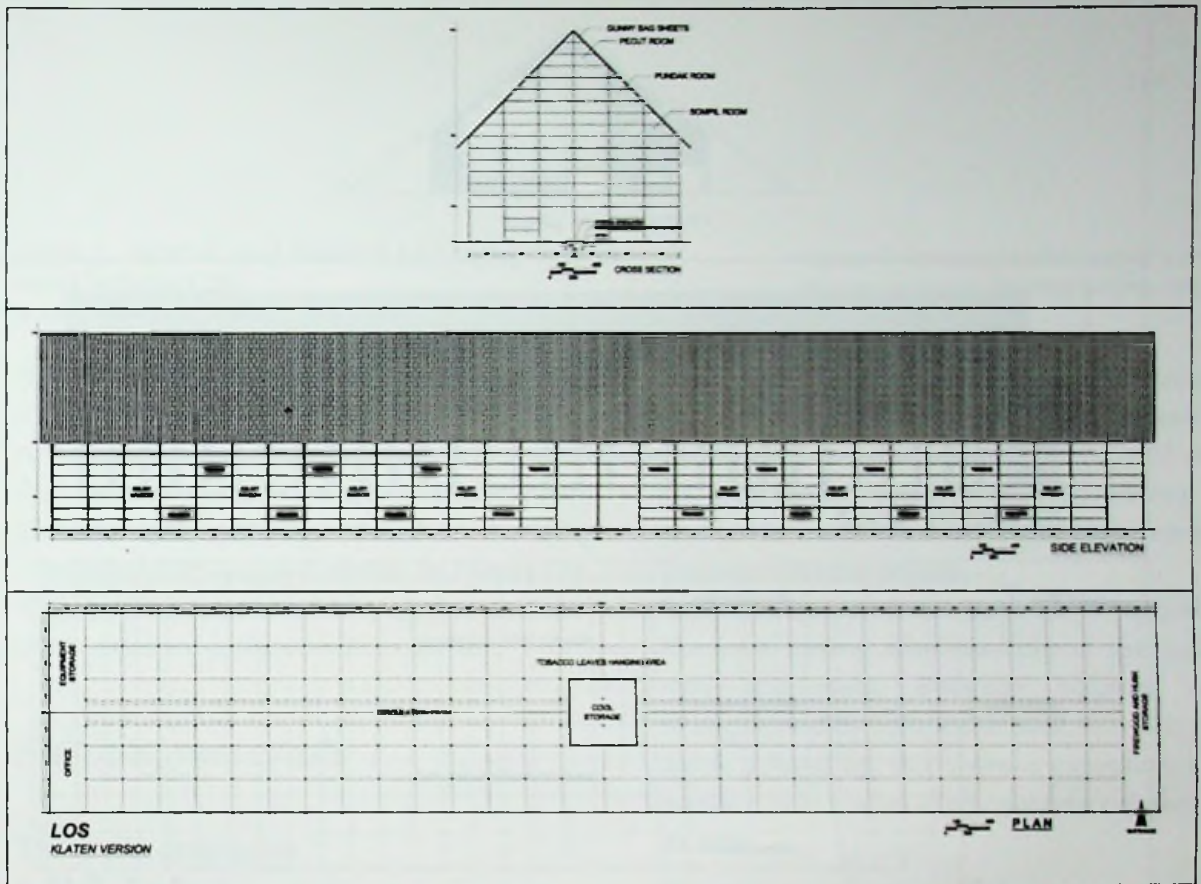


Figure 1: Front elevation of Los in Klaten.  
Source: Saraswati, 2008.

Figure 2: Side elevation of Los in Klaten  
Source: Saraswati, 2008.





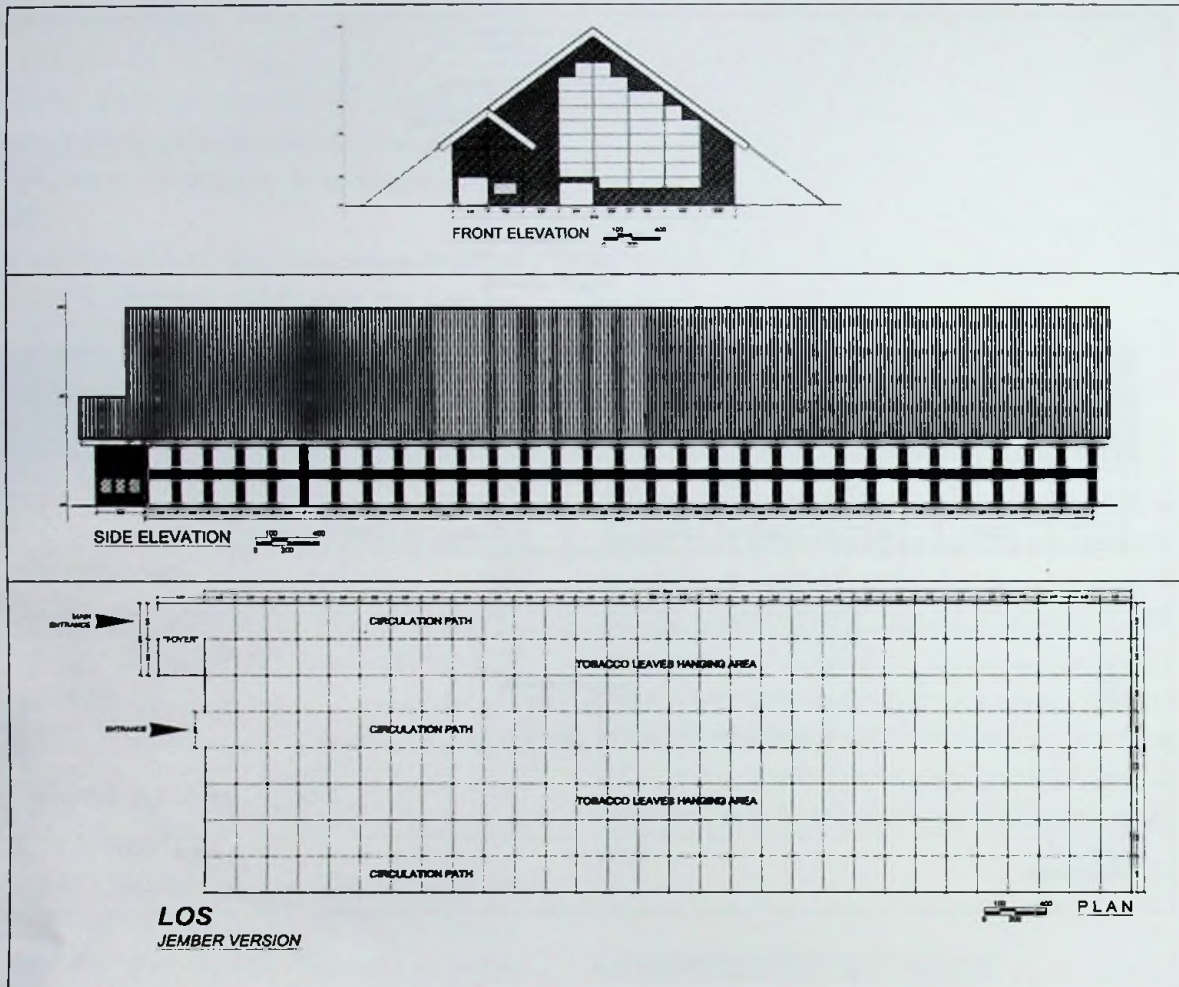


Figure 3: Front elevation of Los in Jember.  
Source: Author's documentation, 2010.

Figure 4: Side elevation of Los in Jember.  
Source: Author's documentation, 2010.

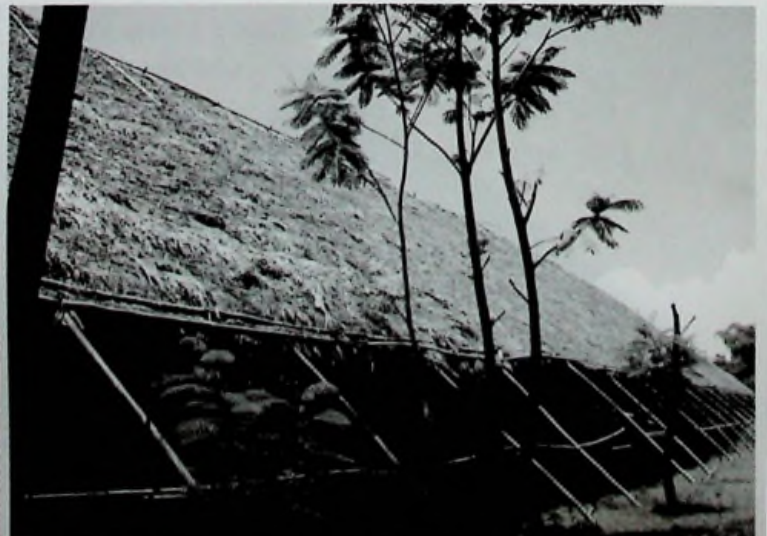


Figure 5 : Bamboo roof hindered by hanging tobacco leaves in Klaten's Los.

Source: Saraswati, 2008.

The Los in Jember has similar space inside, but there is no space for equipment's storage nor cooling storage. Circulation paths are in the centre as well as in the side of the length of the Los. Main entrance placed in the side completed with a space similar to "foyer" to keep bicycles or motorbikes of the workers. Other entrance is placed in the centre.

## Building materials

### The main structure

The columns and the the roof are made from bamboos<sup>10</sup>, because of the easiness of maintenance. The tobacco company bought bamboos from local people in Klaten as well as

Figure 7: Dried sugar-cane leaves roof covering (rapak) in Klaten's Los.

Source: Saraswati, 2008.

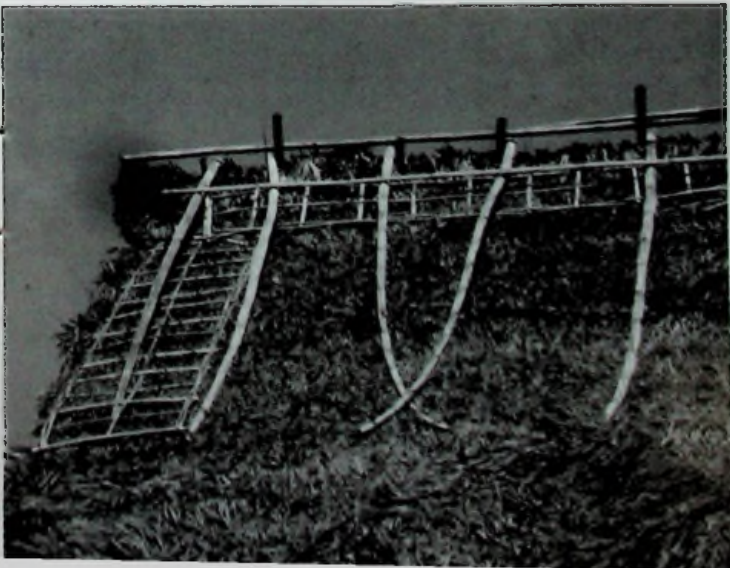


Figure 6 : Bamboo roof in Jember's Los.

Source: Author's documentation, 2010.

in Jember. This bamboo roof was constructed as the covering of the Los huge barn. It was not constructed as a truss. This bamboo roof can be seen as a system of purlins, bearing a roof-cover made of dried sugar-cane leaves. They are nailed or lashed.

Foundation of Los made from stone "umpak." The joint among bamboo column use cable wire and nails. Between columns are strengthened by bamboo as well, in which the dolok is hung up. But there is exception: Los number 10 in Klaten used concrete columns in its sides.

### Roofing

The roof is covered by dried sugar-cane leaves because it is light, smoke can penetrate out

Figure 8: Dried sugar-cane leaves roof covering (blabat) in Jember's Los.

Source: Author's documentation, 2010.





among the chinks of rapak/blabat whereas the humidity of the Los still be kept. The wind hardly ever enter the Los because the rapak/blabat is tied close together. The wind can damage the process of drying tobacco leaves, thus influencing the colour of dried tobacco leaves.

When the rapak is damage, it is very easy to be repaired. Sugar-cane leaves can be found in the area because there are also sugar-cane plantation there.

### The envelope of the Los

As aforementioned, the bamboo roof was constructed as the covering of the Los huge barn as well. Within bamboo columns were placed "wall" made of combination of rapak, woven bamboo, and sometimes also sheets of gunny bags to prevent the hot air entering the Los. There are the openings or windows. During rainy season the windows are closed. Tobacco leaves inside the Los should be kept free from rain water to prevent them not to be fungous.

### The floor

The ground inside the Los still be kept as the material for flooring. No floor tiles or concrete

covering the floor, local people just rammed down the soil. When the floor is a bit damaged, it is easy to reconstruct. Sometimes the ground is sprayed with water to keep the air and the hung tobacco leaves not totally dried. In the middle of the Los in Klaten, there is a path for circulation which is bordered by small ditches in its two sides. The ditches are poured with water so that the circulation path kept tidy from the dust. Sometimes the water is also spread out over the circulation path using water pipes. In Los in Jember is almost the same, no floor tiles or concrete covering the floor. But the circulation path is a bit different. This Los has circulation paths in the centre as well as in the two sides of the length of the Los.

## Discussion

Some Loses in Jember (28 Loses<sup>11</sup>) have been damaged due to the light materials the Loses have which could not be saved from the harm of harsh wind. In fact those are the Loses which their orientation are East - West direction in length. That's why they could not

Figure 9: Circulation path inside Klaten's Los.  
Source: Saraswati, 2008.

Figure 10: Circulation path inside Jember's Los.  
Source: Author's documentation, 2010.







Figure 11: Jember's Los damaged by harsh wind.  
Source: Author's documentation, 2010

be saved from the harsh wind ("puting beliung" wind or storm). Even though the available land is limited to be a site for the Los, but the Los should be constructed in North - South direction. It is what we say local wisdom, that people have already known about the knowledge to place the Los right on the site. It seemed that the tobacco company (PTPN X) did not want to have smaller Los. They seemed to compensate the site of the Los to yield profit.

There is an experiment to protect the Los from harsh wind in West Ajong Gayasan plantation in Jember. In one Los (is still in the case of experimentation), the bamboo columns are changed to iron columns in every 5 rooms (equal to 10 meters). The incorporated bamboo bars are also changed to irons till the upper part (the roof) of the Los including the bars for

Figure 13: Jember's Los with iron columns and bars.  
Source: Author's documentation, 2010.



Figure 12: Jember's Los totally damaged by wind storm. Source: Author's documentation, 2010.

hanging dolok. The bamboos along the length of the Los are also changed to iron bars. It is interesting that the size of the irons are in the same size with the size of the bamboos. The foundations are from concrete for those iron columns. This experimentation so far has been one year long, and the result to protect the Los from harsh wind is good. When the harsh wind blows, this Los still stands up on the ground while other Loses without iron columns are damaged and felt down.

It is a very good experimentation, and it should be kept as long as the iron columns and bars not dominating the materials of the Los. And this should be done specifically for the Los which its site is within a large paddy field or within a large open space where there are no trees or buildings to weaken the blow of the harsh wind.

Figure 13: Jember's Los with iron columns and bars.  
Source: Author's documentation, 2010.





According to Janssen (1995: 42-43), the danger of wind can be minimized by: (1) stabilizing braces in the plan of the roof; (2) a ridge ventilator to control both high temperature under the roof and wind suction; (3) in case there are large openings towards the wind will result in the most dangerous situation during a storm. To counter this is by creating an opening in an area away from the windward wall. For number (1): Los in Jember (and in Klaten as well) is constructed without trusses, but it was bamboo roof that also be constructed as the covering of the building. Possibly the bamboo braces can be placed within or under the purlins. Accordingly, bamboo columns till bamboo roofs can be strengthened by constructing double-bamboos or two bamboos for one "umpak" foundation. Other way to prevent

danger of wind by changing bamboo roofs to trusses. But it needs more financial plan. Number (2): It is impossible to the Los because when more wind passing the Los will make the colour of dried tobacco leaves are not as good as the colour needed. Number (3): The best way is constructed the Los in North - South orientation in length. When there is no way to avoid constructing Los in East - West direction, the openings of the Los should be open in one side only away from the windward wall during a storm. If this done carefully during a storm, highly likely changing wind direction and save the Los.

The materials of the Los (bamboos, dried-sugar cane leaves, gunny bag sheets) also should be kept even though these are vulnerable to the fire. According to Masner (1993: 199), the true vernacular building is the result of building

Figure 15: Jember's Los with iron columns erected on concrete foundations.  
Source: Author's documentation, 2010.

Figure 16: Jember's Los with iron columns and bars.  
Source: Author's documentation, 2010.



from readily available materials, locally found. There is a Los which has been burnt by the struck of lightning in Jember. And there is also a Los that accidentally burnt out. To protect the Los from the struck of lightning, it is possible to construct lightning conductor; that is metal rod fixed on the top of a Los and connected with the earth to prevent damage. No other ways to protect the Los from lightning except by this; because the height of the Los is the highest within surrounding landscape, even compare to the height of the trees there. For the Los which is accidentally burnt out, just warn out the people there, even the workers, not to smoke nor play with fire nearby.

Furthermore, as explained before, bamboo roof was constructed as the covering of the Los huge barn. In this case the lifetime becomes a problem, because the bamboo cover is exposed to all weather conditions. According to Janssen (1995: 30), the bamboo cover even if preserved, it will last on average only two years. This statement matches up to what the people or the workers do to the Los; that is every three years the building materials of the Los are replaced with the newer, same kind materials. In my opinion, the Los still can be categorized as vernacular one. The form and appearance of Los are still the same as long time ago (timeless), and the materials of the building are still local materials. It is impossible that vernacular buildings with such materials will long lasting hundreds of years without any renewal of the materials.

There has also been experimentation in Jember for the Los that blabat for roof-covering was changed to "terpal" (light material of waterproof for rain coat) to prevent the wind damaging the roof-covering (blabat). The result was not good for the process of drying to

bacco leaves. Even though the colour of dried tobacco leaves was better, but the aroma of it differed from the aroma when it was dried under blabat roof-covering. In fact dried tobacco leaves for cigarettes are considered "the best" when the aroma and the taste meet the requirement provided by the company. Actually there are workers from the company whose their tasks are to smell and bite dried tobacco leaves to ensure the aroma of tobacco leaves meets the requirement needed. So that it is still better to use blabat for roof-covering. There is also Los number 10 in Klaten which uses concrete columns at its side parts<sup>12</sup>. Whatever the reason is, in my opinion, this should be avoided. The columns should be reconstructed back to bamboo columns when we concern to the vernacular quality of the Los in the future.

## Concluding remarks

From the discussion above, there are some possible ways to manage the threat to the Los' vernacular quality. Therefore, the conclusions and recommendations can be drawn in the following.

## Conclusions

1. The Los should be oriented in North - South direction in its length. It is a local wisdom people there have already known.
2. When the site of Los cannot accommodate



the orientation and the standard size of the Los, that means the Los will be constructed in East - West direction in its length; it is better:

(a) to strengthen the Los with irons for some of the columns, braces, and bars in which the irons have similar size to the size of bamboos used, and as long as the irons not dominate the materials of the Los; (b) to construct double-bamboo for each of the column till arrives at bamboo roof structure; (c) to change bamboo roof structure to trusses; (d) the openings of the Los should be much more in the North elevation of the Los than those in the south one. The openings in the South one should be kept minimal.

3. The danger of harsh wind especially in Jember can be minimized as the same way as number 2(a), 2(b), and 2(c) above.

4. To protect the Los burnt because of lightning strike, construct lightning conductor

to the Los. Also, warn out the people there not to smoke nor play with fire nearby.

5. Concrete columns of Los in Klaten should be reconstructed back to bamboo columns.

## Recommendations

1. The government's enterprise (PTPN X) who manages tobacco plantation should not replace bamboo columns to concrete columns in Klaten in fact that there is no harsh wind in Klaten area.

2. When the Los is still in its real form and its local building materials, there will be a chance to run tobacco plantation tourism in both areas. People there and PTPN X will gain earnings from this tourism.

## References

Brunskill, R. 1993. *The traditional buildings of Cumbria, in Companion to contemporary architectural thought*, edited by Ben Farmer and Hentie Louw. London dan New York: Routledge: 78-81.

Dakung, S. 1983. *Arsitektur tradisional Daerah Istimewa Yogyakarta* (Traditional architecture of Yogyakarta SpecialProvince). Jakarta: Depdikbud.

Farely, D. 1984. *The book of bamboo*. San Francisco, CA: Sierra Club Books.

Jackson, J.B. 1984. *Discovering the vernacular landscape*. New Haven: Yale University Press.

Janssen, J.J.A. 1995. *Building with bamboo*. A handbook. London: ITDG Publishing.

Kartodirdjo, S. and Suryo, D. 1991. *Sejarah perkebunan di Indonesia. Kajian sosial ekonomi* (The history of plantations in Indonesia. Socio-economics studies). Yogyakarta: Aditya Media.

Masner, M. 1993. *Is there a modern vernacular?*, in *Companion to contemporary architectural thought*, edited by Ben Farmer and Hentie Louw. London dan New York: Routledge: 198-201.

Padmo, S. 1994. *The cultivation of Vorstenlands tobacco in Surakarta Residency and Besuki tobacco in Besuki Residency and its impact on the peasant economy and society: 1860-1960*. Yogyakarta: Aditya Media.

Saraswati, T. 2008. Vernakularitas Los, bangunan pengering tembakau di Kabupaten Klaten, Jawa Tengah (Vernacular quality of Los, the drying tobacco huge barn in Klaten Regency, Central Java). *Jurnal Dimensi Teknik Arsitektur*, 36(1): 65-74.

## End Notes

<sup>1</sup> Paper presented at the 5th International Seminar on Vernacular Settlement held by The University of Moratuwa, Colombo, Sri Lanka; on July 30-31, 2010.

<sup>2</sup> The word "Djember" was an out-of-date Indonesian spelling version. Accordingly, the right spelling now is "Jember".

<sup>3</sup> The number X in PTPN X means for tobacco plantation. Other crops such as sugar-cane, tea, coffee, etcetera which are also managed by the government have different numbers.

<sup>4</sup> From Klaten's office information, the company (government enterprise) had already changed the name from PPN Tembakau (Tobacco) IV to PNP XIX, then to PTP IX, and finally till now to PTPN X.

<sup>5</sup> From this poin then, Klaten Regency and Jember Regency are now written as Klaten and Jember only.

<sup>6</sup> There are 63 hectares tobacco plantations in Gayamprit, Klaten; comprise of more than 350 Loses.

<sup>7</sup> There are 950 hectares tobacco plantations in Jember, comprise of more than 500 Loses.

<sup>8</sup> People in Klaten called dried sugar-cane leaf as rapak, while those in Jember called it blabat. These are because of the local languages. Most people in Klaten are Javanese, whereas those in Jember are Madurese (people from Madura Island).

<sup>9</sup> A roof having two gables and one ridge, suggesting a saddle.

<sup>10</sup> There were Petung and Apus bamboos in Klaten, and Petung and Keles bamboos in Jember.

<sup>11</sup> <http://antaranews.com/berita/1256486705/puting-beliung-rusak-puluhan-gudang-tembakau>

<sup>12</sup> Unfortunately the photograph of Los number 10 could not be gained due to the difficulties to go there and the limited time to conduct field survey allowed by the company. This Los is far away in remotest area.