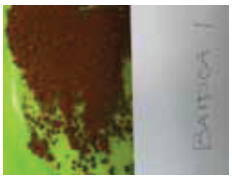
13 Soil analysis

BAIDOA 1

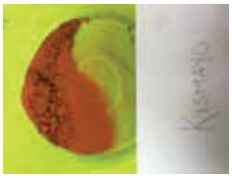


Grain size distribution:	From 1cm to fine component. 60% of aggregate. Soil inert component are well graduated
Cigar test:	Very cohesive soil Clay is very active. Not enough fine component to fill the gap between sand and gravel
Cake test:	Slight shrinkage with slight cracks. Many big aggregates.
Conclusions:	Good structure / grain size distribution. Very cohesive. Soil structure can be improve if some fine sans is added.
Recommendations:	Remove the biggest gravel (1 cm and more) using a sieve Add some fine sand up to obtain a continuous grain size distribution from gravel to clay (can be check looking at the aspect of the soil when doing the cigar test or the cake test)
Potential use:	Adobe. Production tests can be done with the natural soil, then with adding some fine sand. Dry blocks should be tested regarding cracks development, shrinkage and compressive strength.

KISMAYO



Grain size distribution:	Very fine component. 50% of fine sand.
Cigar test:	Medium cohesive soil
Cake test:	Slight shrinkage.
Conclusions:	Good structure / grain size distribution. Slight shrinkage with fine structure. Not very active clay.
Potential use:	Plastering. Maybe necessary to add some few percentage of sand maybe good for SSCB if some coarse sand is added.

BOSSASO



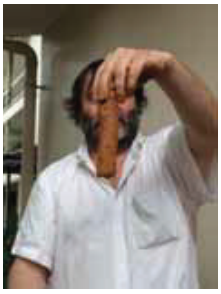
Grain size distribution:	Biggest aggregates are 2 cm diameter. Grain size distribution is not good. 70% of inert component.
Cigar test:	Low cohesive soil
Cake test:	Very slight shrinkage.
Conclusions:	Grain size distribution to be improved if this soil has to be used Slight shrinkage with fine structure. Not very active clay.
Potential use:	Plastering? But cohesion may not be good enough. And soil will need to be sieved at 1 mm. Maybe good for SSCB if some coarse sand is added. But again, cohesion may be not good enough to ensure SSCB to be removed from the press after compression.

BAIDOA 3



Grain size distribution:	Biggest aggregates are 2 cm diameter. Grain size distribution is not good from 1cm to bigger. From 1cm to clay, grain size distribution is regular. 50% of inert component.
Cigar test:	High cohesive soil
Cake test:	Very large shrinkage and many big cracks
Conclusions:	Grain size distribution to be improved if this soil has to be used (dependent of the mold size, remove the gravel bigger than 1 cm, or add some coarse sand to improve on the size distribution).
Potential use:	Maybe good for Adobe if shrinkage is not too high and if adobe do not develop cracks while drying. May be good to go for square adobe, for example, 20 cm * 20 cm * 12 cm (less cracks risk when drying). If shrinkage is too high, or if too many cracks appear, it could be relevant to add grasses in the soil.

GAROWE


Grain size distribution:	Biggest aggregates are 1 cm diameter. Grain size distribution is irregular from 0.2 cm to 1cm to bigger. Then, from 0.2 cm to clay, it becomes regular. 60 % of inert component.
Cigar test:	High cohesive soil
Cake test:	Large shrinkage and no / slight cracks
Conclusions:	Grain size distribution to be improved if this soil has to be used. Shrinkage may create problems for plaster, adobe, SSCB.
Potential use:	Maybe good for Adobe if shrinkage is not too high and if adobe do not develop cracks while drying. May be good to go for square adobe, for example, 20 cm * 20 cm * 12 cm (less cracks risk when drying). If shrinkage is too high, or if too many cracks appear, it could be relevant to add grasses in the soil.

BAIDOA 2



Grain size distribution: Biggest aggregates are 1 cm diameter. Grain size distribution is good from 0.5 cm to clay.
60 % of inert component.

Cigar test: High cohesive soil

Cake test: Large shrinkage and no / slight cracks

Conclusions: May be expansive clay.

Potential use: Maybe good for Adobe if shrinkage is not too high and if adobe do not develop cracks while drying. May be good to go for square adobe, for example, 20 cm * 20 cm * 12 cm (less cracks risk when drying).
If shrinkage is too high, or if too many cracks appear, it could be relevant to add grasses in the soil.