THE VSBK IN NICARAGUA

Here in Grupo Sofonias Nicaragua we are trying to adapt the Vertical Shaft Brick Kiln (VSBK) to the specific conditions in the country since last year. We believe at this stage of our investigation that we are in the right track.

However, we would like to stress the fact that it is not an easy task, information from India are also rather controversial. It is close to impossible to get REAL and independent information on the behavior of the existing kilns. We have started with a downsized model and now we are experimenting with a life-size kiln. It all looks very promising, but there are several months of serious testing and analysis ahead of us, before we will be able to share REAL results that can be verified. Our idea is to establish a know-how center in Nicaragua, where interested people can come and learn the full operation under real-life conditions.

The VSBK works tries to use all the calorific energy produce by the material used to burn the clay bricks. Is a continues kiln suppose to burn bricks without stopping, an intermediate technology Hofmann kiln. The reports we have received from our colleagues of "Development Alternative" is that they burn the kiln for weeks, before they “let it die”.

One of the innovations of this kiln is not the use of petroleum and his outcomes. In India and China they are using coal, here in Latin America. Since we do not have coal, we are trying to use firewood (twig), and Solid Fuel Blocks (SFB).

The initial design and the way to burn the kiln are similar, use the calorific energy to start drying the bricks and the initial phase of the green bricks become burnt bricks using the physical law that the hot air goes up.

Here in Nicaragua we had to start from cero, not much information we could received from the internet, and books and pamphlets did not have all the information needed.

The VSBK, as we have already said, use coal to burn the bricks. The coal is placed between the bricks for them to burn. One question we have not answer yet is how they start the fire with coal.

A basic function of this kiln is that it allows the load and unloads of bricks while it is still burning. The bricks are unloaded in the bottom and loaded in the top. All the bricks are placed one on top of the other in layers of four rows each. The first row you must leave a space to place the metal beams that will support the rest of the column while you unload the burnt bricks.

The interesting thing is that the brick column has to be supported by a metal base (which never should get hot) that moves up and down and has several metal beams that support part of the column while the metal base goes down just to let unload five rows of bricks.

The metal base then is lifted up again and reloaded (in the top) with bricks and charcoal. The metal beams are removed. This is how the VSBK functions in very few words.

What we have tried to adapt here in Nicaragua is the fuel. We are putting instead of charcoal wooden chips between the bricks and we have made a change in the kiln with two places to burn SFB and twigs. They are in two sides of the kiln and the heat is transfer to the brick column helping the wooden chips to also burn and produces the bricks.

We have tried twice now to burn the kiln, with not much success. Mainly because we are using a screw to lift up and down the metal base that support the brick column. The screw when is unloaded will go up and down but when loaded does not move. We believe there was an error in the design of the bolt threads.

The initial phase of the kiln is more or less 18 to 24 hours before the first bricks are burnt, and almost 36 hours before they are out of the kiln.

Is needed to say that reloading the kiln is more difficult than unloading it. The heat and steam we have on the top of the kiln, even with the chimney makes the loading very difficult, since all the heat is going up, and we have a very hot environment up there.

A significant difference between the Chinese version and the one we are trying to produce is that they say in their information that you can retrieve four lines of bricks (150 more or less) every two hours. With twigs and SFB, we believe is more like four hours.

We have plans and photographs we share here with you.

The VSBK here is still not working and we believe that we are still halfway before it can be used commercially. The screw has to be redesigned and we need to burn the kiln for three or four days, moving the screw before getting to conclusions.

One thing I could say now. The kiln works, and is environmentally friendly using twigs and SFB.