

## Country paper:

### **Current situation of biogas application in Vietnam**

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Techniques used for converting organic matters into biogas have been existing years long ago in the developed and developing countries. Biogas was burnt directly for cooking, lighting or used indirectly as gaseous fuel for motors providing electric and kinetic energy.

In Vietnam biogas technology was being studied and applied since 1960s of 20<sup>th</sup> century. Years of 60-70 biogas technology was not still developed, since 1980, however, in national program, priority was being given to delivery of technical advances to rural areas via constructing biodigestors. Despite failure investigation of biogas has been continuing. During this time, biodigestors built after foreign models showed less attraction to the farmers, their development, for different reasons mainly for difficulties in animal husbandry and in own farmers' life, was halted. Another reason was low level in technology and management of biogas digesters that worked inconstantly and have been rapidly damaged. Additionally, we did not have appropriate methods for reuse of manure source (waste liquid from biodigesters). Lacking fertilizer for crops caused farmers not willingly to construct biogas digesters at their expense.

Since years 1990-1997, when project 52C ended up, due to financial difficulties, the maintenance of old digesters was impossible and most of them were in a bad state of repair. Generally speaking, development of biodigesters in many rural areas was stopped.

During the period of time mentioned above common and current were digesters medium that developed intensively in the South Region the spreaded to the North Region. But due to irrelevance applying of these digesters met difficulties. Moreover, despite being technic delivering agency development of biogas digesters was dependent chiefly on financial help of research projects.

Since 1997 until now biodigesters are continually diversified and technically improved. After many years

testing of biodigesters types with floating cover, brick digester with fixed cover, these are, now, successively modified so that they become appropriate to technic accepting level of farmers, financial ability and habit for use for farmers. Although some of digesters are already damaged many of them normally work though after 5-6 years run.

In the past, one of the biggest difficulties apart from technical and financial ones for constructing biogas digesters was the loss of manure source.

In the framework of testing projects the National Management Board for providing pure water and environmental hygiene asks Consulting Center for rural development belonging to Vietnamese Association of Construction to continually modify biodigesters after model "Farmer's household carries out environmental hygiene by biogas digesters and production of bioorganic fertilizer based on peat and agricultural wastes".

Biogas digesters modified after Vietnamese types

Modification of digesters is carried out by applying a cover made of cement-steel net, gas-proof or made of a light synthetic material, highly gas-proof. Digesters may be diversified so that they are appropriate to economic and animal husbandry's conditions, easy to construct and to run. It is possible to construct jointly modulus to digesters with large capacity.

Waste liquid from digesters must be reused to enrich organic manure source qualitatively as well quantitatively, thereby contributing to a safe and sustainable agriculture. By this measure we are able to perform advanced method on fertilization and amelioration of soil. Utilization of peat enables farmers to produce on-site bioorganic manure. This is an initiative of our country compared with other nations in the region aiming at resolving the loss of original organic manure source. It is relevant to international trend in the creation of a safety agriculture and an organic agriculture which develops sustainably.