Post Installation Routine Maintenance (PIRM) Scheme of KVIC/India

Introduction:

The Biogas programme which has gained wide acceptance during the past few years continues to gain momentum, as a result of which more and more Biogas Plants continue to be installed all over the country. Although the technology involved in Biogas Plants is quite simple. however still there could be instances where the plants function partially or in some cases not at all. As such though on one hand large number of plants are installed, on the other hand many of them become idle due to one reason or the other. As such the practise of only looking ahead (installing the plants) without looking back (functioning of plants already installed) may not survive long. Hence both the installation and Post installation care are equally important to the success of the Biogas Programme.

The non-functioning of a plant could be due to various reasons, such as defective construction, improper maintenance etc. It is very rarely that the beneficiary on his own can rectify the problem and put the plant into operation. Moreover many a times though he desires to avail the assistance for finding the proper remedy to make the plant functional but may be unable to know whom to approach and how. At present the Biogas programme has many schemes and patterns for preinstallation and for installation of the plants but there is hardly any scheme, barring post installation warranty and to some extent the repair scheme of the DNES (Department of New Energy Sources), which could be considered systematic procedure to attend to the plants that are already installed in the field. Having regards to the above position, the KVIC (Khadi and Village Industries Commission) decided for the first time, during the year 1989-90 to launch a pilot scheme of post installation routine maintenance (PIRM) scheme.

As the nomenclature suggests, the Scheme relates to maintenance of plants in a routine manner by providing a post installation service to all the plants installed during a specified period. The Scheme is detailed hereunder alongwith the guide-lines, pattern and various proformae for implementation of the scheme.

Applicability of scheme:

As per the present pattern, the Supervision Charge worker provides 2 year's warranty for the plant installed through him, which in other words means that any technical/operational defect arising within 2 years from the date of functioning of the plant is to be attended by the concerned trained worker and technical defect, not arising out of improper handling by the beneficiary, is to be rectified by the trained worker at his cost. After the completion of warranty period of 2 years, the plant would be under the PIRM scheme for the next 3 years. This means the plant will be covered for a period of 5 years, first under post installation warranty (2 years) and later under post Installation Routine Maintenance Scheme (3 years).

However, there may be some difficulty in computing the warranty period and subsequent PIRM Scheme period, since the warranty period is applicable for 2 years from the actual date of functioning whereas the PIRM Scheme is based on 3 financial years. As such to over-come the above problems, it may be desirable to compute the post warranty period as 2 years from the date of functioning and PIRM would be applicable from the beginning of the next financial year.

For example, if a plant starts functioning from 20th Jan. 85, the warranty period would be 2 years from 20.1.85, i.e. till 20th Jan. 87 and from the succeeding financial year, i.e. 1987-88 or from 1.4.87 till next 3 years i.e. till 31.3.90 the plant would fall under PIRM. Similarly, if a plant starts functioning from say 20th April 1984, with the same yard stick the warranty period will end on 20.4.86. Since the PIRM is from 3rd year from the actual year of installation and in this case as the plant is installed in 1984-85, the PIRM would be applicable from 1.4.87 although the warranty period expires on 20.4.86. This is essential to maintain uniformity in the plants covered during a particular financial year as the coverage of plants would be decided based on the Directory of plants which would naturally be yearwise.

Hence, the plants during the first two years from the actual date of functioning would be covered under warranty period from the Trained Worker and from the 1st April of the succeeding year, the plant would be covered under PIRM for next 3 years.

Operational strategy:

1. Selection of area of operation:

Considering the limited availability of funds and also having regards to its being a new scheme, it is proposed to implement the scheme in a limited way initially in a compact/cluster area where the Biogas programme is implemented on intensive basis. Initially, it is thought that a district is taken as one unit and the district selected may be such where about One Thousand gas plants are installed during the preceeding period of 3rd to 5th years.

2. Trained Mechanics (TMs):

To implement the scheme a separate cadre of workers designated as "Trained Mechanic (TM) is to be created. He would be provided Training in the finer points of Installation and maintenance of the gas plant. These TMs after completion of the Training, would be assigned a specific area of operation wherein the plants installed during preceeding 3rd to 5th year would be provided technical assistance for proper functioning of the gas plants. The TMs would also be provided a handy tool-kit to attend to the minor repair works.

3. Indentification of Trained Mechanics:

Since the scheme is to be implemented in a compact area and also number of visits per plant would be 3 or more in a year it is necessary that the persons selected to work as Trained Mechanics are from the same block or district where the scheme is to be implemented or at best from the adjoining block or district.

As far as the qualification background is concerned, no specific qualification is prescribed, however persons with some background of ITI or some other technical experience could be preferred. Even a member of an household having a gas plant working successfully for past few years could be considered to be trained as TM, since the person is expected to be already exposed to the functioning of Biogas plant.

4. Training of TMs:

In the absence of any separate specified training programme for such TMs, the prospective TMs will have to be provided in job training without any incidence of stipend, T.A. till such time any specific pattern for such Training programme is approved.

Contentwise the training programme would be an amalgamation of 'Construction cum Maintenance Training Course' and 'Refresher Training Course' with more emphasis on repair aspects. The duration of training programme would be around 10 days, of which 40 % (4 days) would be devoted to construction aspects by covering only the finer points of the construction of gas plant by showing them actual construction of Biogas plant in the field. Out of the remaining time, 50 % time (5 days) would be devoted to repair and maintenance side covering various aspects from daily maintenance requirement like feeding of gas plant to routine maintenance like painting of gas holder etc. Here also in addition to the maintenance of gas plant, maintenance of pipe fittings, Biogas appliance would form an im-

portant part. The training in construction maintenance and repairs will be of practical nature, i.e. on site where various aspects are actually demonstrated to the Trainees. Remaining one day could be utilised to explain the procedure, various proforma, procedure for claiming the service fee etc.

5. Recognition of TM:

The prospective TM is expected to remit an amount of Rs.50/- towards initial part of earnest money deposit advance at the time of applying for training and further 10 % of each bill should be deducted till total earnest money deposit reaches cummulative Rs.500/- which may be considered to be refunded to TM when the TM ceases to work provided sufficient justification are produced for his/her inability to continue as TM or else it would be treated as forfeited. The discretion to decide about this issue will rest with Commission.

6. Routine visits of TM:

The TM will visit each gas plant atleast thrice a year in a routine manner to see the functioning of Biogas Plant, and in the event of any suggestion/guidance required to be provided for proper functioning of the plant, he would advise the beneficiary suitably.

In the event of the plant requiring any repairs etc. he would provide the guidance for undertaking necessary repair work for which the raw material required, if any, and labour etc. will have to be arranged by the beneficiary at his cost. The repair scheme, if applicable, could also be considered, for which the TM will prepare the suitable proposal in the prescribed proforma and submit it to the Technical staff in the area or the State/Regional Office of KVIC for necessary approval.

Generally the 3 routine visits would be spaced during the financial year in the following manner - first during April-July and second during August-November and third during December-March period. The time lag between any two visits should be minimum 3 months.

7. Additional visits of TM:

Besides the above normal visits, if the beneficiary requires any assistance during any intervening period also, he would write to the concerned State/Regional Office for which pre-printed self addressed unstamped post card would be provided to the beneficiary in advance. The beneficiary could also contact the nearest Biogas staff or TM for assistance.

8. Service fee payment to TM:

Each beneficiary would be provided with a passbook wherein each visit of the TM would be recorded alongwith the work done by him. The TM on production of certificate from the beneficiary for having visited and attended the plant would claim the remuneration. The remuneration (Service fee) would be payable on instalment basis. However in the case of the plant requiring repairs for which the party is advised to arrange raw materials, the remuneration for such routine visit would be payable only after the plant is repaired and put into operation and a certificate to that effect from the beneficiary is produced.

9. Review of functioning of TM:

The TM's working will be reviewed according to their performance report during each year and based on the report it will be considered for renewal for next year.

10. Expected earnings of TM:

As an optimum yard stick it is expected that a district having 1000 plants could be covered by around 5 TMs which will provide 200 plants per TM or in other words average gross income of Rs. 8,000/- per annum.

11. Mode of payment:

After each routine visit, the TM would submit a bill alongwith the certificate in the prescribed format from the beneficiary for having attended the plant based on which 30 % of the amount due as "Service fee" for the plant will have to be remitted to the TM. Likewise for 2nd and 3rd routine visits additional 30 %

amount will have to be paid for each visit and balance 10 % amount would be payable after completion of the year, if no complaints are outstanding from the gas plant owner. The Service Fee amount applicable per plant per annum is

Age of plant	Amount of Annum
3 years	Rs.30/- per plant
4 years	Rs.40/- per plant
5 years	Rs.50/- per plant

Considering the above rates the amount payable per instalment would be as under:

Age of plant	1st Routine visit (30 %)	2nd Routine visit (30 %)	3rd Routine visit (30 %)	Final payment after completion of financial year (10 %)
3 years	9/-	9/-	9/-	3/-
4 years	12/-	12/-	12/-	4/-
5 years	15/-	15/-	15/-	5/-

The payment is to be effected based on the joint certificate from the beneficiary and the TM. Although considering the large No. of plants and No. of visits involved and also small amount involved, no prepayment inspection is specified, however around 2-5 % sample verification per annum by the Biogas technical staff is recommended. The visit of Biogas Staff is also to be recorded in the Pass Book. The Biogas technical staff visiting the area in some other connection could be asked to visit some of the plants covered under PIRM and reconcile the details entered in the pass book (which is retained by the beneficiary) with the details of the bill submitted by the TM. In the event of any TM found to have given false information, action like derecognition and also recovery of remuneration paid could be considered by adjusting against the caution money deposit.

12. Tool kit

Though the TM is a sort of counsellor who is supposed to provide guidance etc., so as to enable the gas plant owner to put his plant into operation properly, however the TM is also expected to attend to small routine type of repairs/maintenance like dewatering the pipe, line cleaning of nozzle of burner etc. himself for which he will be provided a tool kit costing around Rs. 500/-. The tool kit could be a small leather or metallic bag containing some hand tools etc. like

1. Pipe Wrinch 10"-12" - 1
2. Plier - 1
3. Hammer 250 gms. - 1
4. Spanner set 6 keys - 1 set
5. Screw Driver 6"&10" - 2 Nos.
6. Steel Tape - 5 metres - 1
7. Rubber Tubing 5/8 Ø -2 metres - 1
8. Flat file 6" & 8" - 2 Nos.
9. Half round file 6" & 8" - 2 Nos.
10. Thapi - 1
11. Patra - 1
12. Chisel - 1
13. Hexa blade with frame - 1
14. Tool Box (Steel trunk or wooden Box made to order or leather Bag) - 1

The tool kit is to be provided after the completion of training. If at any time TM is found to be not working or desires to leave the service, the tool kit is to be returned by the TM or else cost of took kit i.e. Rs. 500/- is adjustable against the caution money deposit of Rs. 500/-.

For further details please contact

KVIC,
3 Irla Road, Vile Parle (West)
Bombay 400 056

summary

Post-Installation Routine Maintenance Scheme-PIRM

KVIC/India is attempting to arrange the maintenance and repair service for biogas plants and has started an integrated programm aimed at doing this. Subsequent to the guarantee period of two years which is attended to by the contractors, an initial three-year service phase follows which is carried out by the service mechanics trained for this purpose. Each plant is to be visited as a routine three times per year. The mechanics are paid by KVIC according to the number of visits they make to plants. If there are around 200 plants within the services sector a technician can achieve an annual income of 8,000 Rps.

sommaire

Le système d'entretien de routine de KVIC

KVIC/Inde essaie de régler le système d'entretien et de réparations des installations de biogaz et a mis en route un programme à cycle complet. A la suite de la période de garantie de deux ans dont les entreprises sous contrat se chargent vient s'ajouter une phase fixée à trois ans dans un premier temps et pendant laquelle des mécaniciens spécialement formés à cet effet s'occupent de l'entretien de l'installation. Chaque installation doit faire l'objet de visites de routine trois fois par an. Les mécaniciens sont indemnisés par KVIC en fonction du nombre d'installations visitées. Pour environ 200 installations dans chaque secteurde service, un technicien peut obtenir un revenu annuel s'élevant à environ 8 000 Rs.

resumen

El sistema de mantenimiento rutinario de KVIC.

KVIC/India trata de reglamentar el servicio de mantenimiento y el servicio de reparatura para las installaciónes de biogas,y a creado para ello un programa individual.
Con referencia a los dos años de tiempo de garantía que es tomado por la empresa que firmó el contrato,se continuará con un período de asistencia que durará por el momento tres años,a travez de mecánicos de mantenimiento especialisados para esto. Cada instalación debe ser visitada tres veces por anos en forma rutinaria. Los mecánicos serán remunerados por KVIC, correspondiendo a la cantidad de frecuentación de las instalaciónes. En aproximadamente 200 instalaciónes en recintos de servicios, puede alcanzar un técnico un sueldo anual de 8,000 Rs.

An information service assists in locating partners in developing countries

For companies seeking partners in developing countries. TIPS is the vehicle to assist them. An information service of the United Nations Development Programme designed to expand technology and trade transactions of developing countries. TIPS offers daily bulletins in different sectors, and a query service to match supply and demand.

The sectors covered are agro-industries, biotechnology, building materials, business opportunities, chemicals, electronics, energy, fisheries, food processing, machinery, mining, packaging, pharmaceuticals and textiles.

TIPS maintains a database containing more than 35 000 records of South offers and requests. Its national offices, which are in daily contact with companies, are based in countries that represent more than two-thirds of the population of developing countries. Thus, TIPS opens a window to a very large market.

Firms wishing to have their requirements registered in its database and featured in the bulletins can get in touch with the nearest TIPS office or TIPS, Via Panisperna 203, Rome 00184, Italy, phone 482-6967, fax 482 8838.

1991/III, No. 46

Contents

BIOGAS FORUM

IMPRESSUM

ISSN: 0936 — 8728

BIOGAS FORUM is compiled by BORDA in cooperation with the GTZ.
Editor: BORDA, Bremen Overseas Research and Development Association, Bahnhofsplatz 13 (im Überseemuseum), D-2800 Bremen 1, Fed. Rep. of Germany, Tel. (0421) 39 21 72, Editorial responsibility: Ludwig Sasse.

Financed by: State Office for Development Cooperation, Senate for Economy, Technology and Foreign Trade of the Free Hanseatic City of Bremen, Slevogtstr. 48, D-2800 Bremen 1 and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Postfach 51 80, D-6236 Eschborn

Issued: 4 times a year and one or two special issues per year.

The BIOGAS FORUM was established after the 1. Bremen Biogas Workshop 1979 serving as a medium for the exchange of experience amongst those working in the field of biogas. The BIOGAS FORUM understands itself as a link between scientists and practicians and as a platform for practical men and women.

The editor reserves the right of necessary shortening of articles and simplyfiying the language and presentation of the same. BORDA does not claim any copyright under the condition that the BIOGAS FORUM is mentioned as source in case of using articles or drawings. The authors agree on this point when handing over articles to the FORUM.

Articles signed by the name of the author do not necessarily express the opinion of neither the editor nor the sponsor.

The editorial work includes tight cooperation with gate - German Appropriate Technology Exchange — to show GTZ-experiences in biogas extension.

Articles are to be sent in English, French or Spanish to BORDA latest three months before the next issue. The articles are published in the original language. A short summary in English, French and Spanish of each article which the author is not responsible for will be written by BORDA.