

# Evaluation of National Biogas and Manure Management Programme (NBMMP)

## Family Type Biogas Plants Programme

Prepared for  
Department of Rural Development and Panchayath Raj  
Government of Karnataka



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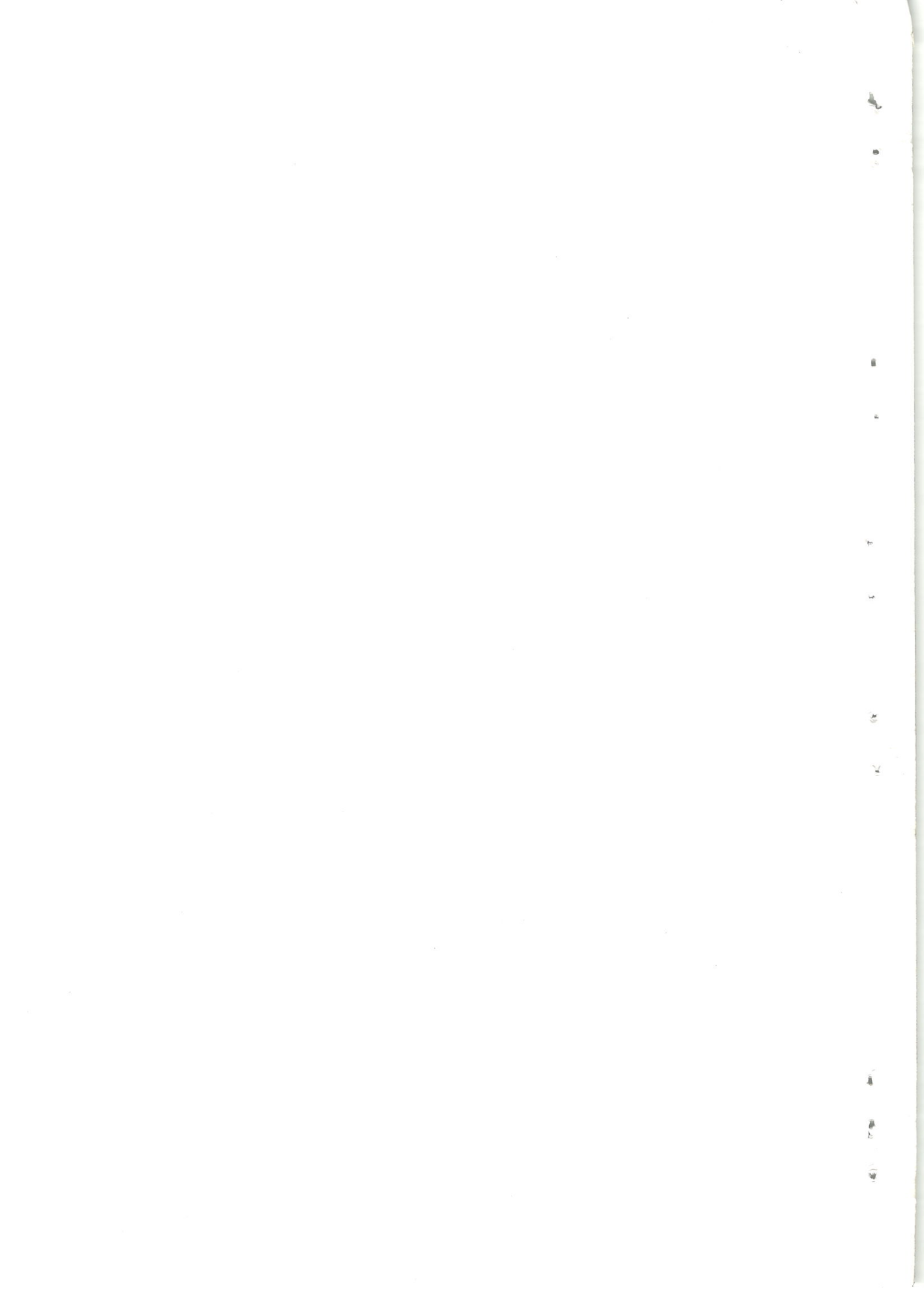
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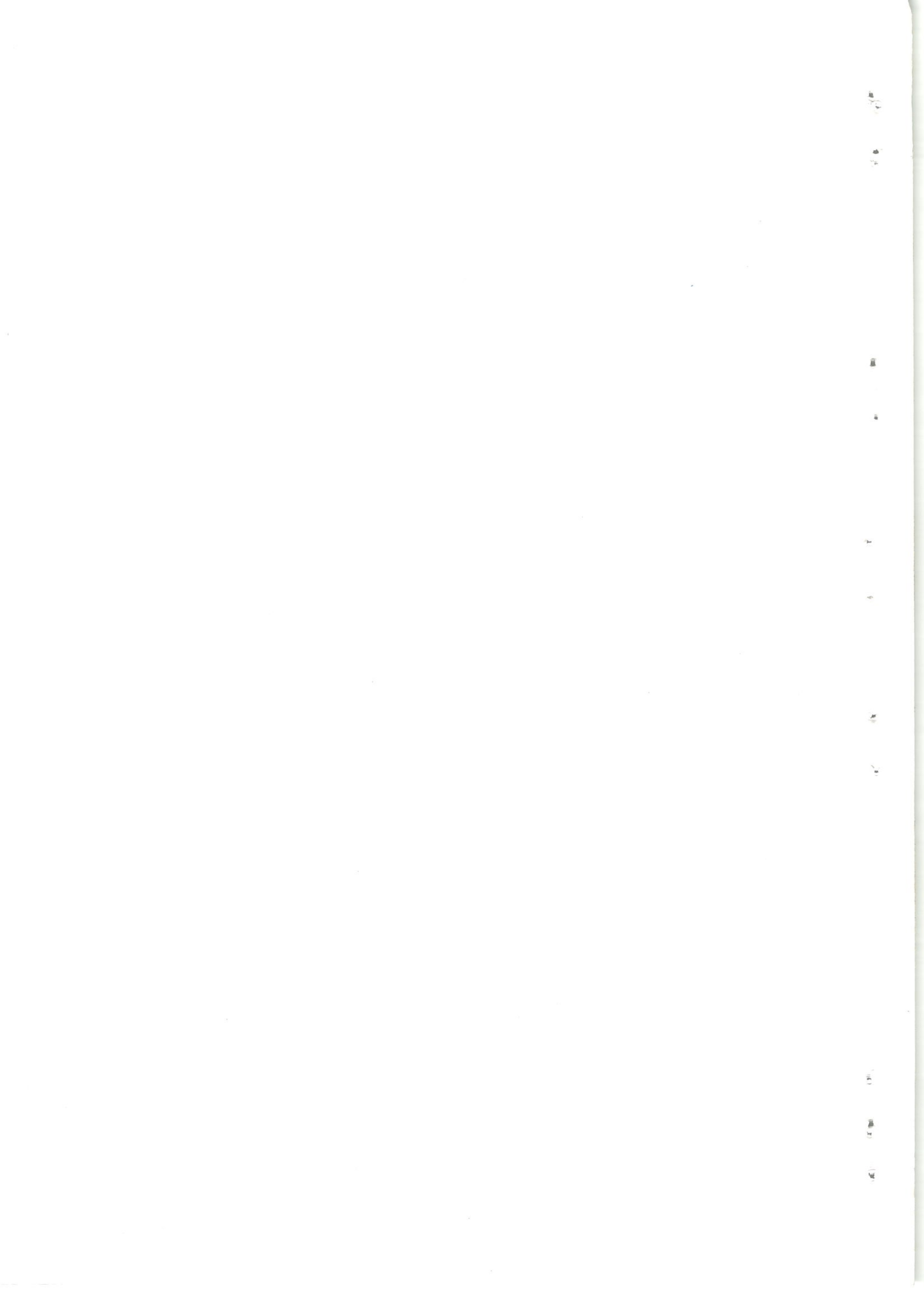




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## List of Acronyms

|         |   |
|---------|---|
| ANNSIRD | Abdul Nasir Sab State Institute for Rural Development |
| BDTC    | Biogas Development and Training Centres               |
| CDM     | Clean Development Mechanism                           |
| CFA     | Central Financial Assistance                          |
| FRP     | Fibre Glass Reinforced Plastic                        |
| GoK     | Government of Karnataka                               |
| GP      | Grama Panchayath                                      |
| ICAR    | Indian Council of Agricultural Research               |
| KREDL   | Karnataka Renewable Energy Development Limited        |
| KVIC    | Khadi and Village Industries Corporation              |
| MNRE    | Ministry of New and Renewable Energy                  |
| NBMMP   | National Biogas and Manure Management Programme       |
| NGOs    | Non-governmental Organisations                        |
| RCC     | Reinforced Cement Concrete                            |
| RDPR    | Rural Development and Panchayath Raj                  |
| SHGs    | Self Help Groups                                      |
| SKG     | Suma Khadi Gromodyoga                                 |
| TERI    | The Energy and Resources Institute                    |
| TAs     | Turnkey Agents  |
| TP      | Taluk Panchayath                                      |
| ZP      | Zilla Panchayath                                      |

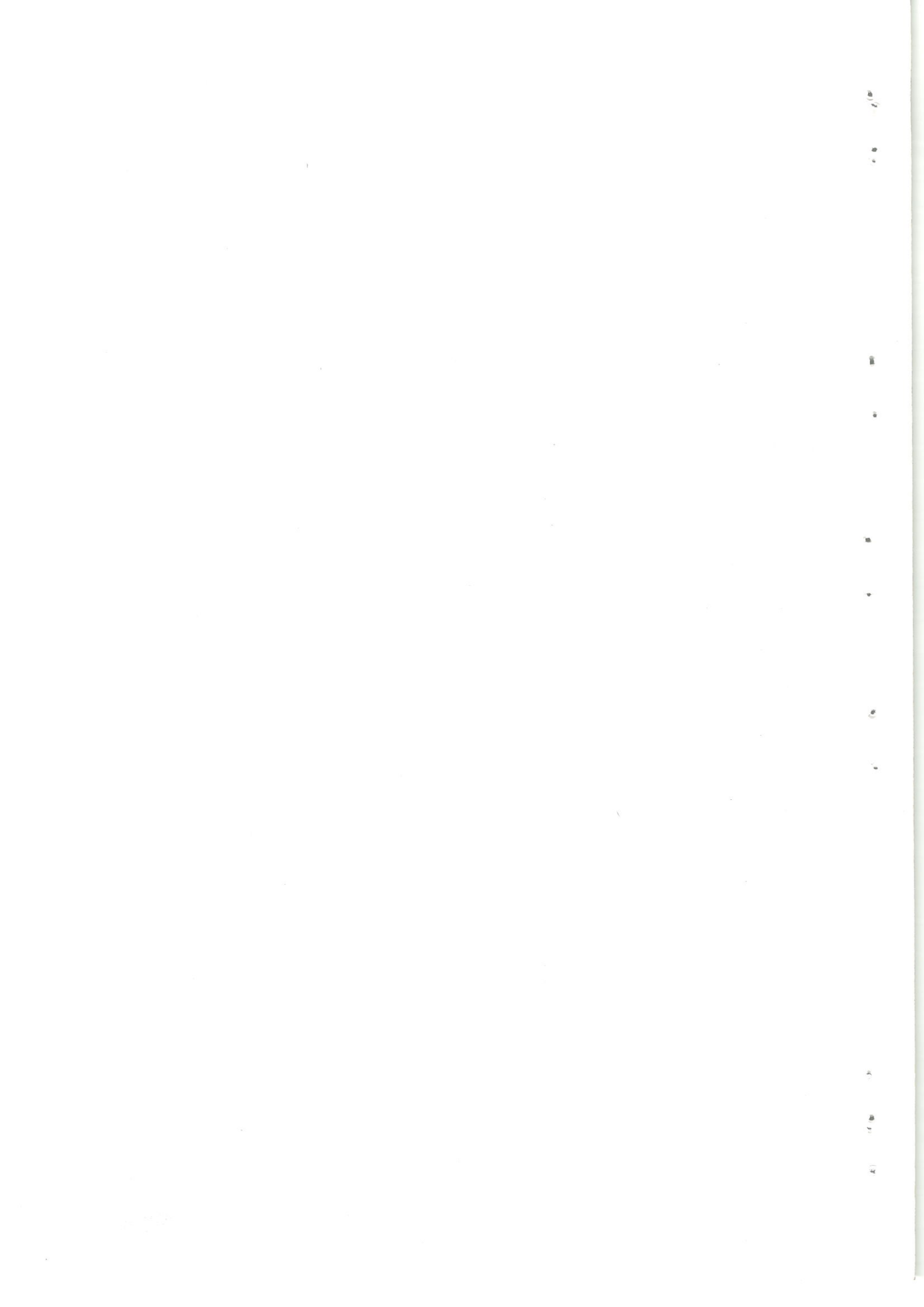




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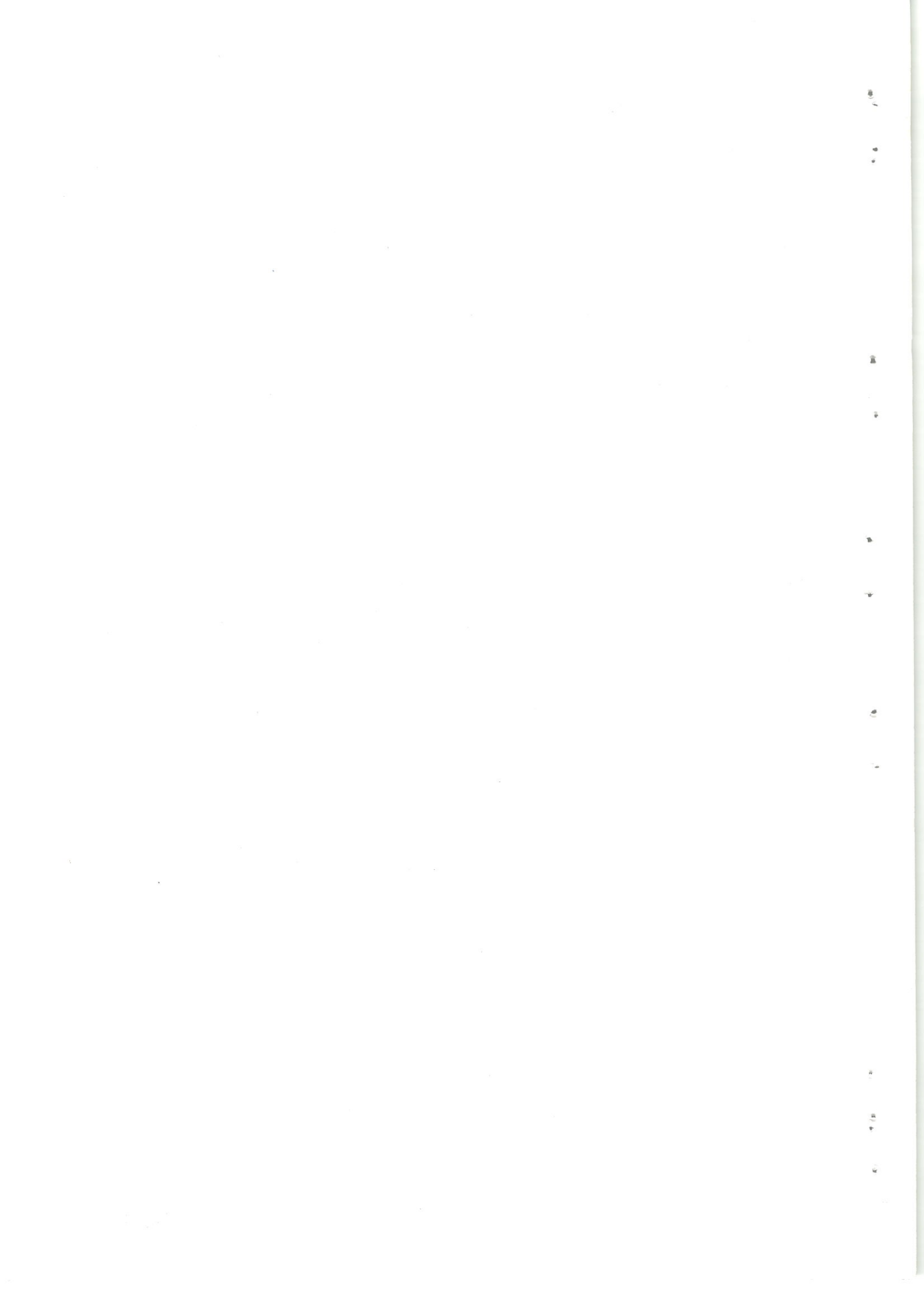
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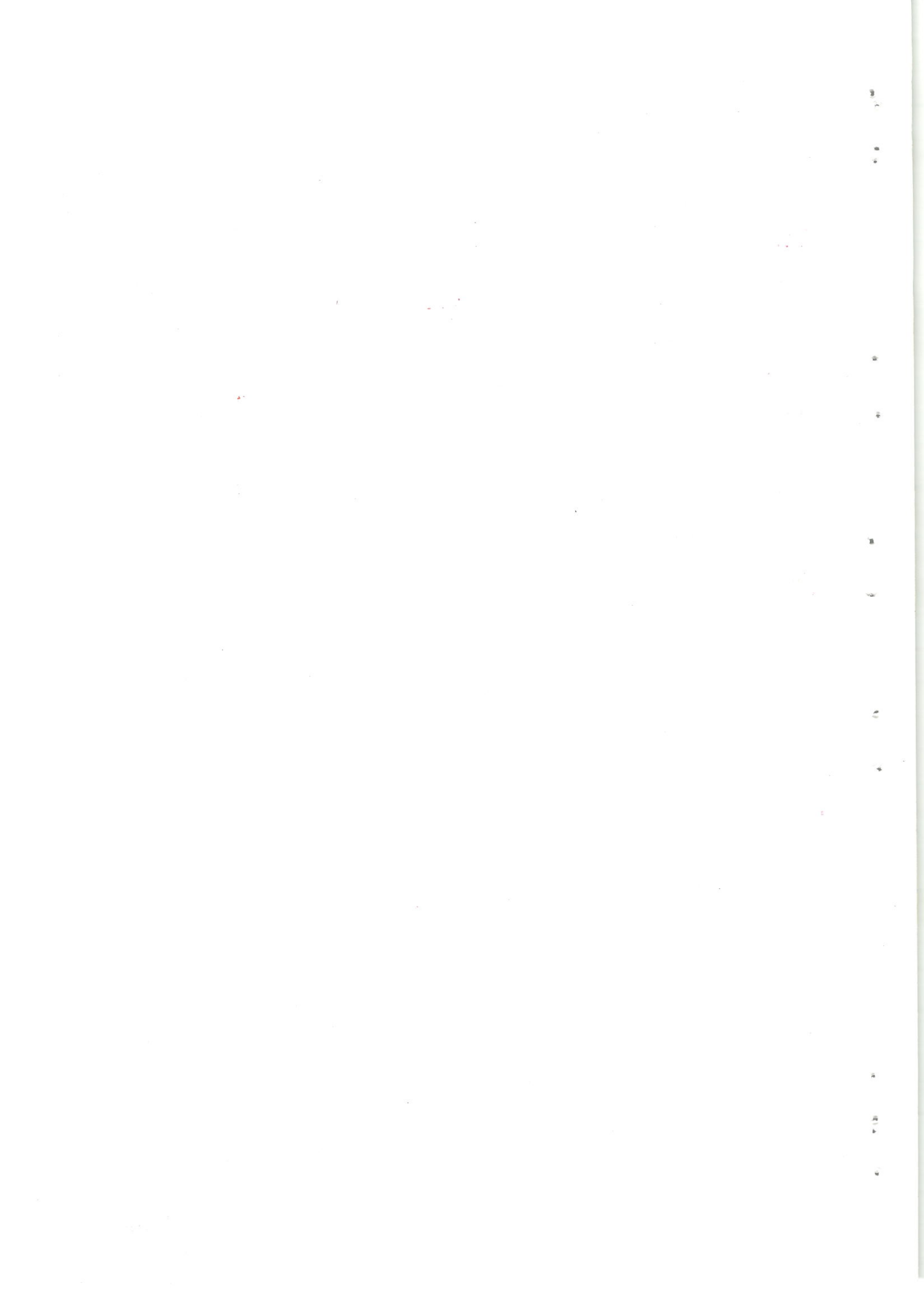
The team is grateful to Smt. Shalini Rajneesh, IAS, Secretary, Department of Rural Development and Panchayath Raj, Government of Karnataka.

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# Executive Summary

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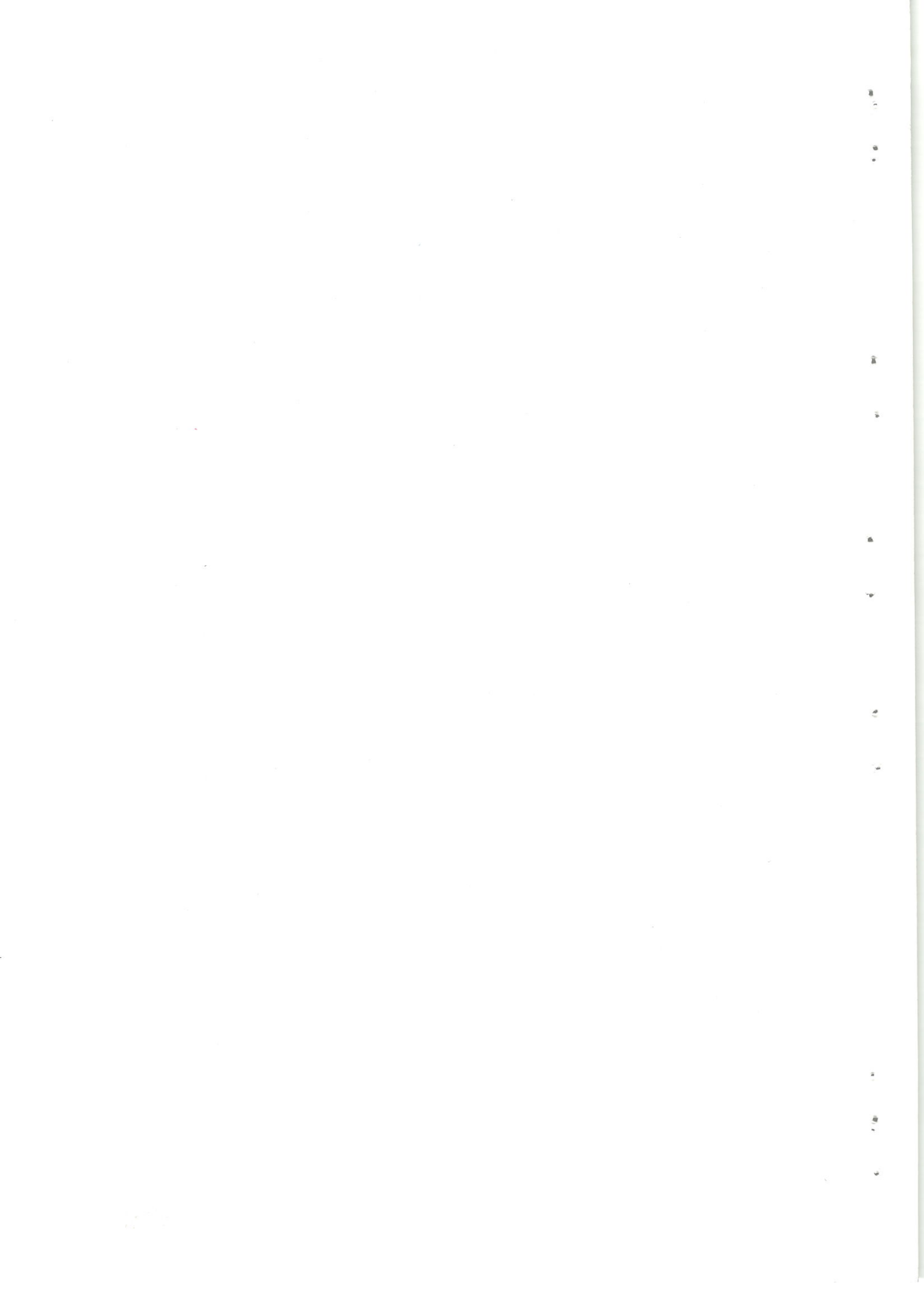
The National Biogas and Manure Management Programme, is a centrally sponsored scheme implemented by the Ministry of New and Renewable Energy (MNRE), Government of India through State Governments since the year 1981. It mainly caters to the setting up of family type biogas plants across the country. The main aim of the programme is to provide the lifeline energy needs for household cooking as envisaged in the Integrated Energy Policy. It provides for Central subsidy and State subsidies in fixed amounts, turn-key job fee linked with five years' free maintenance warranty; financial support for repair of old non-functional plants; training of users, masons, entrepreneurs, publicity and extension activities.

The Department of Rural Development and Panchayath Raj is one of the implementing agencies in the State of Karnataka. As on 31st March 2011, a total of 4,33,223 plants have been installed by the Department, of which 14,464 have been completed during the year 2010-11, a 90% target achievement.

The scope of the present study included biogas plants that have received subsidy during the year 2010-11. The study sample comprised of 417 biogas plants, i.e. 100% of the plants implemented in four selected districts namely Davangere, Mandya, Raichur and Uttara Kannada. User feedback and opinions of 389 individual beneficiaries and 100 non-beneficiaries were collected through semi-structured questionnaire survey and focus group discussions on various aspects of implementation and benefits perceived and reasons for not opting for a biogas plant. Site observations were carried out to verify the quality of implementation and technical aspects of functioning of the plants. Interviews were carried out with turnkey agents, project engineers and officials of the implementing agency to understand the implementing mechanism, problems faced and suggestions for improvement in future programmes.

In analysing the findings of the study, it may be inferred that the project is in the right direction in terms of the objectives set. The study brought out the fact that most users benefitted from smoke free cooking, which reduces the drudgery of rural women in collecting and using conventional firewood. Various social benefits such as considerable reduction in indoor air pollution, very less expenditure on cooking energy and improvement in the health of the women have been realised by users. However, it was noticed that most of the beneficiaries do not seem to be aware of the use of biogas slurry as organic manure; hence awareness needs to be carried out in this regard. The most common reason for not adopting biogas technology by non-users is lack of awareness on the scheme.

In conclusion, it may be said that the success of the programme depends on large scale awareness, proper selection of beneficiaries and turnkey agents, capacity building of all stakeholders, timely release of subsidy amount, streamlining procedures of implementation, involving NGOs/ SHGs and convergent efforts of various agencies, departments and organisations engaged in promoting biogas technologies in the State.





# 1. Background

India has one of the largest cattle populations in the world, just next to Brazil. Cattle dung offers a very high potential for producing biogas to meet ever increasing cooking fuel requirements and achieve recycling of organic waste for improving soil health and increasing agricultural production with simultaneous better sanitation and environment in villages. The combined population of cattle and buffaloes in India is over 6,24,45,000 as per the 18<sup>th</sup> Livestock Census, 2007<sup>1</sup>. While more than one-third of the total number of rural households in the country, i.e., 40 million rural families, who own 3 or more cattle heads, can benefit from biogas technology, at present the Government of India aims at a potential of 12 million domestic biogas plants in India, besides large capacity plants for electricity generation. Indigenously developed simple-to-construct and easy-to-operate domestic biogas plants have been promoted mainly for processing of cattle dung under a Centrally Sponsored Scheme – National Project on Biogas Development, since 1981-82. It was rechristened as National Biogas and Manure Management Programme (NBMMP) in 2002-03 and is continued during the Eleventh Five Year Plan (2007-12).

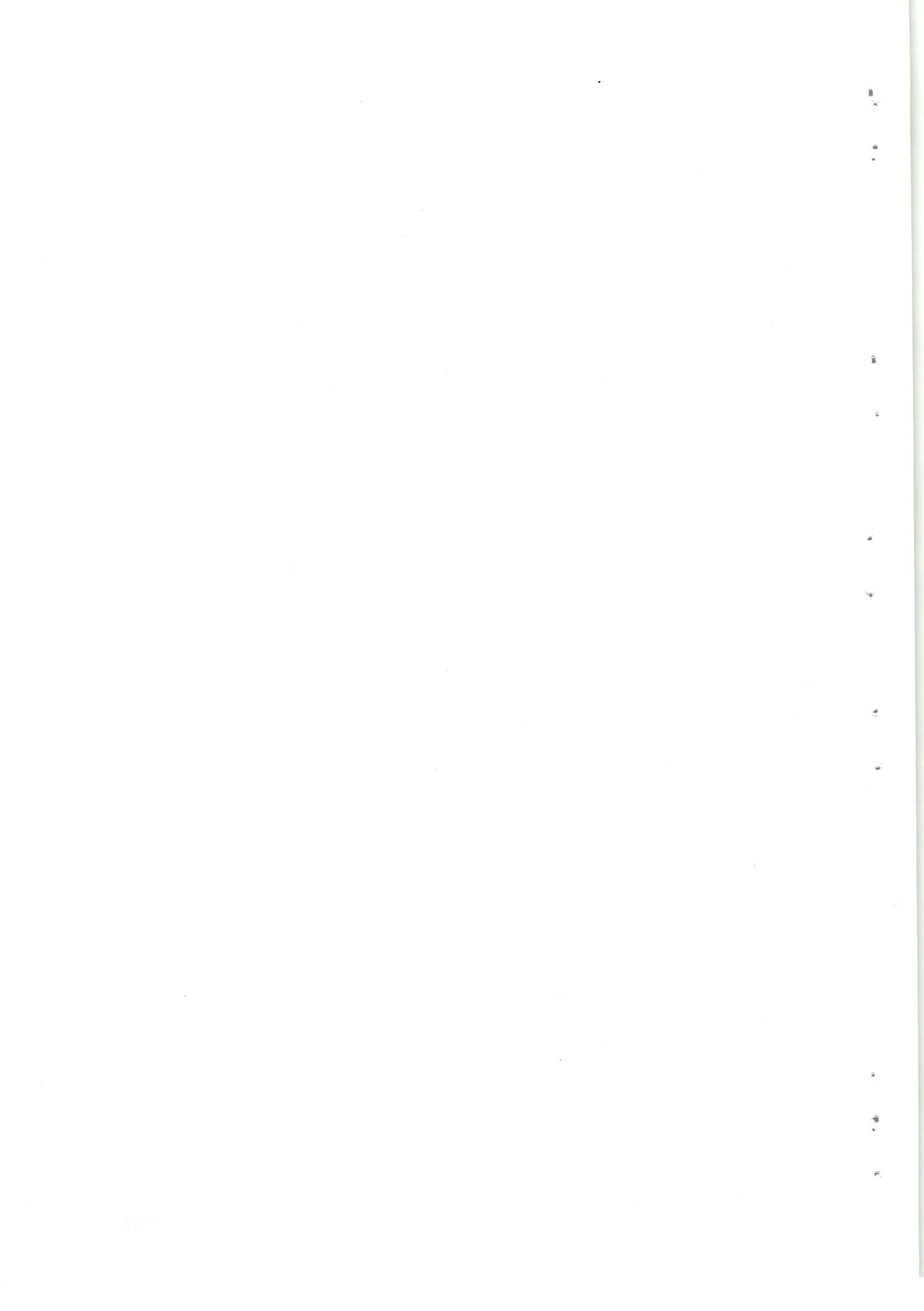
## Objectives of the Programme

- a. To provide clean bio- gaseous fuel mainly for cooking purposes and also for other applications for reducing use of LPG and other conventional fuels;
- b. To meet 'lifeline energy' needs for cooking as envisaged in 'Integrated Energy Policy';
- c. To provide bio-fertilizer/ organic manure to reduce use of chemical fertilizers;
- d. To mitigate drudgery of rural women, reduce pressure on forests and accentuate social benefits;
- e. To improve sanitation in villages by linking sanitary toilets with biogas plants;
- f. To mitigate climate change by preventing black carbon and methane emissions.

## National Biogas and Manure Management Programme (NBMMP)

This is a centrally sponsored scheme implemented by Ministry of New and Renewable Energy (MNRE), Government of India through State Governments. It mainly caters to setting up of family type biogas plants and has been under implementation since the year 1981-82. National Biogas and Manure Management Programme provides for central subsidy in fixed amounts, turn-key job fee linked with five years' free maintenance warranty; financial support for repair of old non-functional plants; training of users, masons, entrepreneurs.; publicity and extension; service charges or staff support; State level Biogas Development and Training Centres (BDTC); (fixed amount of central financial assistance to institutional biogas plants); financial support for institutions for cattle dung based power generation plants etc.

<sup>1</sup> Source: 18th Live Stock Census 2007, All India Report based on Quick Tabulation Plan-Village Level Totals (Provisional)



a. Potential and Achievement

A cumulative total of 4.31 million family type biogas plants have been set up in the country against estimated potential of 12 million plants as on March 2012.

b. Technology

*Composition of biogas*

Biogas is one of the renewable sources of energy receiving popularity in rural areas and has successfully met the cooking energy needs of families. Biogas plant is a system which produces gaseous product by anaerobic (absence of air) fermentation of organic materials. Biogas is a mixture of methane and carbon dioxide. It also has traces of hydrogen sulphide, ammonia, oxygen, hydrogen, water vapour etc., depending on the feed materials and other conditions.

The composition of biogas is as below:

- Methane (CH<sub>4</sub>): 55-70%
- Carbon Dioxide (CO<sub>2</sub>): 30-45%
- Nitrogen (N<sub>2</sub>): 1-2%
- Hydrogen (H<sub>2</sub>); in small traces
- Carbon Monoxide (CO): in small traces
- Hydrogen Sulphide (H<sub>2</sub>S): in small traces

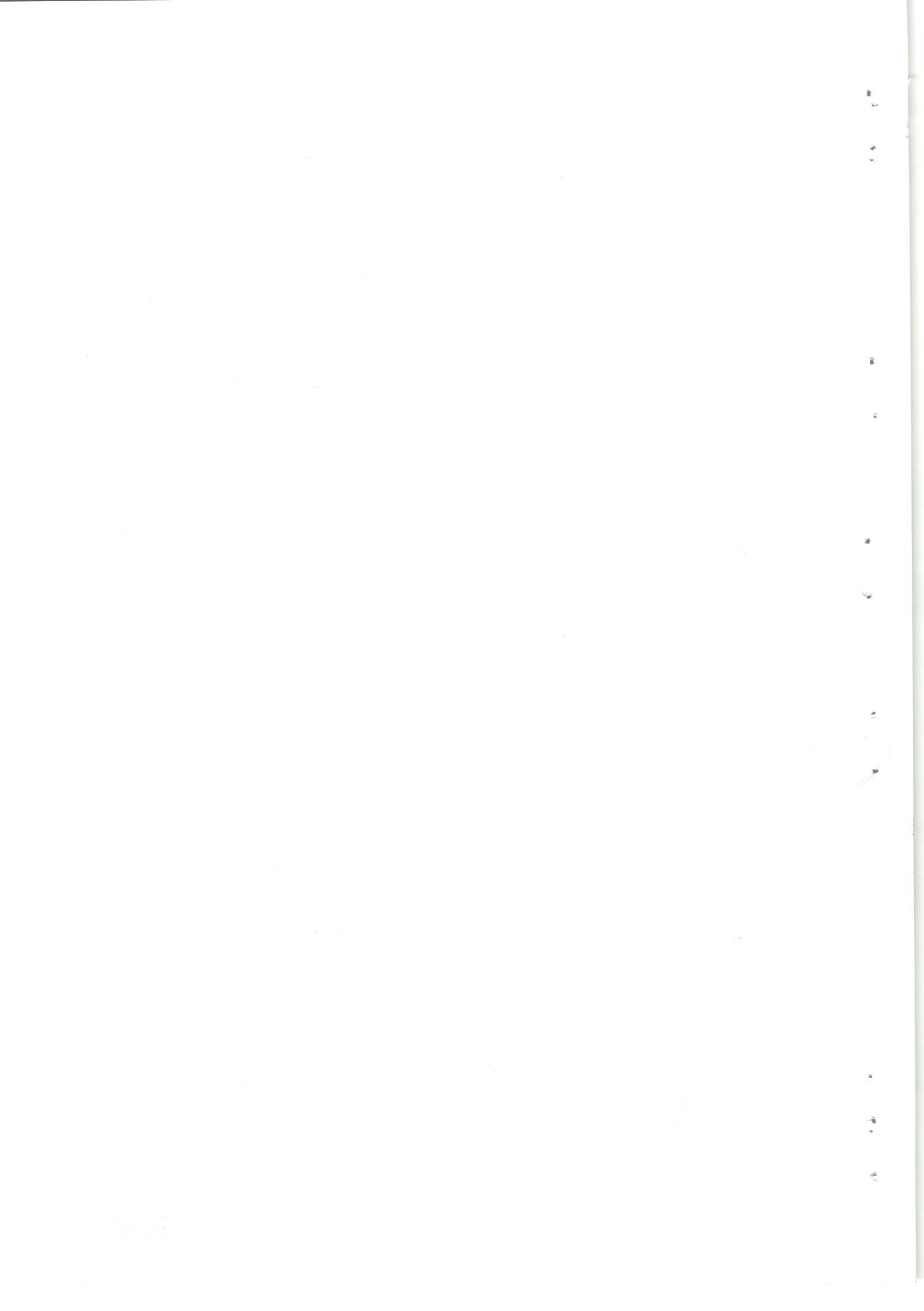
The biogas plant consists of various components such as

(a) Mixing tank (b) inlet pipe (c) digester (d) gas holder (e) outlet pipe (f) outlet tank (g) gas pipe line, valves and fittings, stove and its components etc.

Approved designs of family type biogas plants

- i. Following models of biogas plants are approved for promotion:

| Sl. No. | Type of biogas plant  | Capacity  |
|---------|---|---|
| (a)     | <b>KVIC Floating Drum Type Biogas Plants having digester made of bricks or stones.</b>  | <b>1 to 10m<sup>3</sup></b>   |
| (b)     | KVIC Type Biogas Plants with Ferro cement digester  | 1 to 10 m <sup>3</sup>  |
| (c)     | KVIC Type Biogas Plants with Fibre Glass Reinforced Plastic (FRP) Gas holder<br>Deenbandhu Model(i) Brick masonry(ii) In ferro-cement with in-situ technique(iii) Prefabricated HDPE material   | 1 to 10 m <sup>3</sup>  |
| (d)     | based prefabricated dome for Deenbandhu Model family size Biogas Plants.(iv) Solid – State Deenbandhu design fixed dome biogas plant, developed by ICAR<br>Pre-fabricated RCC fixed dome model (i) Shakti-Surbhi FRP based floating dome KVIC portable model biogas plant | 1 to 6 m <sup>3</sup>   |
| (e)     | developed by Vivekanad Kendra, Kanyakumari (ii) Sintex make plastic based floating dome KVIC type biogas plant, developed by Sintex Industries Ltd., Kalol (Gujarat)  | 2 & 3 m <sup>3</sup> (0.5 to 2 m <sup>3</sup> biogas plants and higher for higher capacity plants-do- |





| Sl. No. | Type of biogas plant  | Capacity              |
|---------|---|-----------------------|
| (a)     | KVIC Floating Drum Type Biogas Plants having digester made of bricks or stones.   | 1 to 10m <sup>3</sup> |
| (f)     | 'Flexi' model Bag digester type plant made of rubberised nylon fabric manufactured by Swastik Rubber Products Ltd., Pune. | 1 to 6 m <sup>3</sup> |

Source: <http://www.mnre.gov.in/schemes/decentralized-systems/schems-2/>

ii. Size of plants, requirement of cattle dung and estimated cost

| Size of plant  | Quantity of cattle dung required daily | No. of cattle heads required | Estimated cost* at 2010-11 prices worked out for Central part of country |
|----------------|--|------------------------------|--|
| 1 cubic metres | 25 kg                                  | 2-3                          | Rs.12,080/-  |
| 2 cubic metres | 50 kg                                  | 4-6                          | Rs.16,200/-  |
| 3 cubic metres | 75 kg                                  | 7-9                          | Rs.19,405/-  |
| 4 cubic metres | 100 kg                                 | 10-12                        | Rs.23,350/-  |

Source: <http://www.mnre.gov.in/schemes/decentralized-systems/schems-2/>

\* The biogas plant cost is higher by 30 per cent and 50 per cent in hilly areas and North Eastern Region States, respectively.

iii. Applications

Biogas can be used for various applications. These include, cooking, lighting a biogas lamp, power generation and refrigeration in operating the chilling machines.

c. Implementing agencies in Karnataka

NBMMP is being implemented by various departments in Karnataka such as the Department of Rural Development and Panchayath Raj (RDPR), Khadi and Village Industries Commission (KVIC), Karnataka Renewable Energy Development Limited (KREDL), Department of Agriculture and Horticulture under organic farming mission and other private organisation such as Suma Khadhi Gromodyoga (SKG) under the Clean Development Mechanism (CDM) programme Central Subsidy

The pattern of Central Financial Assistance (CFA) under National Biogas and Manure Management Programme w.e.f. 1st November 2009 and for remaining period of 11th Plan is Rs.8000 for a 2m<sup>3</sup> family type biogas plant and Rs. 4000 for 1m<sup>3</sup> family type biogas plants under NBMMP, while the Karnataka state subsidy is Rs.3500 per plant. Apart from this the turnkey agents received Rs.700 on commissioning of each plant and Rs.200 per year for four consecutive years, totalling to Rs.1500. The details of subsidy and financial assistance available for implementation of NBMMP is given below :





| Sl. No. | Items for Central Financial Assistance(CFA)   | Family type Biogas plants under NBMMP**  |                    |
|---------|---|--|--------------------|
|         |   | 1 m <sup>3</sup>   | 2-4 m <sup>3</sup> |
| A.      | Central Financial Assistance to beneficiaries of Biogas Plant (in Rs. per plant)  |  |                    |
| 1.      | All Other States (includes Karnataka)   | 4,000  | 8,000              |
| B.      | Turn-Key Job Fee including warranty for five years (in Rs. per plant)   | 1,500  |                    |
| C.      | Additional CFA for toilet linked Biogas Plants (in Rs. per plant)   | 1,000  |                    |
| D.      | Incentive for saving Diesel and other conventional fuels by using biogas in engines/ gensets and/ or biogas based refrigerators (in Rs. per plant)                  | 5,000  |                    |
| E.      | Administrative Charges- for target range of plants (in Rs.)   |  |                    |
| 1       | 100-3,000   | 1,00,000 <sup>^</sup>  |                    |
| 2       | 3,001-7,000   | 10,50,000 <sup>^^</sup>  |                    |
| 3       | Above 7,001   | 24,50,000 *  |                    |
| F.      | Training Courses (in Rs.)   |  |                    |
| 1       | Users course  | 2,000  |                    |
| 2       | Staff Course  | 8,000  |                    |
| 3       | Refresher/ Construction-cum maintenance course  | 35,000   |                    |
| 4       | Turkey-key operator & management course for workers of companies/ entrepreneurs   | 67,500   |                    |
| G.      | Biogas Development & Training Centers   | As per existing pattern  |                    |
| H.      | Communication & Publicity -for target range of plants (in Rs.)  |  |                    |
| 1       | Up to 1,000   | 1,00,000   |                    |
| 2       | 1,001- 10,000   | 2,50,000   |                    |
| 3       | More than 10,000  | 5,00,000   |                    |
| I.      | Support for Repair of Non- functional Plants with the restriction of utilization of upto 5 % of the outlay of the programme in that year of the concerned State/ UT | 50% of applicable CFA category subject to sharing of 50% of the cost of repair by the beneficiary. |                    |

#### Family type Biogas plants under NBMMP

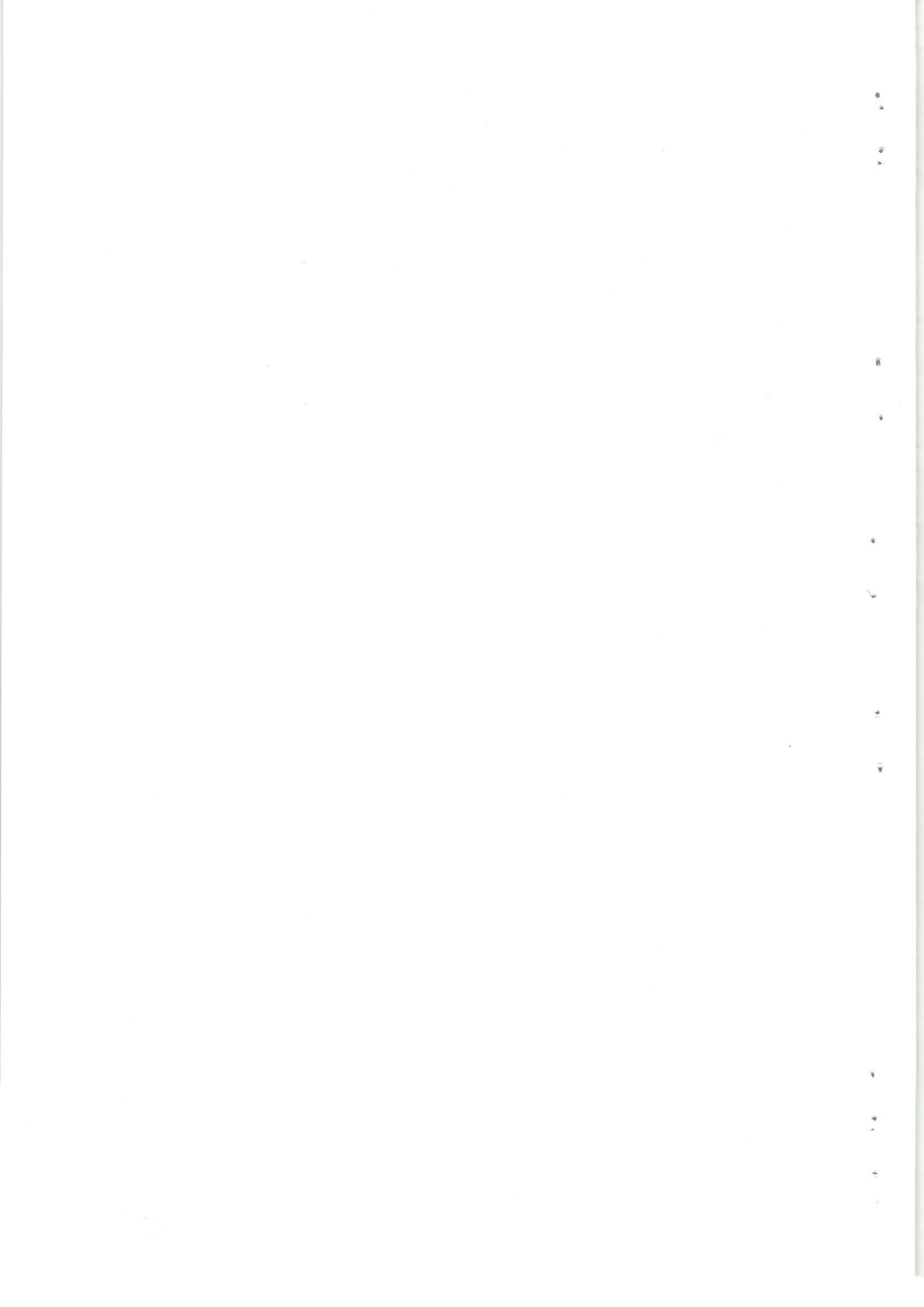
\*\* Maximum of 50% of the cost of the biogas plant for low cost models.

<sup>^</sup> Extra Rs. 350 per plant in excess of 100 biogas plants.

<sup>^^</sup> Extra Rs.300 per plant in excess of 3000 biogas plants.

\* Extra Rs. 250 per plant in excess of 7,000 biogas plants subject to maximum of Rs. 50.0 lakh.

Source: <http://www.mnre.gov.in/schemes/decentralized-systems/schems-2/>



d. State Level Biogas Development and Training Centres

State Level Biogas Development and Training Centres is functional at the University of Agriculture Sciences, Bengaluru for providing technical, training and publicity support to State nodal departments and programme implementing agencies.

e. Training courses

Financial assistance is given for organising different kinds of training courses as mentioned below:

| Course                                  | Duration | No. of trainees per course | Central financial assistance per course in Rs. |
|---|----------|----------------------------|--|
| Users                                   | One day  | 50-60                      | 2,000/-  |
| Staff                                   | 2-3 days | 10-15                      | 8,000/-  |
| Refresher/ Construction-cum-Maintenance | 16 days  | 10                         | 35,000/-                                       |
| Turn-Key Workers                        | 15 days  | 10                         | 67,500/-                                       |

Source: <http://www.mnre.gov.in/schemes/decentralized-systems/schems-2/>

f. Communication and publicity

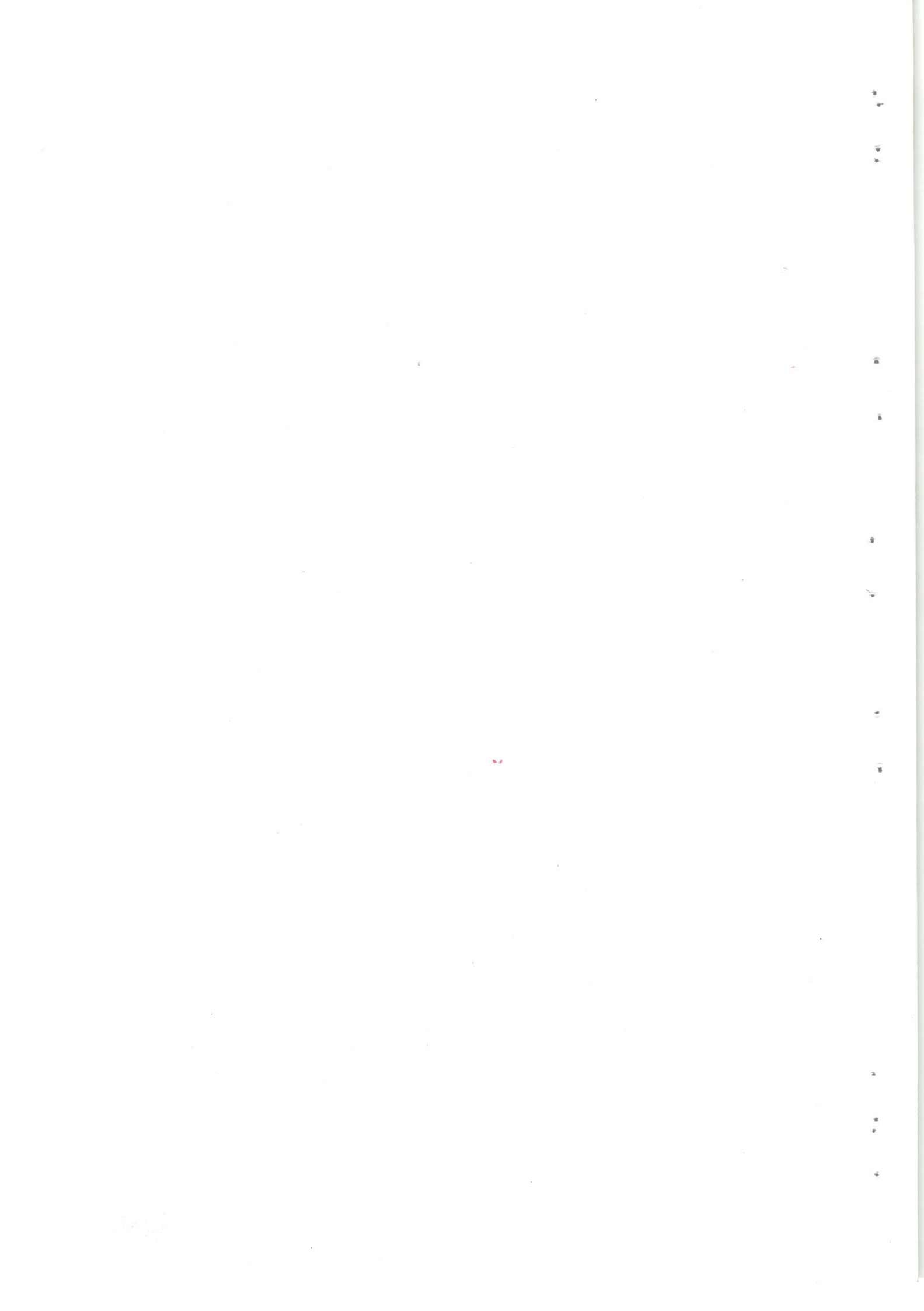
Assistance is given for communication and publicity work linked with target ranges to State nodal departments and agencies.

g. Programme during Eleventh Plan

Promotion of biogas plants continued during the 11<sup>th</sup> Plan. A target of setting up of 6.47 lakh family type biogas plants has been fixed by MNRE in India with a plan outlay of Rs. 562.00 crore. Year-wise achievements vis-à-vis targets and budget- expenditure during 2007-08 to 2009-10 and 2010-11 upto 21-02-2011 are as given below for all India as well as Karnataka :

| State/ Union Territories | Estimated Potential in No. | Cumulative Physical Achievements as on 31-03-2010 in No. | Physical Target for 2010-11 in No. | Physical Achievements during 2010-2011 in No. | Cumulative Physical Achievements as on 31-3-2011 in No. |
|--------------------------|----------------------------|--|------------------------------------|---|---|
| Karnataka                | 6,80,000                   | 4,18,759   | 16,000                             | 14,464  | 4,33,223  |
| All India                | 1,23,39,000                | 42,53,624  | 1,50,790                           | 1,51,138                                      | 44,04,762   |

Note: The total figures of targets and achievements are inclusive of the achievements made by KVIC Source: <http://www.mnre.gov.in/schemes/decentralized-systems/schems-2/>





h. Monitoring

A three-tier monitoring system exists, which consists of self-reporting by State Governments and implementing agencies involving 100 per cent physical verification of biogas plants at the block level. The second level is by random basis verification by State nodal departments and implementing agencies and KVIC at the State level. The third-tier involves filed inspection on random basis by Regional Biogas Development and Training Centres of the MNRE.

## 1.1 Scope of the Present Study

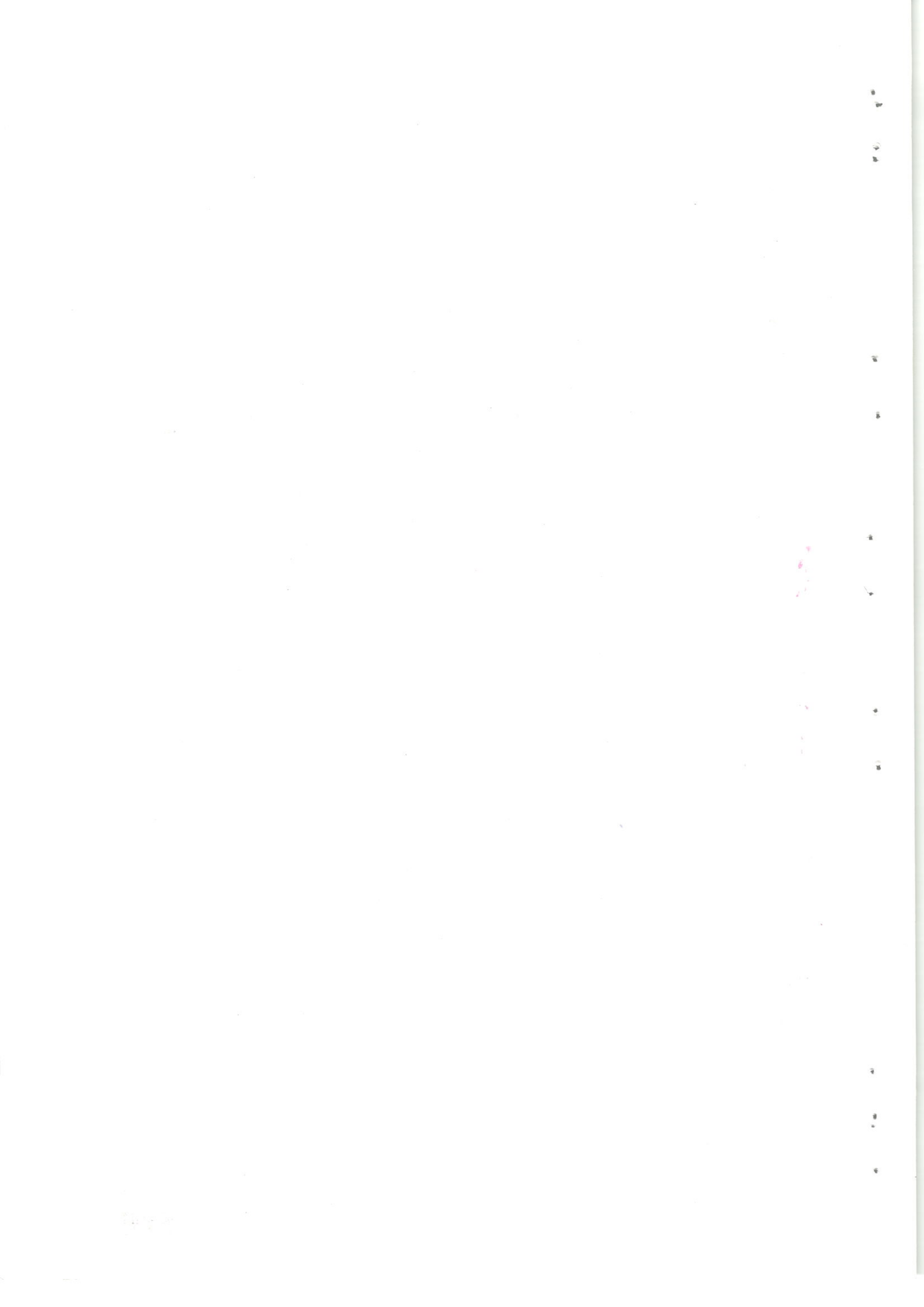
Rural Development Panchayath Raj (RDPR), Government of Karnataka is the state nodal agency for implementing NBMMP through Zilla Panchayath. The RDPR, Government of Karnataka elicited the services of The Energy and Resources Institute (TERI), Bangalore to carry out the evaluation of the NBMMP in Karnataka with specific reference to the biogas plants installed in 2010-11.

The objectives of the present study as per the Terms of Reference (ToR) include:

- i. Study 20 domestic plants in each of the selected 5 Gram Panchayats (i.e. total 400 plants) in one selected district in each of the four revenue divisions of Karnataka
- ii. Number of functional biogas plants
- iii. Number of non-functional biogas plants
- iv. Views/ Opinion of the beneficiaries of non-functional biogas plants
- v. Reasons for non-functioning of biogas plants (technical and lacunae in service)
- vi. Based on the livestock statistics, estimate the scope for installation of biogas plants, as against the number of plants that have been installed and number of plants that can be installed in future
- vii. Despite having scope for installation, reasons for not installing biogas plants to utilize full potential
- viii. Benefits perceived by beneficiaries from the biogas plants
- ix. Observe and provide details of rejuvenation of biogas plants
- x. Positive and negative views of the community on the implementation of the biogas development programme

Note: Refer Government Order No.53, 2010, Bangalore dated 16.09.2011

The study aims at understanding the effectiveness of implementation, challenges in the implementation process and; provide recommendations for improving the effectiveness of the programme.





## 2. Methodology

The methodology adopted included secondary data collection, observation of the biogas plants, primary household survey, focus group discussion and key informant interviews. The detailed methodology adopted has been described below.

### a. Secondary data collection

The secondary data collected includes implementation and institutional mechanism in place, physical targets vs actual achievements, fund flow mechanism, quality control norms specified for construction/ installation of plants, technical support available, relevant reports and previous studies conducted by the RDPR.

In addition, specific data on the number of biogas plants installed in 2010-11 (village and Gram Panchayat-wise) in the selected districts, beneficiary list, turnkey agents were collected. The secondary data were analysed to select the biogas plants for the primary data collection.

### b. Selection of districts for the study

The RDPR chose one district per revenue division based on internal assessment of the district's work progress. The districts chosen for the study included Raichur (Gulbarga division), Uttara Kannada (Belgaum division), Mandya (Mysore division) and Davangere (Bangalore division).

### c. Selection of Sample

TERI with the advice of RDPR selected 20 beneficiary households in five Gram Panchayats in each district. Thus, a total of 100 households in each district and a total of 400 households were to be selected. The sample was to be selected from biogas plants installed in the 11<sup>th</sup> five year plan. However, as per the ToR, 400 plants (100 per selected district) installed in 2010-11 only were to be selected, (i.e. plants that were commissioned in 2010-11 and subsidy given)

On studying the secondary data, it was found that a total of 100 or more biogas plants were installed in 2010-11 only in two of the districts selected for the study, while two other districts had less than 100 plants. Additionally, the plants installed were spread out across the entire district covering most Gram Panchayats. However, the total number of plants installed in the 4 districts selected totalled to 400. Hence all the biogas plants installed in the districts selected were taken as sample, thus making it a 100% sample.

The 417 beneficiary households were spread across 126 gram panchayats in the four districts selected for the study. (Gram Panchayat and Village -wise List of biogas plants installed in 2010-11 may be referred in Annexure 1).

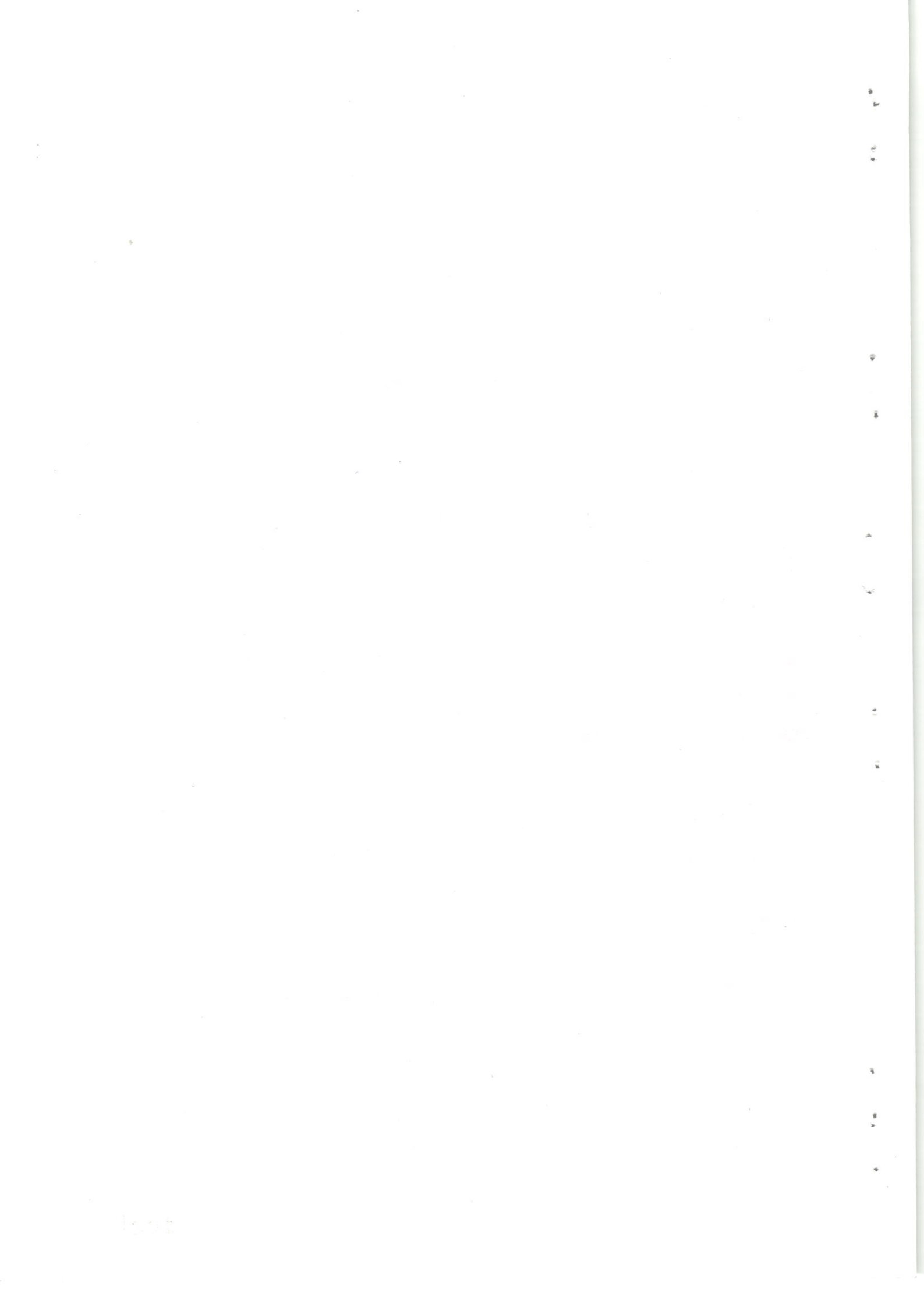


Table 2.1 Sample for the study

| Revenue division | District       | No. of Gram Panchayats covered | No. of villages covered | Total beneficiary households |
|------------------|----------------|--------------------------------|-------------------------|------------------------------|
| Bangalore        | Davangere      | 40                             | 41                      | 126                          |
| Mysore           | Mandya         | 22                             | 29                      | 49                           |
| Belgaum          | Uttara Kannada | 59                             | 108                     | 175                          |
| Gulbarga         | Raichur        | 5                              | 12                      | 66                           |
|                  | <b>Total</b>   | <b>126</b>                     | <b>190</b>              | <b>417</b>                   |

Source: Field Survey

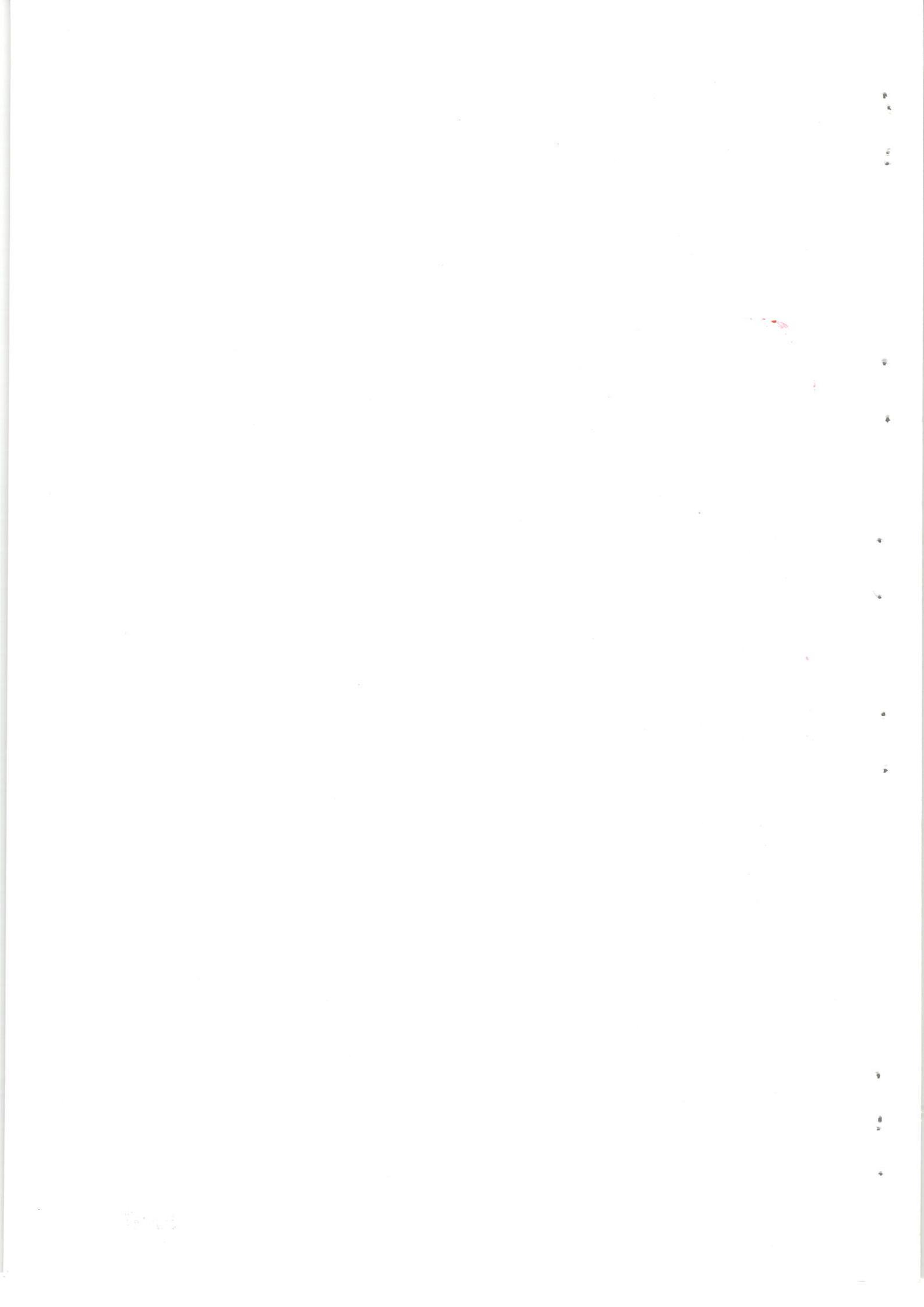
d. Methodology

- i. *Household survey*: A household survey was undertaken to cover 100% of the beneficiary households (i.e. plants that were given subsidy in 2010-11)
- ii. *Observation*: An observation of the biogas plants installed was carried out to evaluate the technical aspects of installation.
- iii. *Focus Group Discussion*: A focus group discussion was conducted with a group of non-beneficiaries to understand why they had not adopted a biogas plant.
- iv. *Individual Interview*: An interview was conducted with all turnkey agents to understand their role, functioning and challenges faced. The Project Engineers in each district were also interviewed to understand the process for implementation, problems faced and training needs.

e. Tools used in the study

For the purpose of the study three tools were used

- i. *Questionnaire for household survey*: A questionnaire including close ended and open ended questions was used to collect data and opinions of the beneficiaries. The open ended questions aimed at eliciting the opinion of the beneficiaries on the benefits, problems and suggestions on the implementation of the programme. The study covered a total of 400 households, which is 100% of the households that have benefitted from the programme during 2010-11.
- ii. *Checklist for Observation*: A checklist was prepared to observe the technical details of the biogas installed including appropriateness of site selected for installation, functioning of the various parts like valves, water trap, slurry pit, level of dome, alignment of pipe etc. The biogas plants installed in all 400 beneficiary households were observed for technical correctness and appropriateness.
- iii. *Checklist for Focus Group Discussion*: A checklist was developed to understand the reasons for probable beneficiaries not installing biogas plants. In almost each taluk





that was covered atleast 15-20 non-beneficiaries were randomly selected and a focus group discussion was conducted.

- iv. *Interview schedule for interview:* A schedule was formulated to understand the experience, problems, profitability, service provided, training needs etc. of the turnkey agents. All the turnkey agents in each of the selected district were interviewed. The Project Engineers in each district were also interviewed to understand the process for implementation, problems faced and training needs.

f. **Pilot testing**

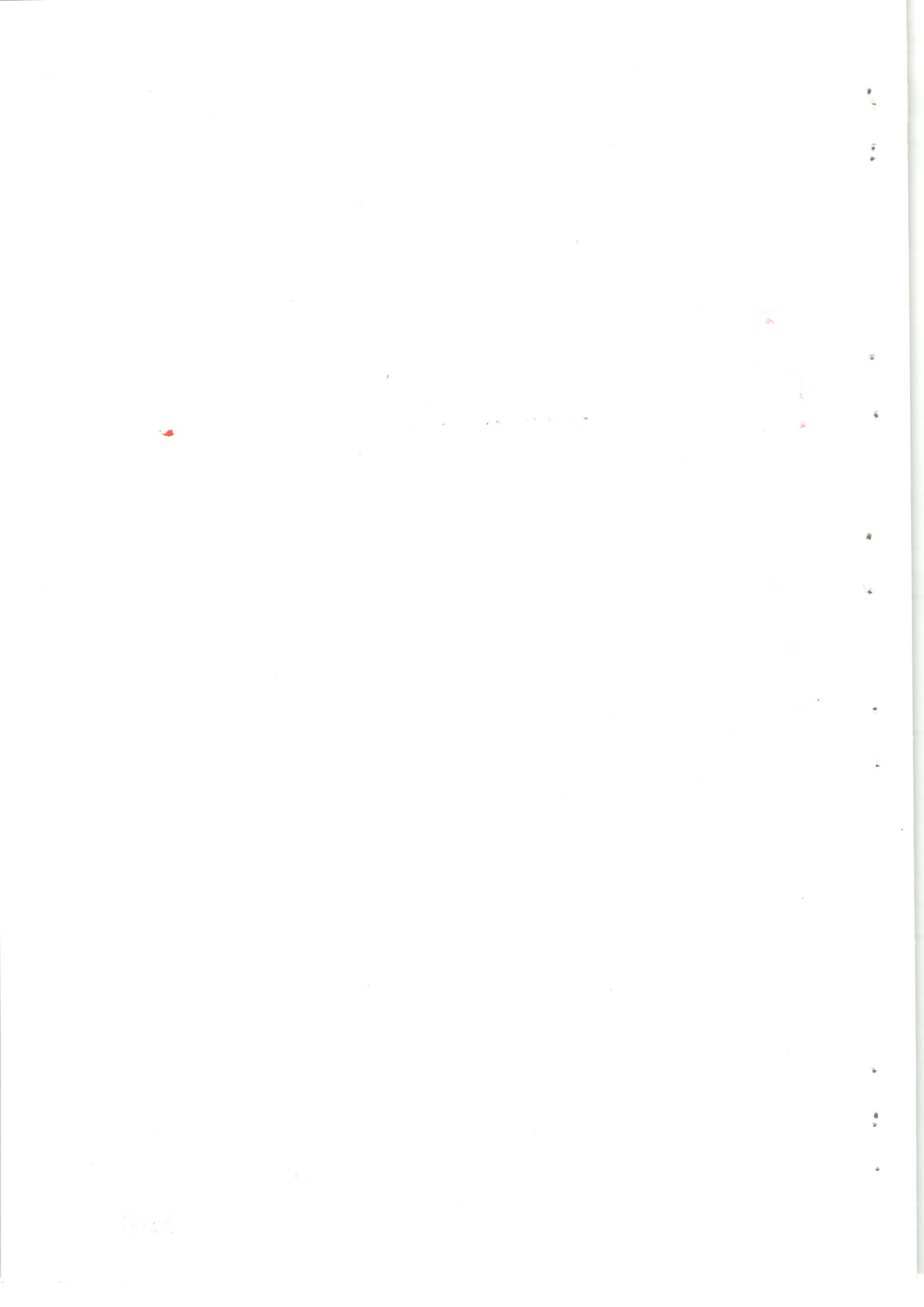
The tools used in the study were pilot tested in 20 households in Pandavapura taluk in Mandya district. The tools were modified based on the learning from the pilot test in the field.

g. Selection and training of Field Investigators

Appropriately qualified Field Investigators with atleast three years of work experience were selected. The team of investigators were trained in collecting the data for the household survey, observing the biogas plant site (for technical aspects), identifying defunct parts and plants, conducting focus group discussion with non-beneficiaries and interviewing key informants.

h. **Limitations**

The study faced certain limitations. The foremost was 100% coverage of plants installed in the four districts selected for the study. Instead of covering 20 Gram Panchayats 126 Gram Panchayats had to be visited to cover all 400 beneficiary households. This extensive spread, necessitated more time for completion of the study than proposed initially. In some cases, the implementation was handed over to other departments such as the Animal Husbandry and the Agriculture. In such cases there was very limited time and less cooperation to the study team to interact with the beneficiaries.



### 3. Results

The study was carried out based on the objectives mentioned in the ToR. The results of the study have been discussed in this chapter based on these objectives. The chapter has been discussed in three parts:

1. Current Scenario
2. Views of the Community
3. Scope for further installation

#### Issues in accessing some of the biogas plants

Of the total 417 plants installed as per the secondary data provided, 389 plants were available for study, i.e. around 6% were not available since they did not seem to exist. Hence the results have been analysed and presented based on this number. In Mandya district about 10 plants are installed under organic farming mission of Agriculture Department. The beneficiaries claimed that they received subsidy through Agriculture Department and not through the Zilla Panchayath under NBMMP. However, the turnkey agent and Project Engineer claim that these plants have been installed under NBMMP. In Uttara Kannada, some of the plants have been implemented by the Agriculture and Animal Husbandry departments. However, the concerned department officials were not aware of the location of the plants installed; hence these plants could not be studied (which is included in the number of plants not available for the study).

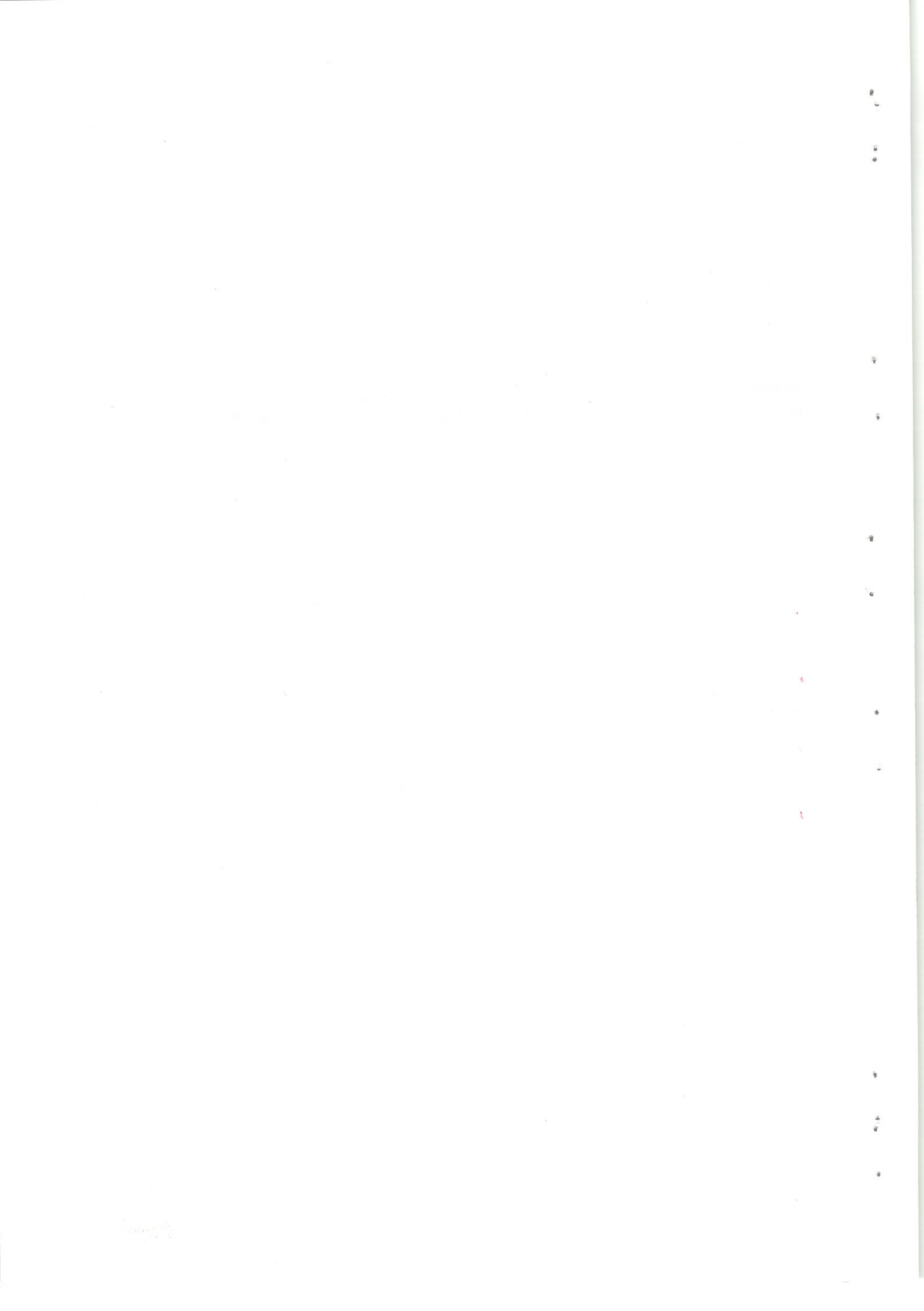
*Needs to be checked up once again*

Table 3.1 Details of sample covered in the household survey

| District      | No. of biogas plants installed in 2010-11 | No. of biogas plants available for study | No. of plants not available for study |
|---------------|---|--|---------------------------------------|
| Mandya        | 50  | 49                                       | 1                                     |
| Raichur       | 66  | 66                                       | 0                                     |
| Uttara Kannda | 175                                       | 165                                      | 10                                    |
| Davangere     | 126                                       | 109                                      | 17                                    |
| <b>Total</b>  | <b>417</b>                                | <b>389</b>                               | <b>28</b>                             |

Source: Field survey





### 3.1 Current Scenario

This section mainly discusses the profile of beneficiaries, status of the plants installed, operation and maintenance aspects, opinion of the beneficiaries of non-functional biogas plants and reasons for non-functioning.

#### 3.1.1 Profile of the respondents

Of the total respondents, 70% were men, while 30% were women. Women were more in number in Mandya and Raichur as compared to the other two districts. Interestingly, 85% of these were literate, 30% of who have completed high school indicating that most beneficiaries have a fairly good level of education in terms of a rural setting. Nearly 65% of the respondents were involved in agriculture, while 35% indicated that agriculture labour was their main source of income. A majority of the respondents had a family size of less than five people, while 30% had 6-10 family members.

Table 3.2 Land holding details of respondents

| Landholding                               | Mandya                | Raichur               | Uttara<br>Kannada     | Davangere             | Total                 | Percentage  |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|
|   | No. of<br>respondents | No. of<br>respondents | No. of<br>respondents | No. of<br>respondents | No. of<br>respondents |             |
| Marginal farmer<br>Less than 2.5<br>acres | 32                    | 18                    | 114                   | 36                    | 200                   | 51%         |
| Small farmer<br>2.5 – 5 acres             | 10                    | 21                    | 27                    | 25                    | 83                    | 21%         |
| Medium<br>5-10 acres                      | 3                     | 2                     | 5                     | 24                    | 34                    | 9%          |
| Large above 10<br>acres                   | 2                     | 8                     | 2                     | 18                    | 30                    | 8%          |
| Landless                                  | 2                     | 17                    | 17                    | 6                     | 42                    | 11%         |
| <b>Total</b>                              | <b>49</b>             | <b>66</b>             | <b>165</b>            | <b>109</b>            | <b>389</b>            | <b>100%</b> |

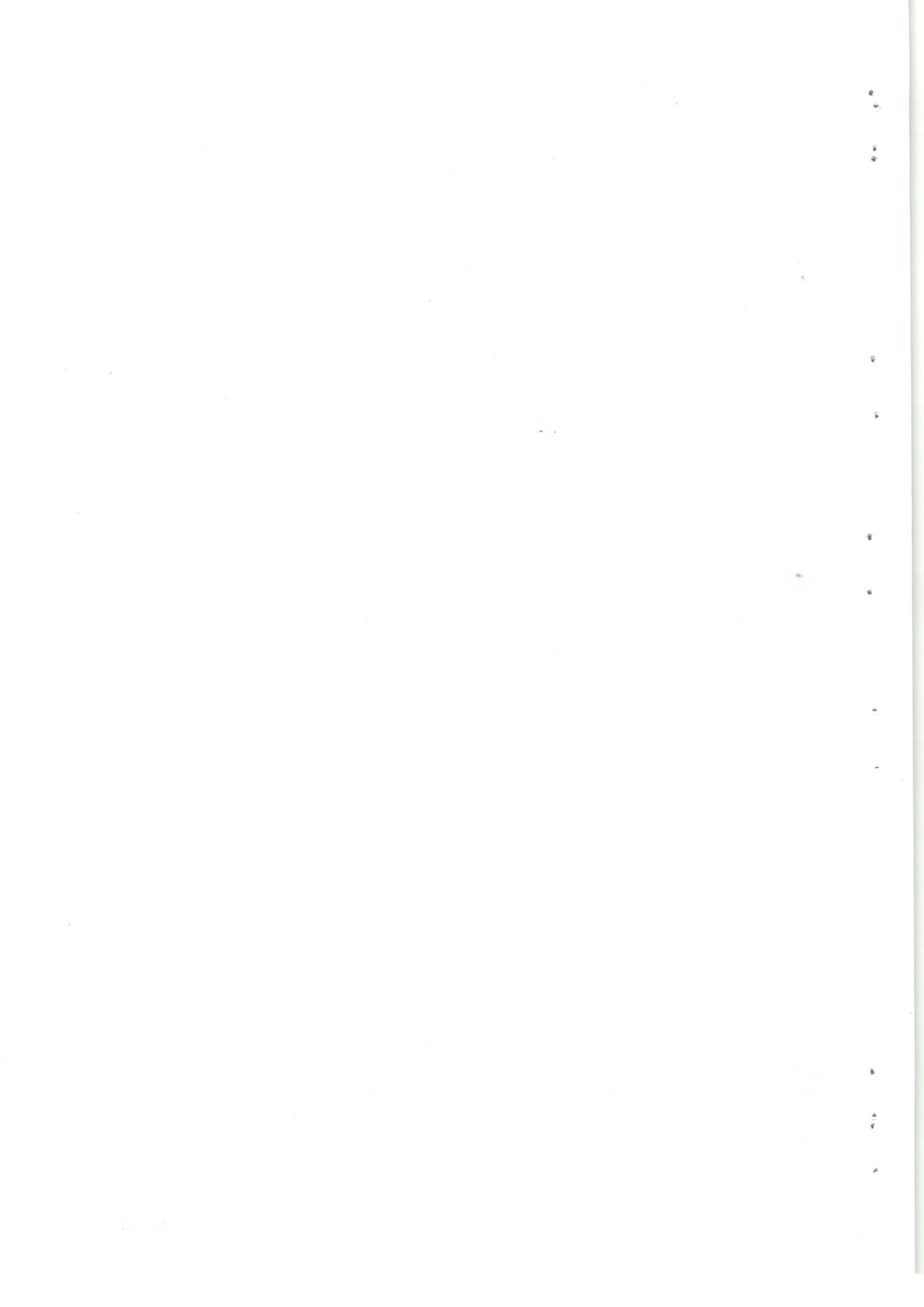
Source: Field survey

The above table on land holding of the respondents clearly indicates that nearly 51% are marginal farmers having less than 2.5% acres of land. About 21% are small farmers. Incidentally 11% are landless, of which most numbers are in Raichur and Uttara Kannada.

#### 3.1.2 Details of Biogas Plants Installed (types and feed materials)

##### Year of installation

As per the ToR plants that were installed, commissioned and received subsidy in 2010-11 were to be chosen. The responses provided by the beneficiaries on the year of installation is presented below:



**Table 3.3** Year of installation

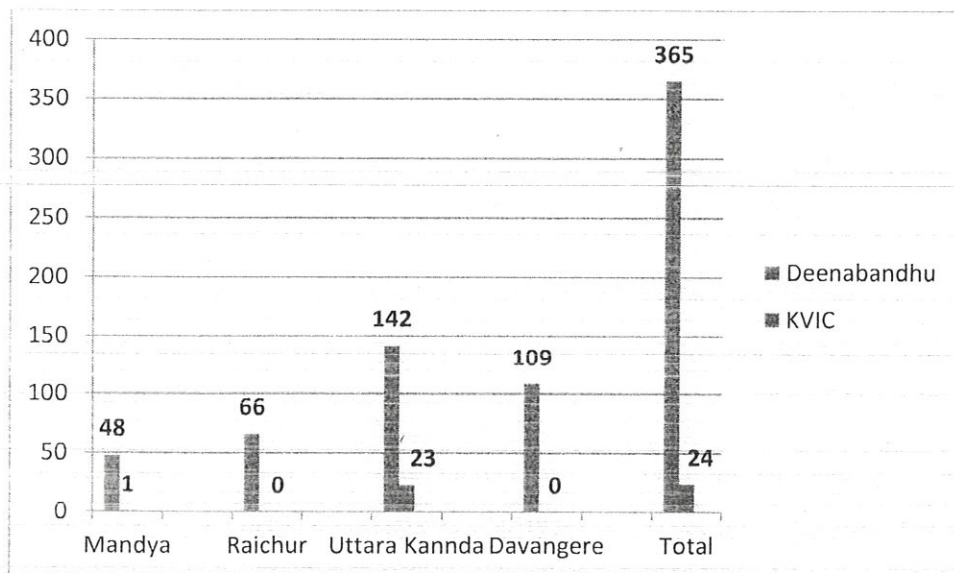
| Year of installation | Mandya             | Raichur            | Uttara Kannada     | Davangere          | Total              | Percentage |
|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|------------|
| Year                 | No. of respondents | No. of respondents | No. of respondents | No. of respondents | No. of respondents |            |
| Before 2009          | 1                  | 0                  | 0                  | 15                 | 16                 | 4%         |
| 2009-10              | 23                 | 2                  | 2                  | 0                  | 27                 | 7%         |
| 2010-11              | 24                 | 64                 | 162                | 94                 | 344                | 88%        |
| 2011-12              | 1                  | 0                  | 1                  | 0                  | 2                  | 1%         |
| Total                | 49                 | 66                 | 165                | 109                | 389                | 100%       |

Source: Field survey

The data revealed that about 88% of the plants were installed in the reference year 2010-11, while 7% were installed in 2009-10 but received subsidy during 2010-11, this is more so in the case of Mandya. However, in Davangere nearly 16 plants were installed prior to 2009, some of them are installed in the year 2004-05, but received subsidy in 2010-11. This indicates a long delay in the release of subsidy amount.

*Types of biogas plants installed*

Both Deenabandhu and KVIC types of biogas types are permissible under the scheme. A majority of the plants studied, i.e. 94% were Deenabandhu type. The district-wise details of types of plants installed are as below:



**Figure 3.1** Types of biogas plants installed

Source: Field survey

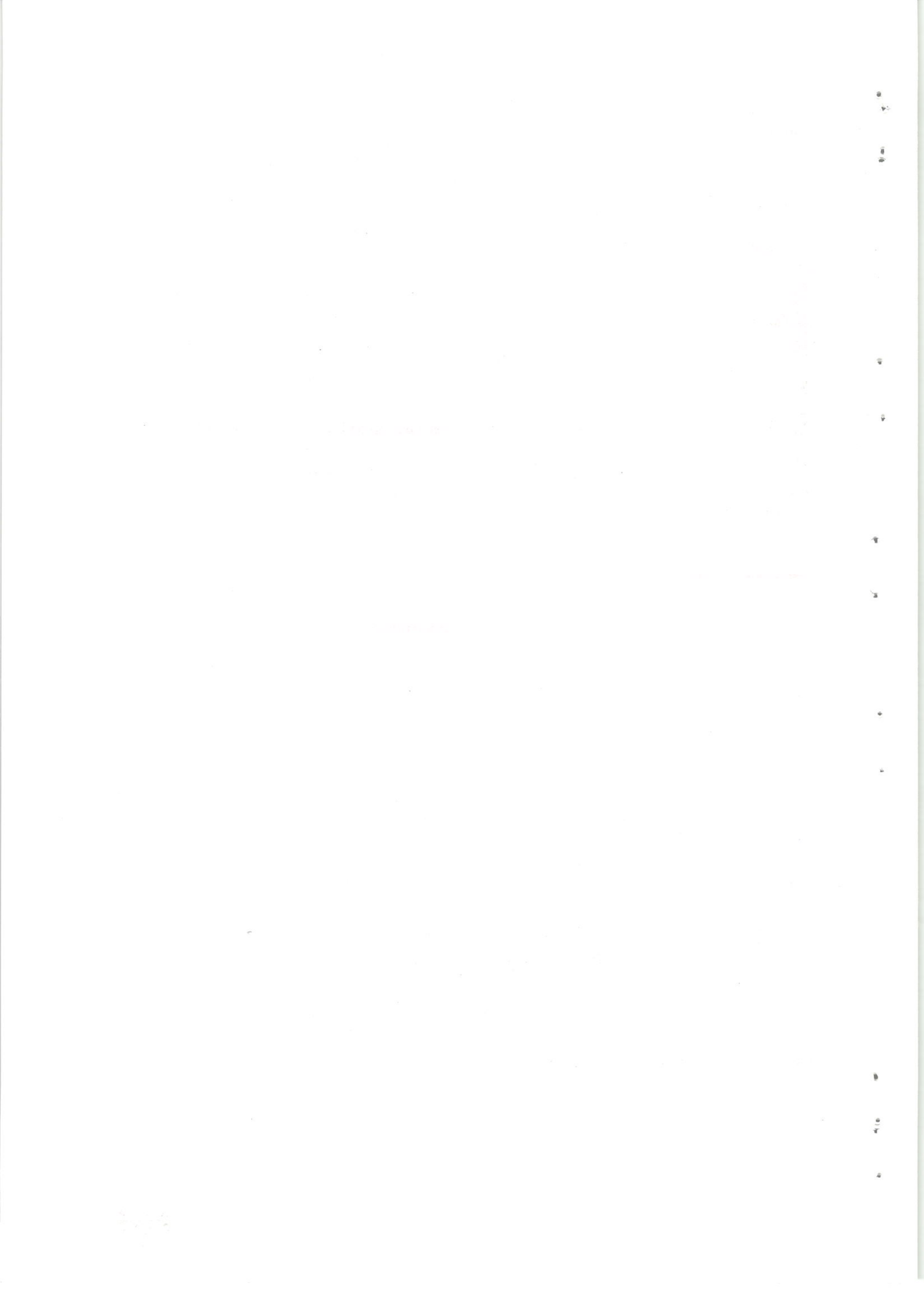






Plate 1 Properly constructed and functional biogas plant in Uttara Kannda district

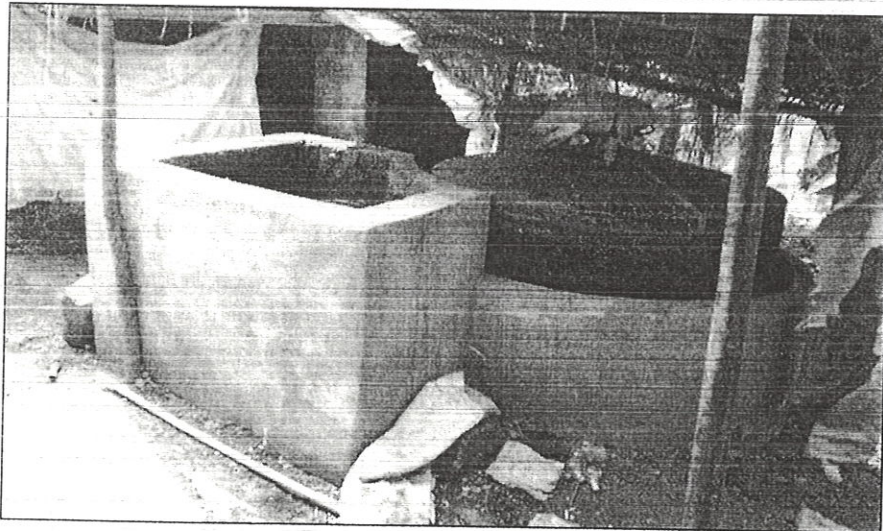
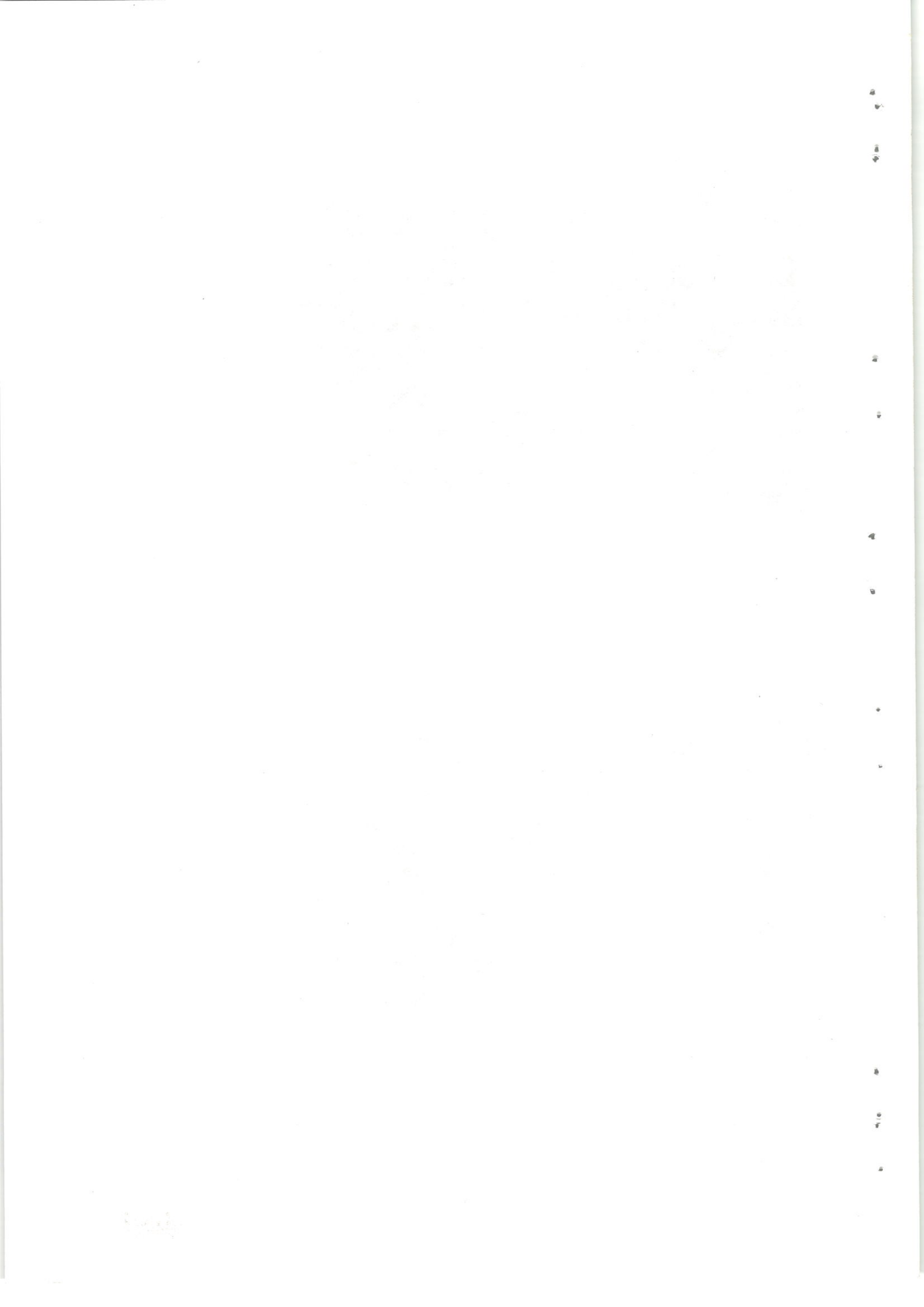


Plate 2 KVIC model in Uttara Kannada district





*Motivation for opting for biogas plants*

The motivation for installing a biogas plant inquiry gave varied results across the districts. In Raichur and Uttara Kannada, respondents attributed it to the impacts of government campaigns, while in Mandya and Davangere, encouragement from friends/ relatives and neighbours seemed to be the driving force for people opting for a biogas plant.

Table 3.4 Motivation for opting for a biogas plant

| Sl. No. | Motivating reason for installing biogas plants              | Mandya<br>No. of respondents | Raichur<br>No. of respondents | Uttara<br>Kannada<br>No. of respondents | Davangere<br>No. of respondents | Total<br>No. of respondents | Percentage  |
|---------|---|------------------------------|-------------------------------|---|---------------------------------|-----------------------------|-------------|
| 1.      | Impact of Government campaign                               | 5                            | 47                            | 88                                      | 20                              | 160                         | 41%         |
| 2.      | Own interest due to fuel demand                             | 13                           | 2                             | 47                                      | 40                              | 102                         | 26%         |
| 3.      | Encouragement from friend/relatives / neighbours and others | 30                           | 17                            | 30                                      | 49                              | 126                         | 32%         |
| 4.      | Waste management  | 1                            | 0                             |   |                                 | 1                           | 0%          |
|         | <b>Total</b>  | <b>49</b>                    | <b>66</b>                     | <b>165</b>                              | <b>109</b>                      | <b>389</b>                  | <b>100%</b> |

Source: Field survey

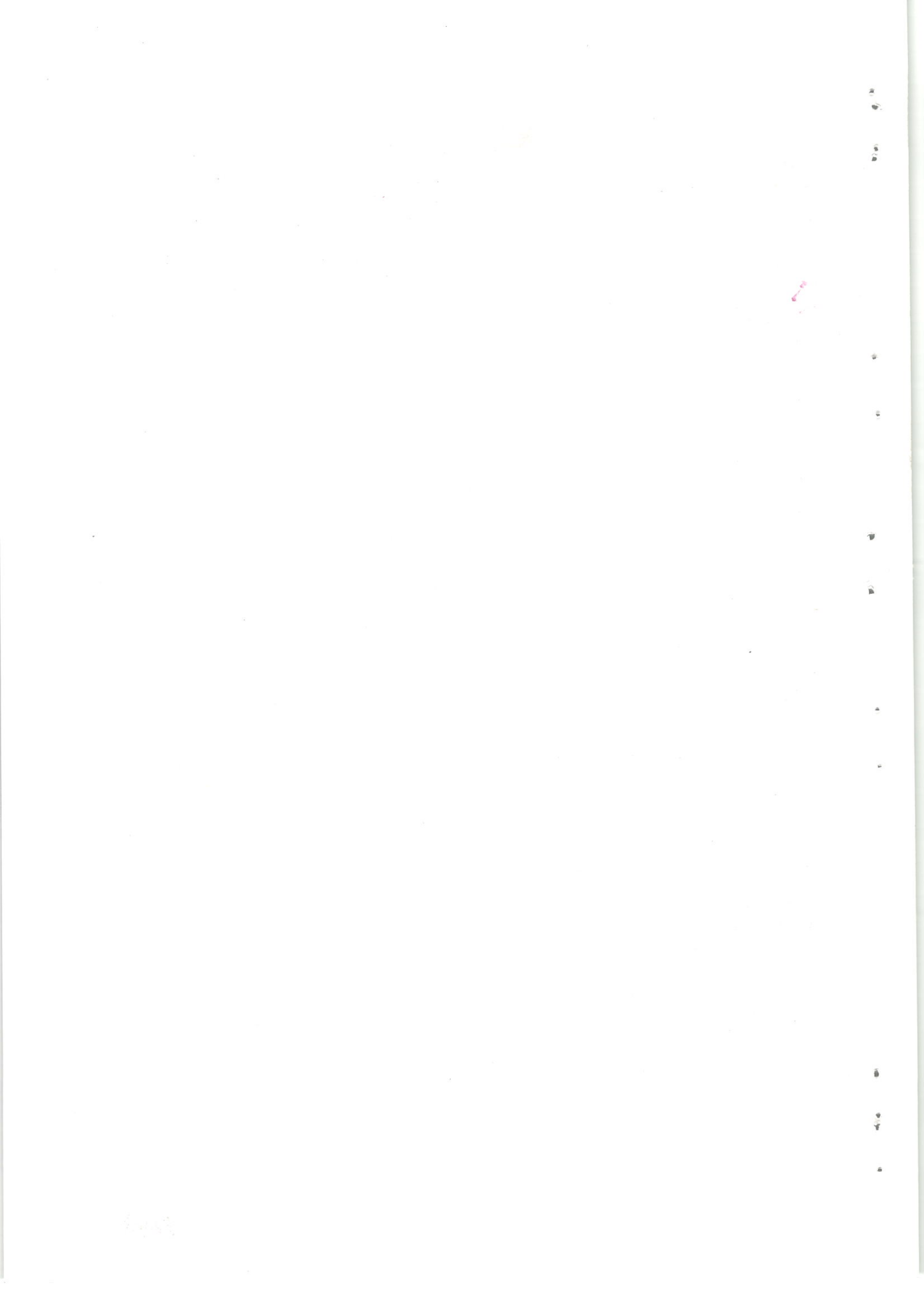
*Size of biogas plants installed*

The table below presents variations across districts. While in Mandya and Raichur all plants are 2m<sup>3</sup>, in Uttara Kannada 97% are three meter cube in size. In Davangere there is an almost equal mix of two sizes. The total picture is mostly influenced by the large number of plants in Uttara Kannada. However, the study team was given to understand that in Karnataka, biogas plants of 2m<sup>3</sup> are more in number, which is also in keeping with the number of cattle in an average household and also the average family size is less than five people and the 2m<sup>3</sup> biogas met their requirements of the preparation of food.

Table 3.5 Size of biogas plants installed

| Size of biogas plant       | Mandya<br>No. of respondents | Raichur<br>No. of respondents | Uttara<br>Kannada<br>No. of respondents | Davangere<br>No. of respondents | Total<br>No. of respondents | Percentage  |
|----------------------------|------------------------------|-------------------------------|---|---------------------------------|-----------------------------|-------------|
| One meter cube             | 0                            | 0                             | 2                                       | 0                               | 2                           | 1%          |
| Two meter cube             | 49                           | 66                            | 3                                       | 53                              | 171                         | 44%         |
| Three meter cube and above | 0                            | 0                             | 160                                     | 56                              | 216                         | 56%         |
| <b>Total</b>               | <b>49</b>                    | <b>66</b>                     | <b>165</b>                              | <b>109</b>                      | <b>389</b>                  | <b>100%</b> |

Source: Field survey



### Subsidy

The subsidy amount paid to beneficiaries was as per the norms of the scheme. However, there has been an extensive delay in the release of funds. However, more than 50 beneficiaries in Uttara Kannada district stated that they have not received the central subsidy till data. In the case of other districts most of the subsidy is received by the turnkey agents. Only in Uttara Kannada, the system of distributing the subsidy through Gram Panchayaths to beneficiary is being followed. In the other three districts, the turnkey agents provide all the materials such as bricks, iron, cements, stove, biogas pipe, labour charges for the masons etc., and collect the subsidy on behalf of the beneficiaries. Over 50% of the beneficiaries (except in Uttara Kannada district), are not aware of the amount and pattern of subsidy.

### Warranty

With regard to warranty of the biogas plants, as per the scheme the turnkey agents had to provide a five-year warranty. However, there does not seem to be much awareness on this aspect amongst the beneficiaries in Mandya. In the other districts the awareness seems to be much better as illustrated below:

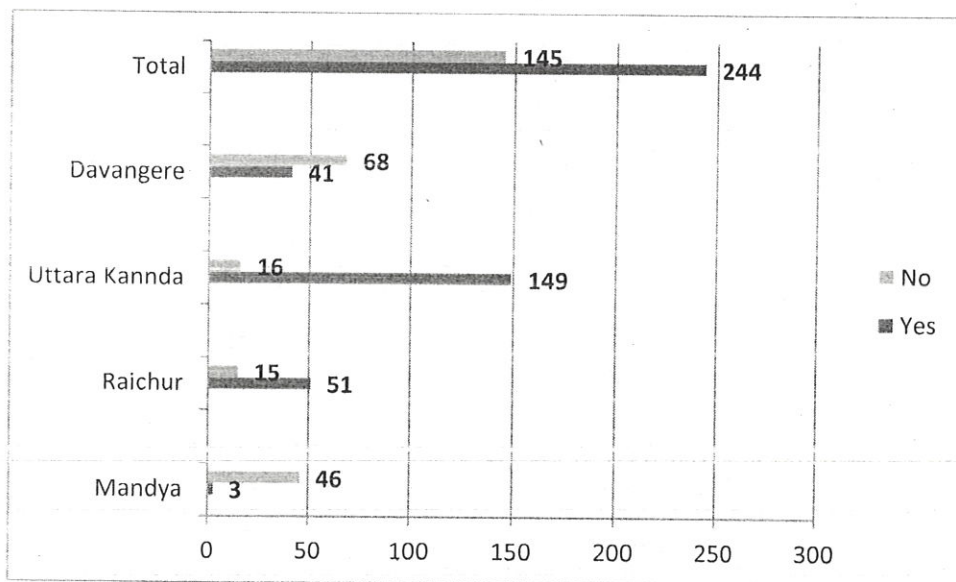
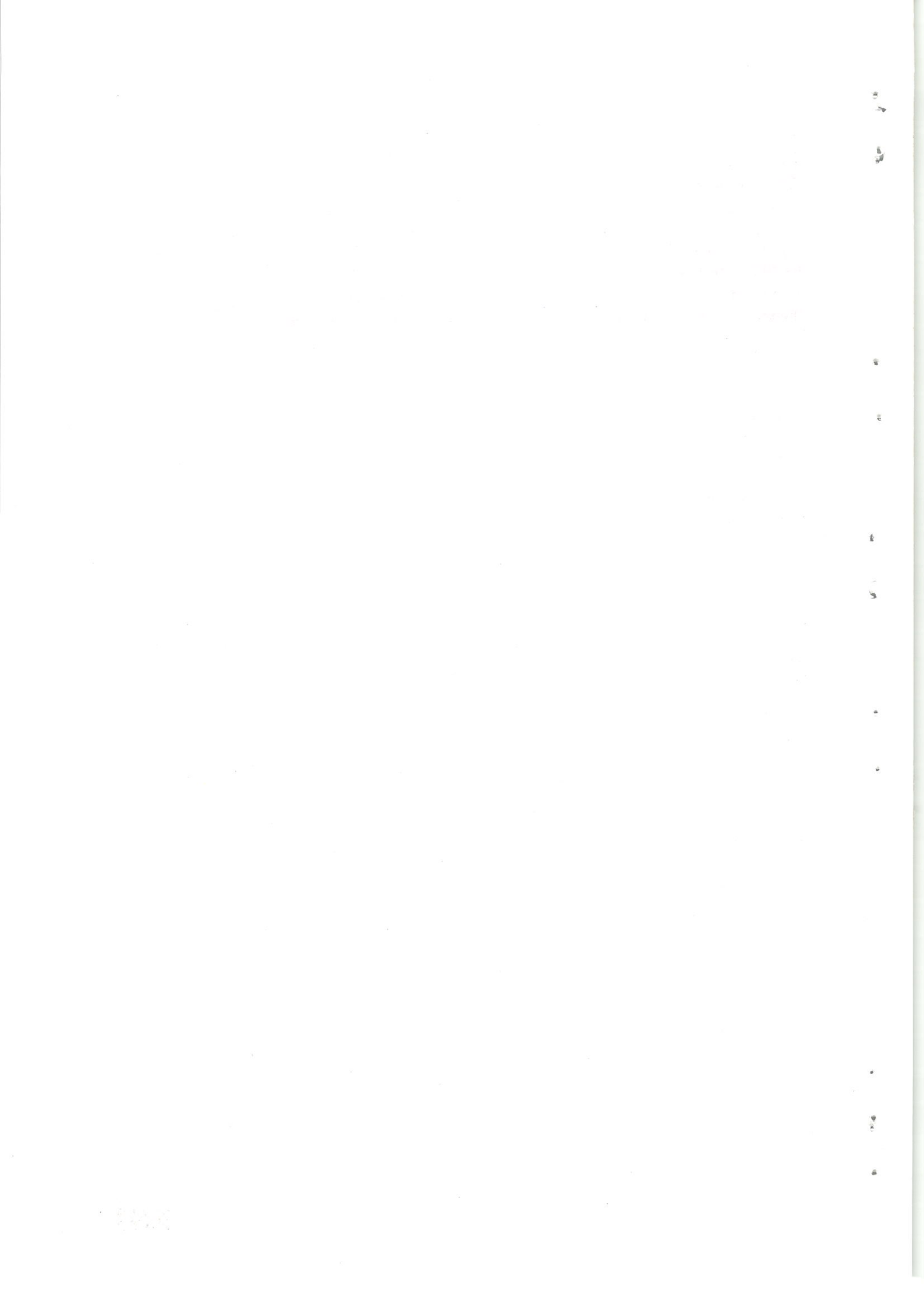


Figure 3.2 Warranty on biogas plants

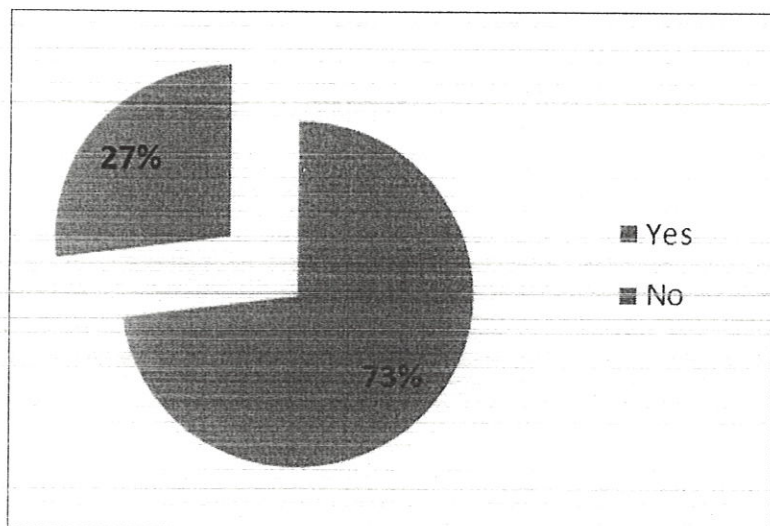
Source: Field survey

Most beneficiaries who were aware of the warranty also knew that it is for five years, whereas in Mandya, those who were aware stated that the warranty is for about two years.





*Follow-up*



**Figure 3.3** Follow-up on biogas plants

Source: Field survey

Interestingly, 73% beneficiaries stated that there is good follow-up by the turnkey agents. However, around 27% respondents in Raichur expressed that there was no follow-up. With regard to the mode of follow-up, over 67% respondents in Mandya and 74% in Uttara Kannada stated that it was done through home visits. In the other two districts, follow-up was done through telephone calls to beneficiaries. The follow-up was mostly done in all locations for atleast 1-2 times after installation and commissioning.

*Details of feed materials*

Biogas plants maybe single feed or multi feed, i.e. could use one type of feed material or more than one type. In the study sample, 99% of the plants were single feed, just three plants in Mandya were multi feed. The single feed plants used cow or buffalo dung as the feed material. While the multi feed plants in Mandya used dung and jaggery *maddi* (waste from jaggery making unit). Occasionally buttermilk, jaggery and urea to improve gas production.

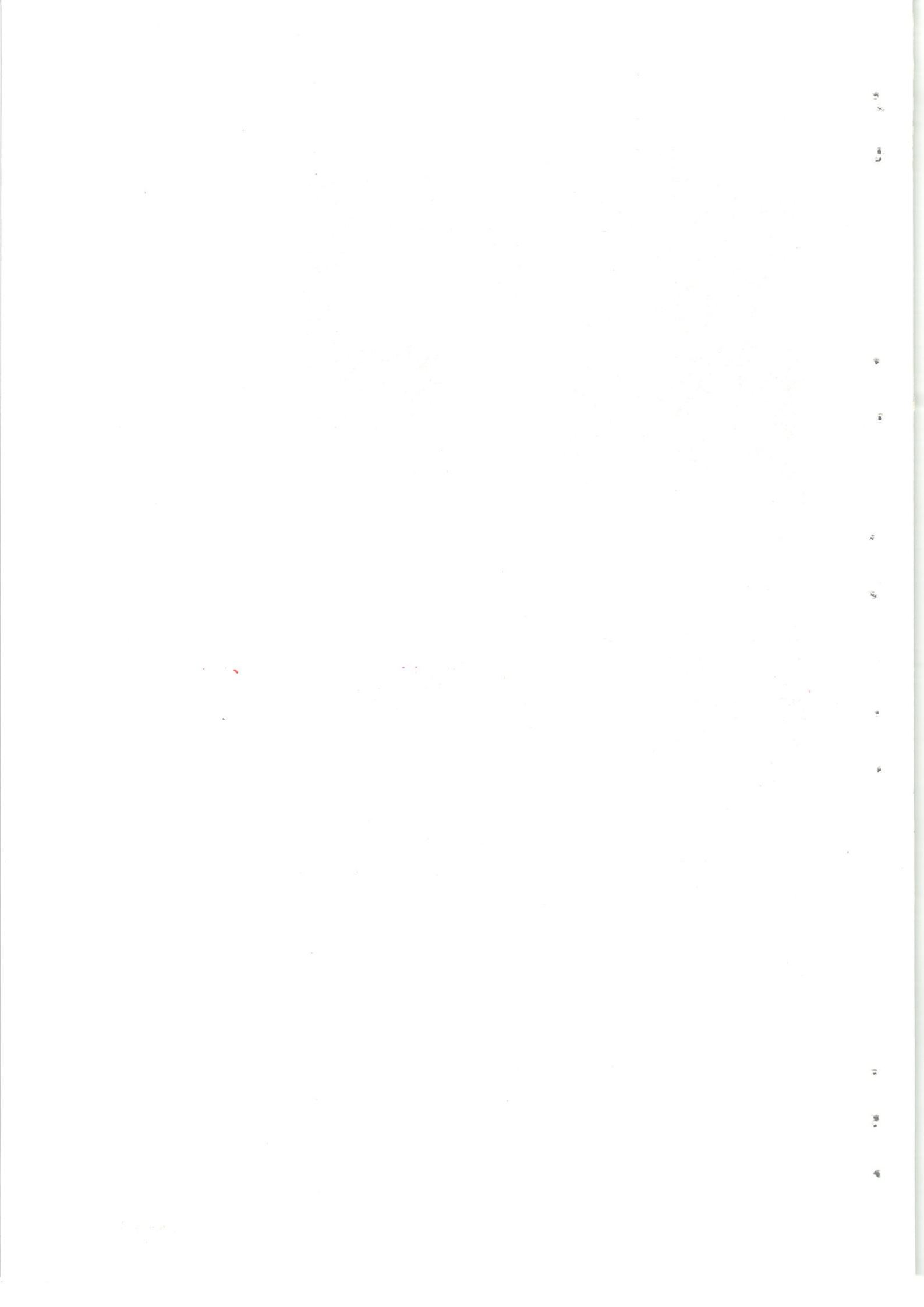




Plate 3 Innovative feed materials mixing equipment developed by the beneficiary in Raichur



Plate 4 Innovative feed materials mixing equipment developed by the beneficiary in Uttara  
Kannada





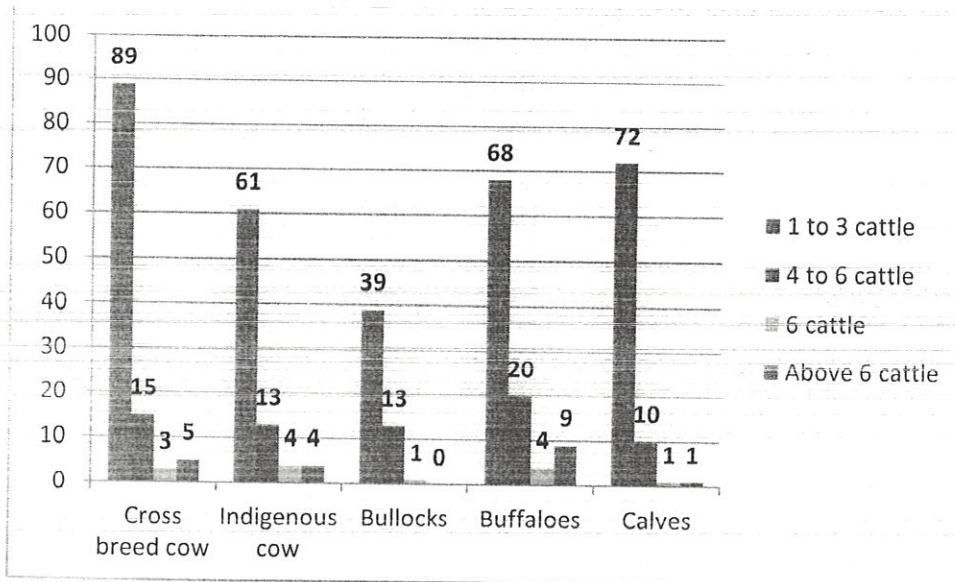


Figure 3.4 Details of cattle ownership

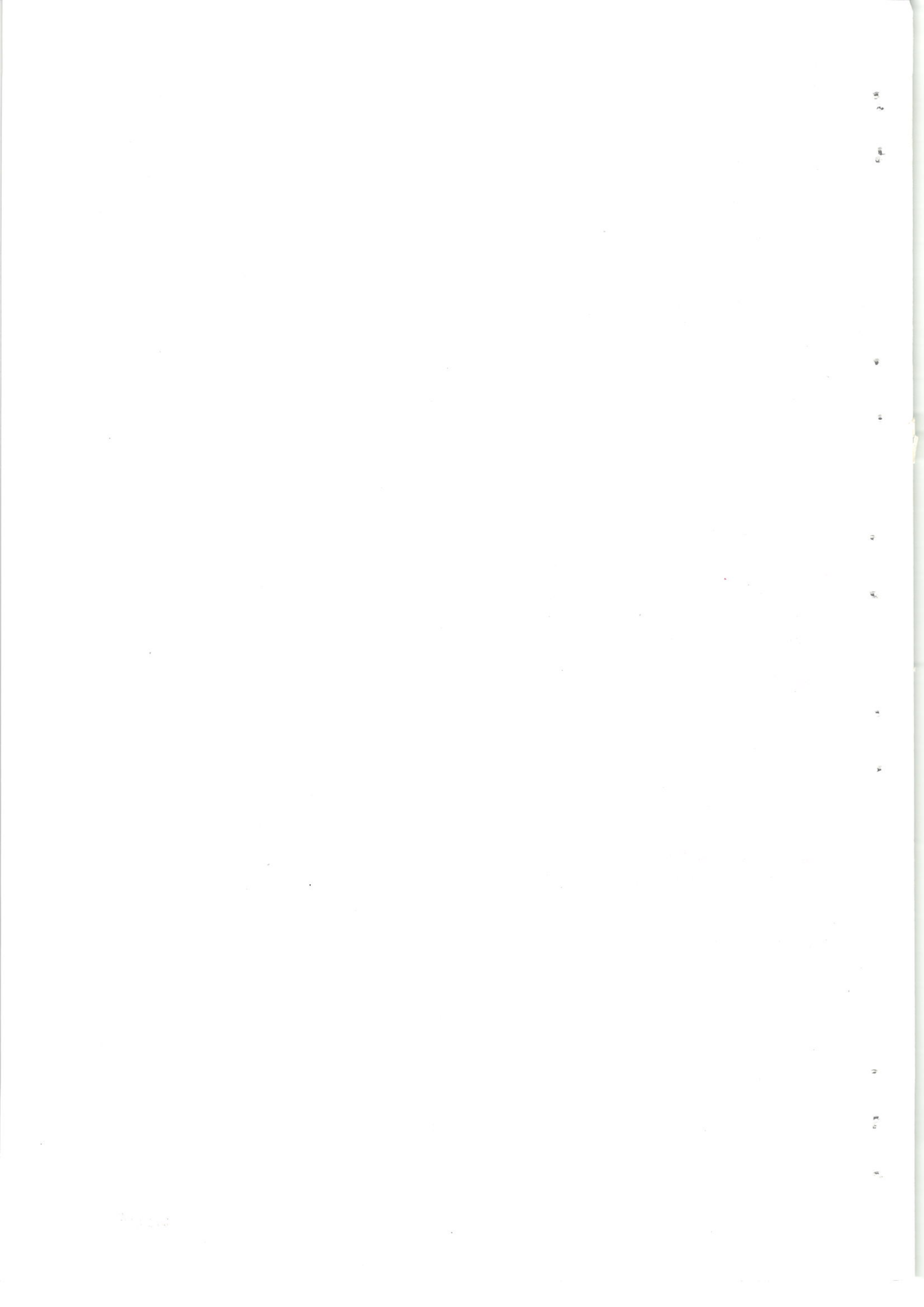
Source: Field survey

The number of cattle in each household directly affects the quantity of feed available, which is one of the most important aspects for proper functioning of the biogas plant. Under-feeding and over-feeding lead to improper functioning of the plant, which was observed in some sites. The figure above illustrates that most households have 1-3 cross breed cows and calves. It was observed that indigenous breed and buffaloes are also quite high in number compared to bullocks. It may be recalled here that cross breed cows yield more dung compared to indigenous cows. Very few respondents had six or more cattle.

*Dung availability*

The figure below indicates the dung availability per day, which is the quantity of feed available for the biogas plant per day. It is clear that around 51% of the respondents stated that 50-100 kgs per day is available which is the amount of feed required for a two cubic meter and around 75 kgs is required for a three cubic meter. In some cases (17%), hardly 20-30 kgs is available indicating that these plants are at the risk of under feeding.





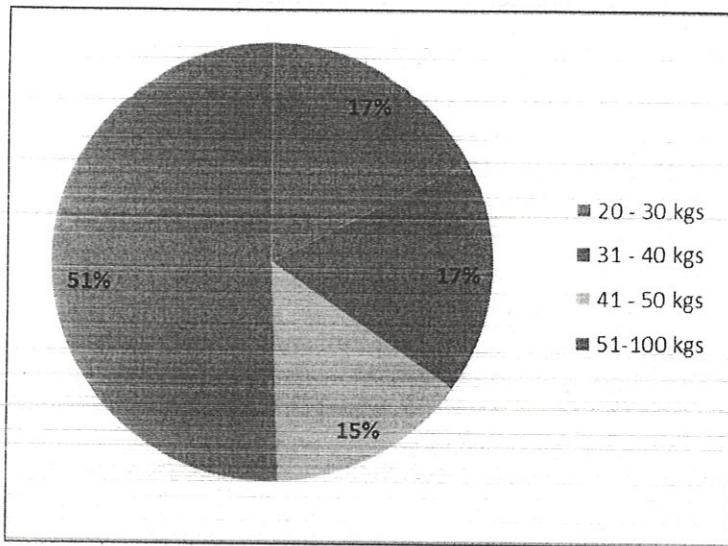


Figure 3.5 Dung availability per day

Source: Field survey

### Feed per day

In contrast to the dung availability, most respondents, i.e. 37% stated that they feed about 20-30 kgs per day to the biogas plant, while 24% and 21% expressed that they feed the plant with 41-50 kgs and above 50 kgs respectively. This finding indicates that there is a need for some awareness among the beneficiaries on the quantity of feed to be used and the consequences of under feeding.

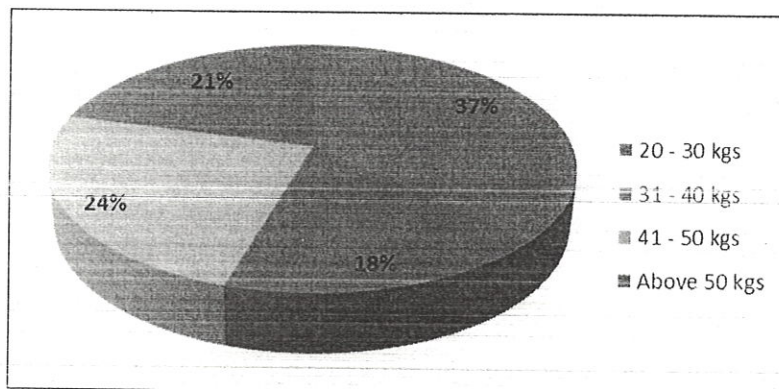
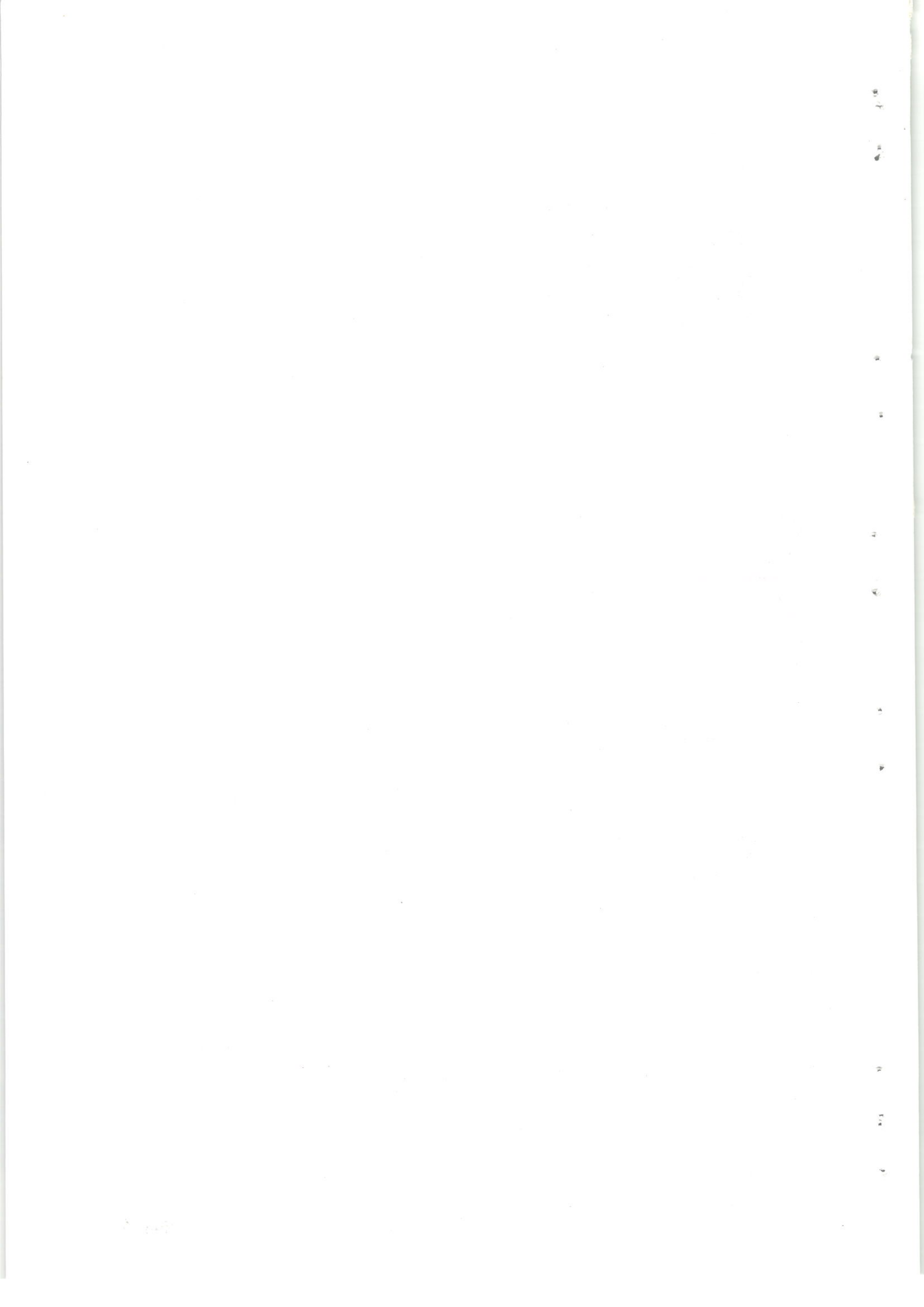


Figure 3.6 Quantity of feed per day

Source: Field survey



*Water*

Most beneficiaries, 43% expressed that 20-30 litres of water is fed to the plant per day. Around 24% respondents stated that 41-50 litres is fed per day and 17% claimed that 31-40 litres is fed per day and almost similar percentage claimed that over 50 litres is fed per day. The water required for a 2 m<sup>3</sup> plant is 50 litres and 75 litres for a 3 m<sup>3</sup> plant. It was observed that most beneficiaries were not mixing water adequately. There is a need to create awareness on this aspect among the beneficiaries.

Nearly 96% of the respondents articulated that water is adequately available, while 4% stated that water is not available adequately.

**3.1.3 Status of Functioning of Biogas Plants (functional and non-functional)***Functionality and Reasons for non-functional plants*

Among the plants studied, 87% were functional, while 13% were non-functional. The percentage of non-functional plants is least in Uttara Kannada, while it is around 18-21% in the other three districts. It must be recalled that most of the plants have been installed just a year ago, of which some are already non-functional. Hence the quality of construction needs to be taken care of adequately.

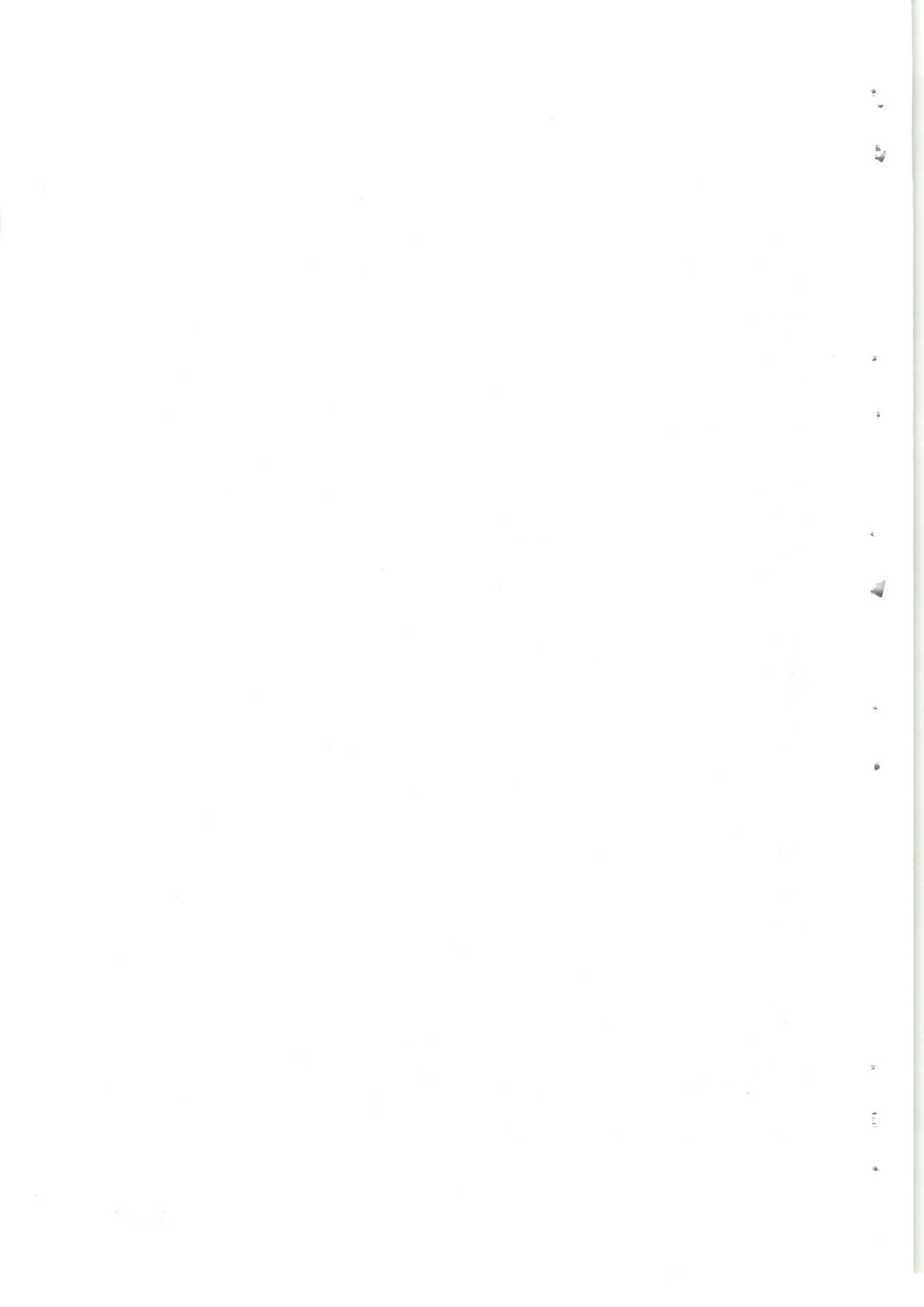
**Table 3.6** Status of functioning of biogas plants

| Status of functioning     | Mandya             | Raichur            | Uttar<br>Kannada   | Davangere          | Total              |             |
|---------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|
|                           | No. of respondents | No. of respondents | No. of respondents | No. of respondents | No. of respondents | Percentage  |
| Functional                | 40                 | 52                 | 163                | 85                 | 340                | 87%         |
| Non-functional            | 9                  | 14                 | 2                  | 24                 | 49                 | 13%         |
| Functional but not in use | 0                  | 0                  | 0                  | 0                  | 0                  | 0%          |
| Yet to be commissioned    | 0                  | 0                  | 0                  | 0                  | 0                  | 0%          |
| <b>Total</b>              | <b>49</b>          | <b>66</b>          | <b>165</b>         | <b>109</b>         | <b>389</b>         | <b>100%</b> |

Source: Field survey

*Water trap*

The gas pipe in a biogas plants also carries some amount of water along with biogas, which needs to be removed either at the dome or the stove connected point. However this frequent handling may damage the pipe. Incidentally it was noted that a water trap was not installed in 99% of the plants studied, leading to poor quality of flame.





### *Leakage in the gas pipe*

In 92% of the plants studied, there was no leakage in the gas pipe. However, in 8% of the sample, leakage was observed due to poor maintenance, poor quality, improper handling etc. In Raichur district some of the plants were installed very far from kitchen, due to this gas pipeline length was very high, causing high rate of condensation in the gas. This can be avoided in the future installing plants.

### *Gas valve*

It was observed that the gas valve was functional in 90% of the sample, while it was broken and not replaced in 10% of the sample. This is not a safe practice since the gas supply cannot be turned off thus leading to leakage which may lead to fire accidents/hazards. In some cases in Davangere, the gas valve has not been fitted.



Plate 5 Improper alignment of gas pipe in Raichur



Plate 6 Improper alignment of gas pipe in Mandya



### 3.1.4 Reasons for non-functioning of biogas plants

There were various reasons for non-functionality of biogas plants. Of these, other reasons such as less gas production due to improper feeding was one of the main reasons for the beneficiaries to abandon the usage of the plant.

Other factors such as broken/ cracked gas pipe, broken/ cracked dome, damaged outlet or inlet tank, non-availability of feed materials were also quoted as reasons for non-functionality of the biogas plants.

When queried on changes in cattle ownership, about 9% of the total respondents stated that they had sold cattle; hence feed material was not available.

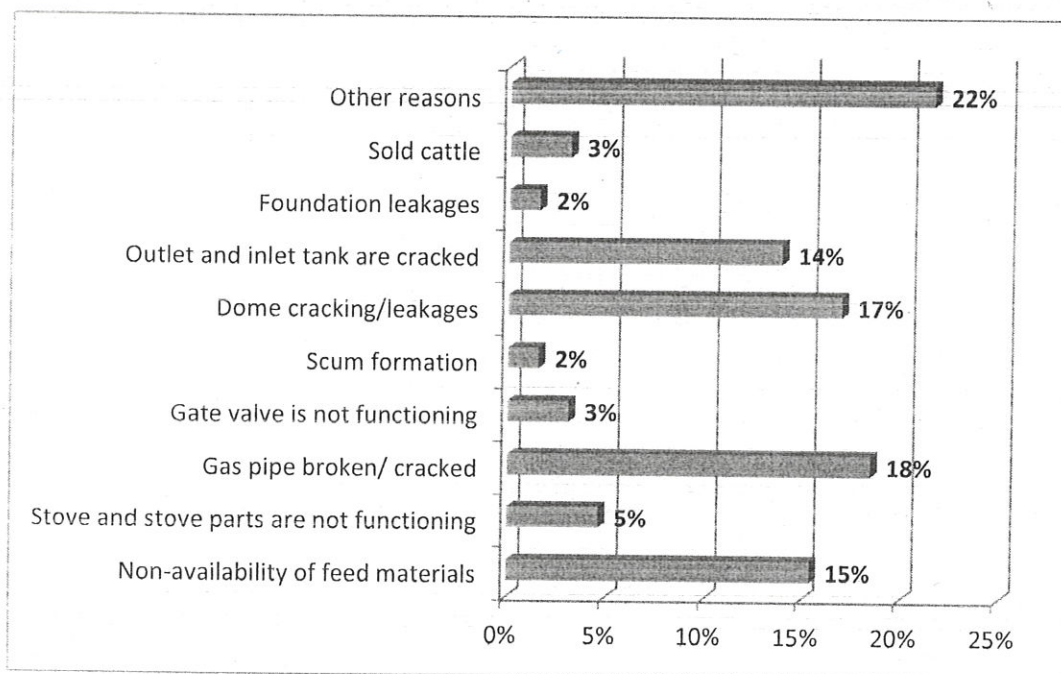


Figure 3.7 Reasons for non-functional biogas plants

Source: Field survey





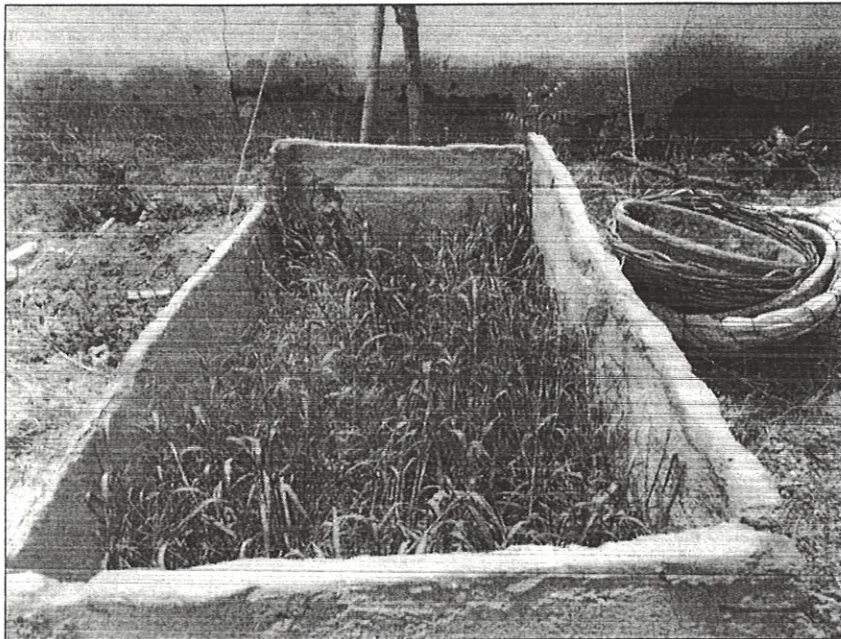


Plate 7 Dysfunctional outlet tank



Plate 8 Broken and non-functional inlet tank



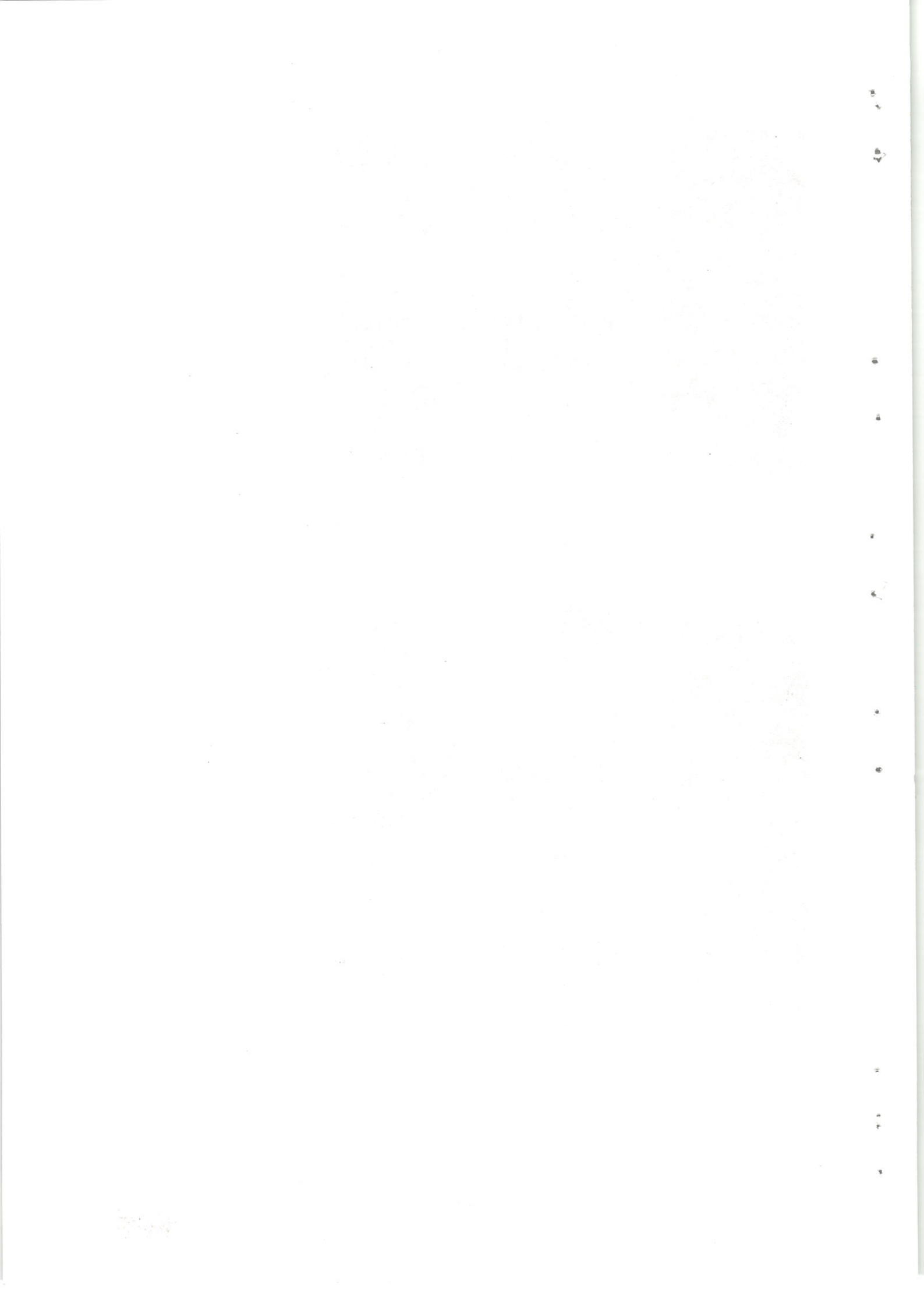
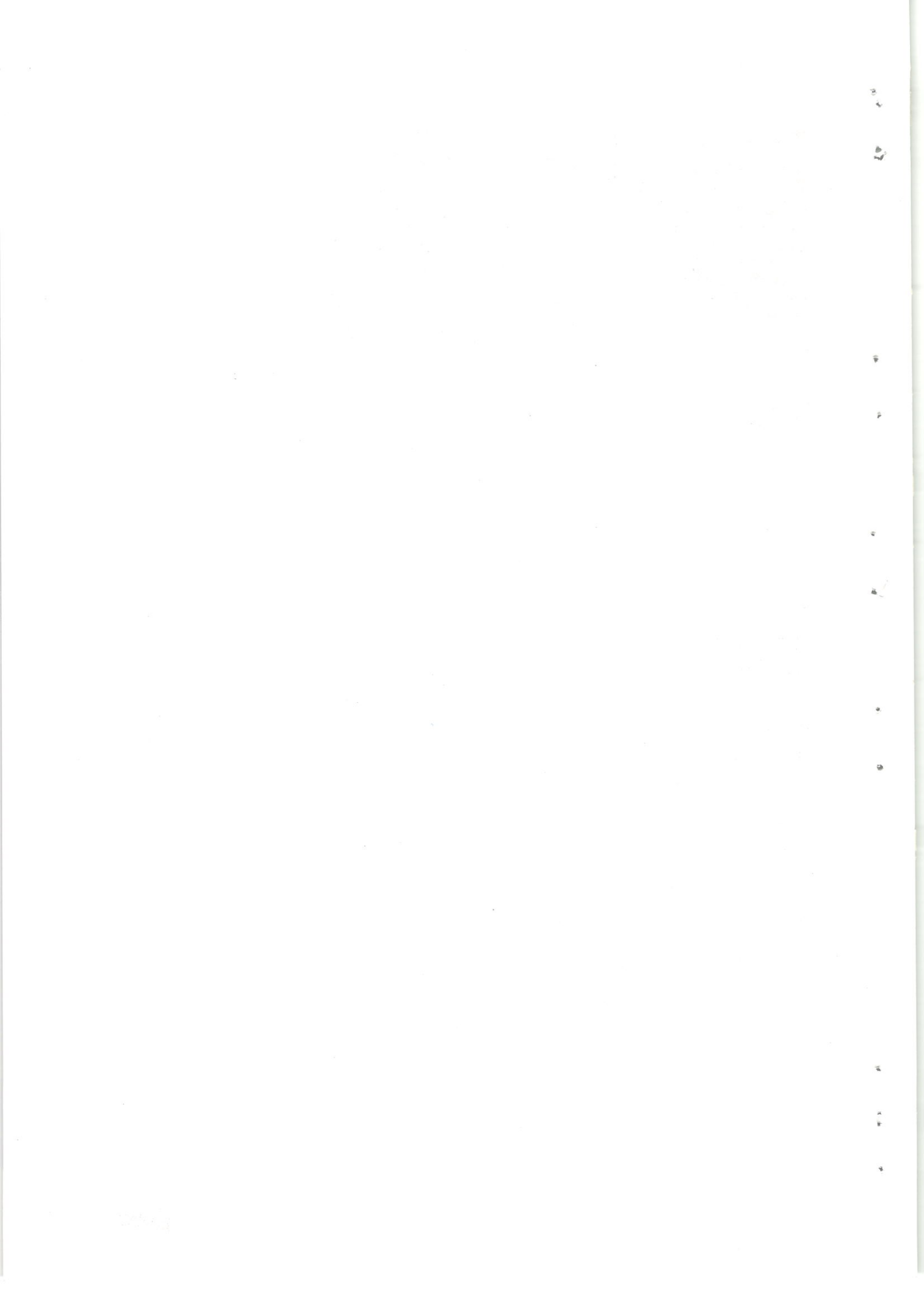




Plate 9 Non-functional plant in Raichur



Plate 10 Damaged outlet tank without a proper cover in Uttara Kannda



### 3.1.5 Biogas Usage and Maintenance (use, repair, service and training to users)

#### Usage of biogas

It was encouraging to note that 97% of the total respondents expressed that they use biogas for cooking every day. This clearly indicates that the dependency on fossil fuels has come decreased in these households. Most of them also stated that they use the biogas for over three hours in a day, while others conveyed that they use it for 2-3 hours in a day.

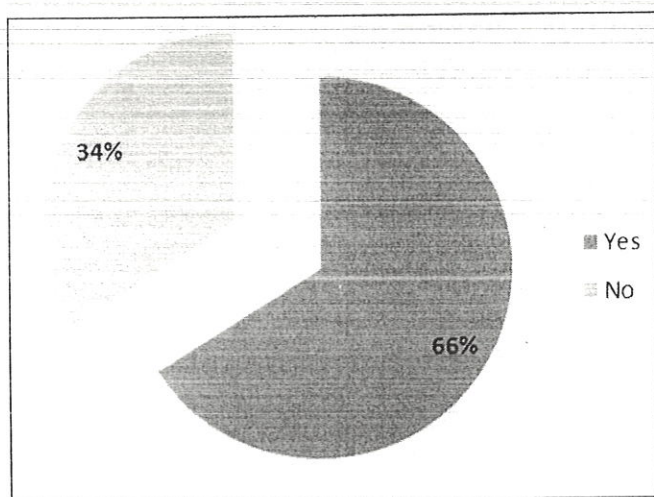
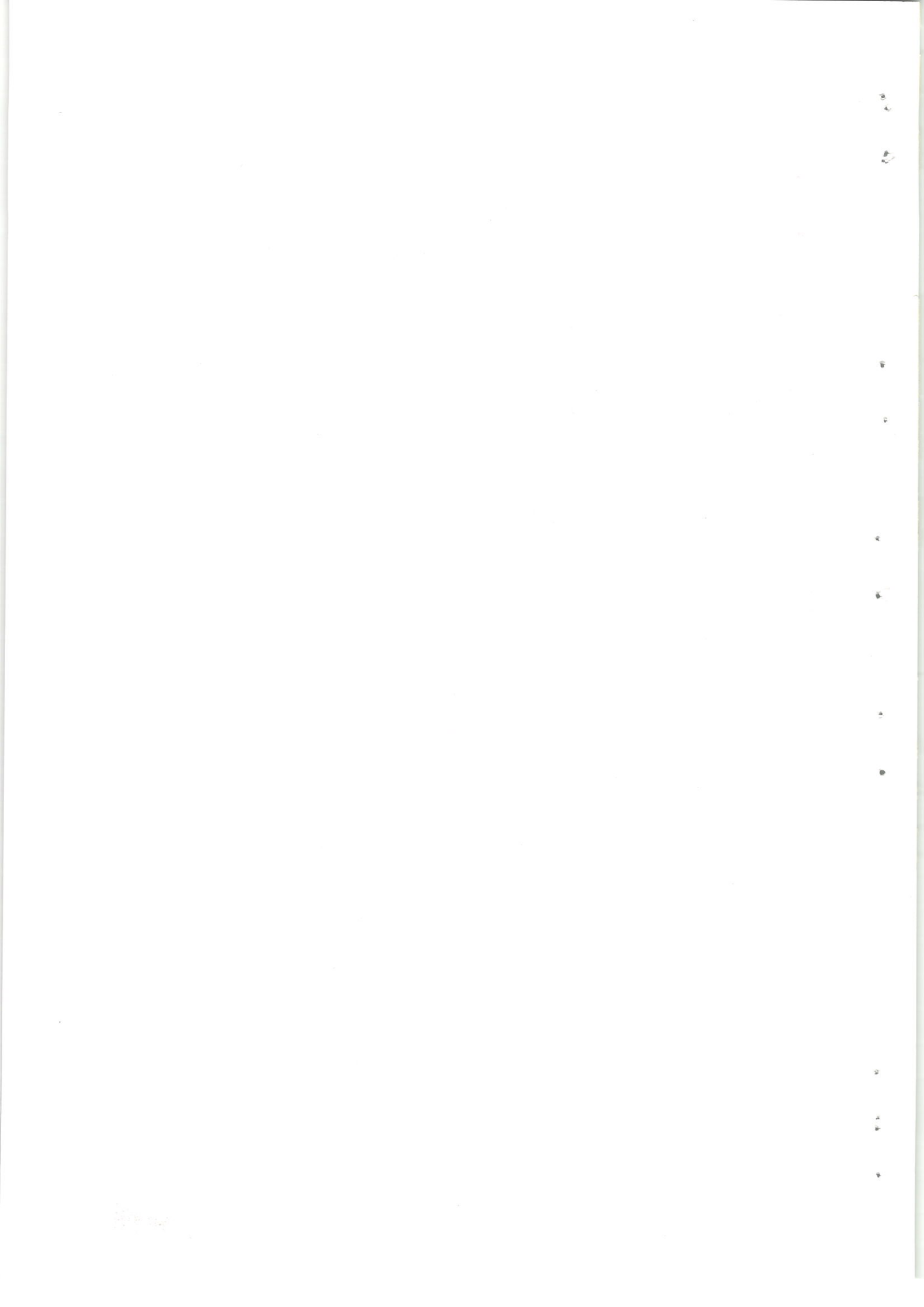


Figure 3.8 Biogas as the only fuel source for cooking

Source: Field survey

On probing further it was found that around 66% of the beneficiary households use biogas as the only source of fuel for cooking, while others used it in combination of other fuel sources such as LPG, firewood, kerosene, cow dung cakes etc. Although this is a very encouraging trend, it must be borne in mind that the biogas plants have been in use for just around a year or two.





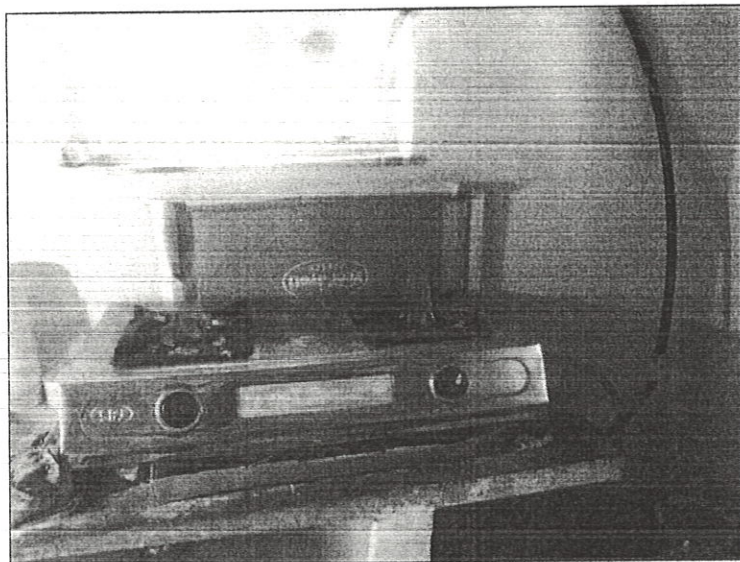


Plate 11 A clear blue flame of a biogas stove in Raichur

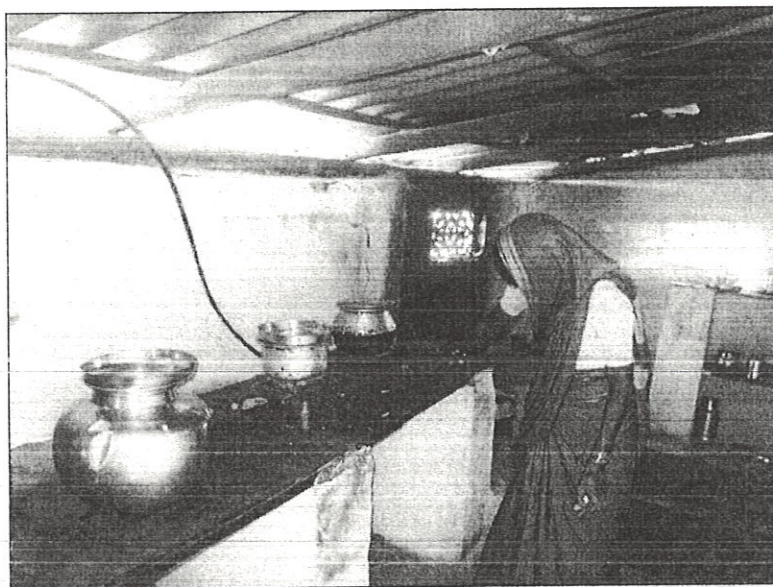
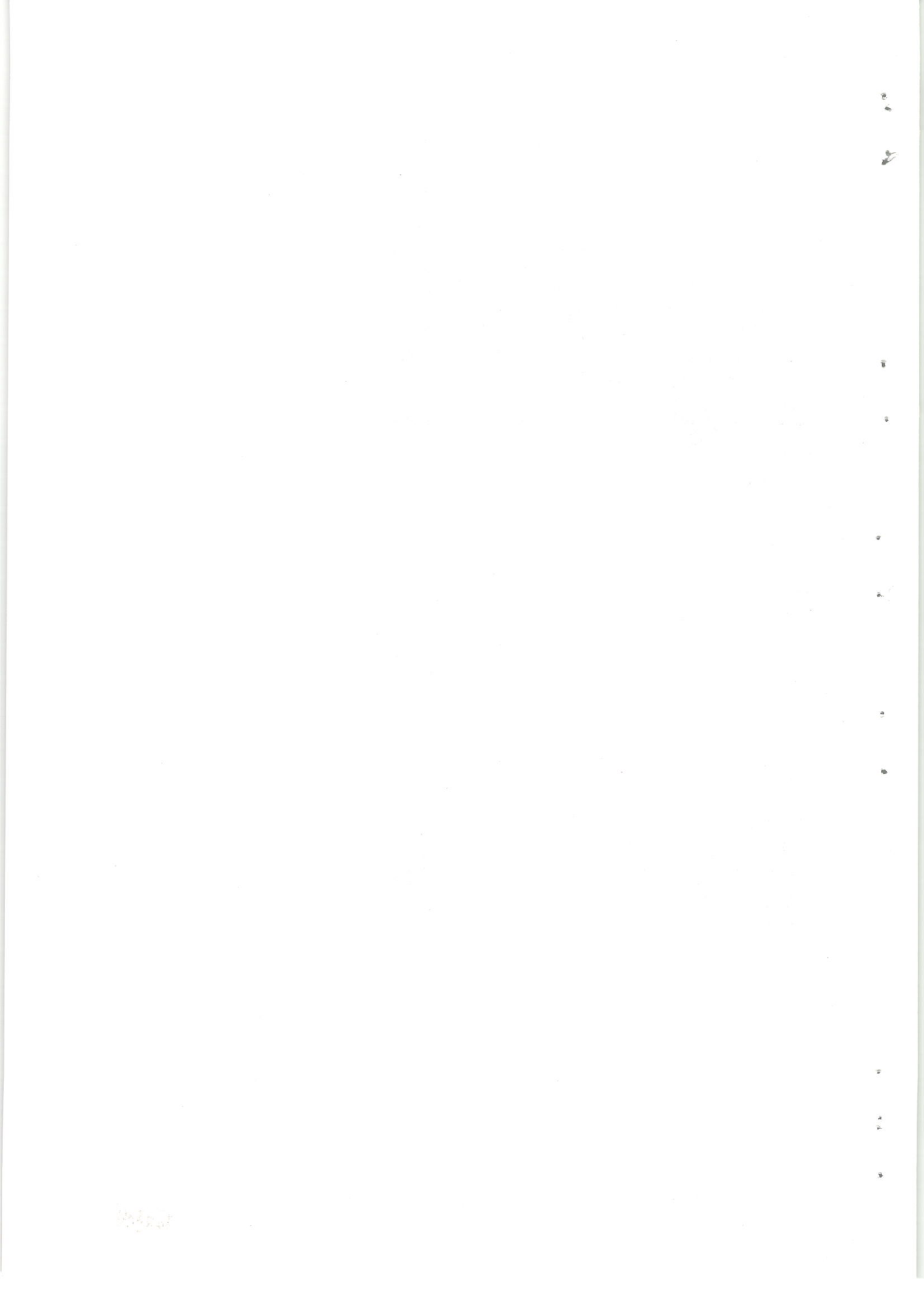


Plate 12 A lady beneficiary using the biogas stove in Raichur



Other fuels used for cooking

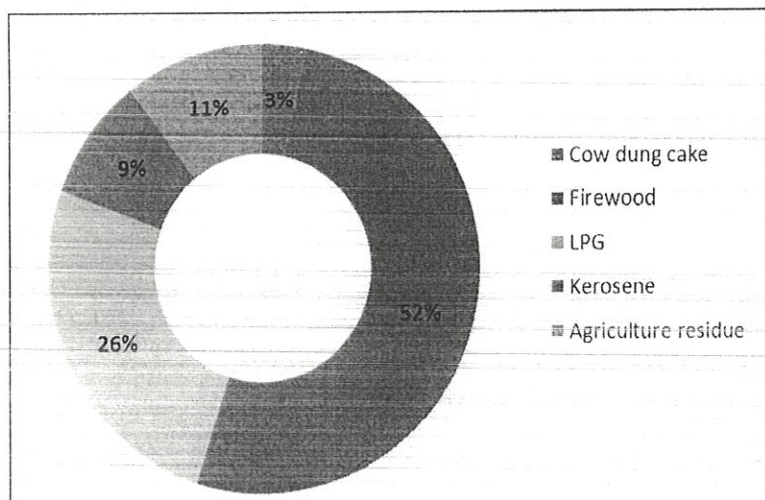
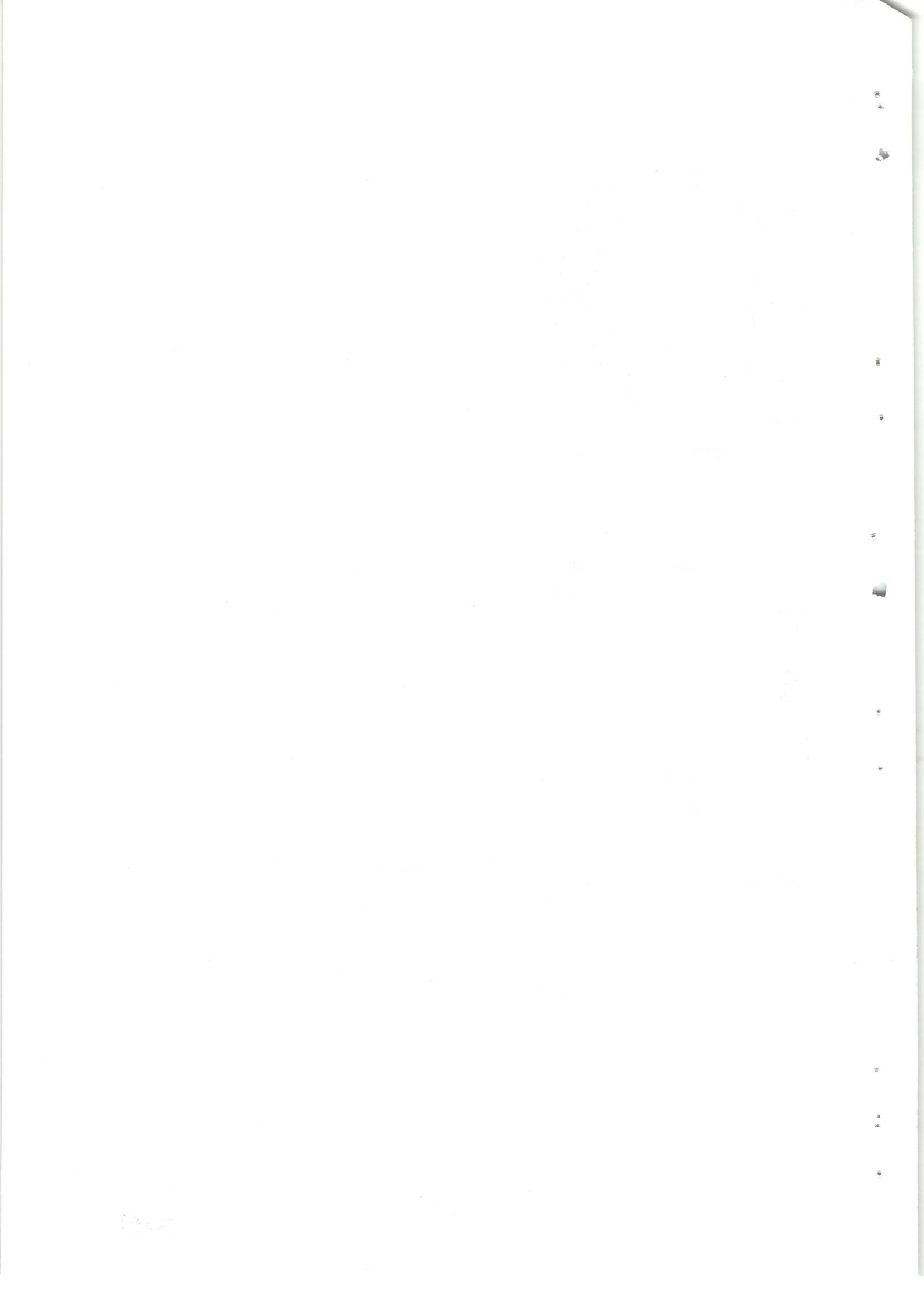


Figure 3.9 Other fuel sources for cooking

Source: Field survey

Among the respondents who use other sources of fuel, a majority (52%) use firewood. Interestingly around 26% use LPG, while a few others use agriculture residue, kerosene and cow dung cake. It was learnt that 25-30 kgs of agriculture residue is used per week as cooking fuel, while 3-6 litres of kerosene is also used as additional source of fuel for cooking. The LPG users stated that one cylinder is used for about 150 days, while for some others it lasts about 60 days. A majority, i.e. 87% of respondents spent less than Rs.50 per week on these other fuel sources for cooking purpose. Cow dung cake is mostly being used by four households in Raichur only.

With regard to respondents who used firewood as additional source of cooking fuel, 68% claimed that they use less than 100 kgs per month. Among these 47% obtain firewood from their own agriculture lands, 36% collect firewood from government and forest land, while 17% purchase firewood. The collection of firewood was highest in Uttara Kannada (68%), while in the other three districts, firewood was obtained mostly from own land. With regard to purchase of firewood, it was understood that the expenditure incurred for purchase of firewood was less than Rs.500 per month.





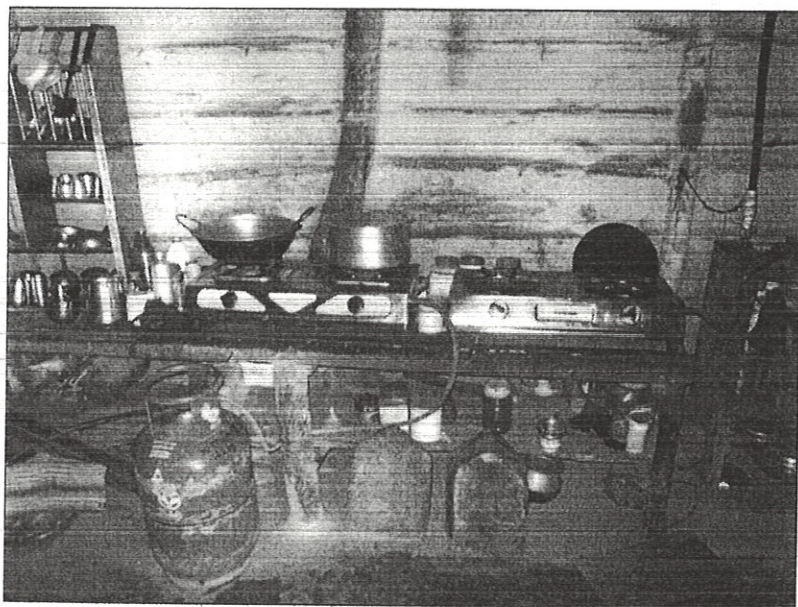
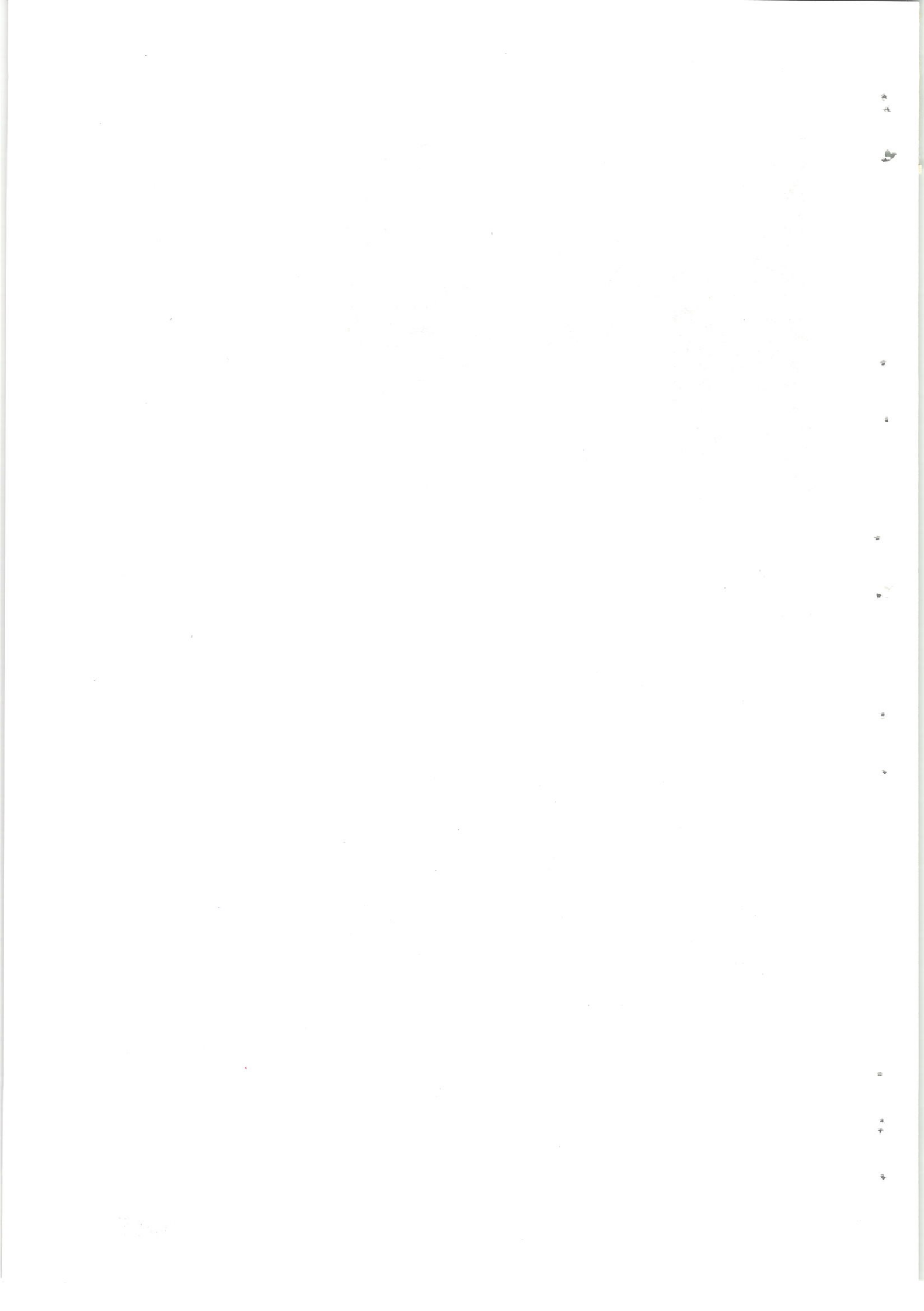


Plate 13 Biogas stove used in tandem with LPG



Plate 14 Cow dung cakes are used in addition to biogas for cooking





*Repair and replacement*

The data collected revealed that 84% of the plants had not undergone any repair, while 16% had undergone some form of repair. Among the four districts, the highest percentage of repairs was carried in Mandya, where 31% had undergone some form of repair. Incidentally it was found that most of the repairs were carried out by the beneficiaries (64%), while in some cases it was done by the turnkey agent. These repairs were carried out only once after installation.

Table 3.7 Repair of biogas plants

| Repair of biogas plants | Mandya             | Raichur            | Uttara<br>Kannada  | Davangere          | Total              |             |
|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|
|                         | No. of respondents | No. of respondents | No. of respondents | No. of respondents | No. of respondents | Percentage  |
| Yes                     | 15                 | 5                  | 16                 | 26                 | 62                 | 16%         |
| No                      | 34                 | 61                 | 149                | 83                 | 327                | 84%         |
| <b>Total</b>            | <b>49</b>          | <b>66</b>          | <b>165</b>         | <b>109</b>         | <b>389</b>         | <b>100%</b> |

Source: Field survey

The details of the parts that were repaired are illustrated below. It may be recalled here that in most cases the stove had undergone repair, which is not covered under warranty. The gas valve and gas pipe are the other components which have been repaired which is indicated in the figure below.

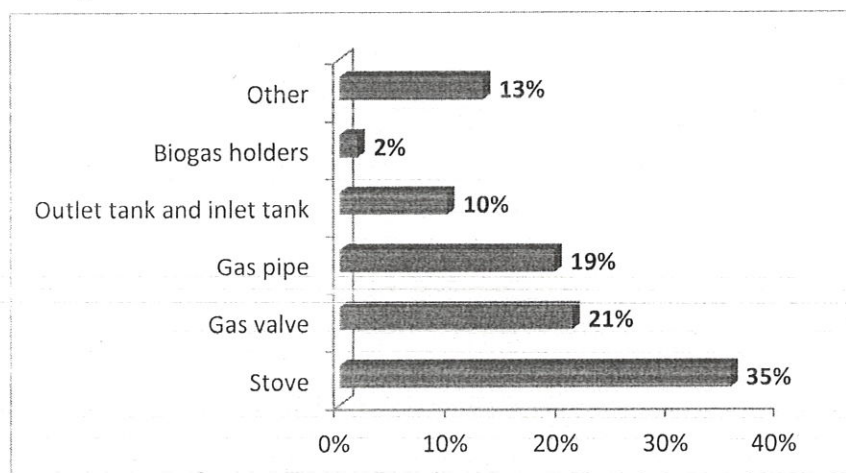
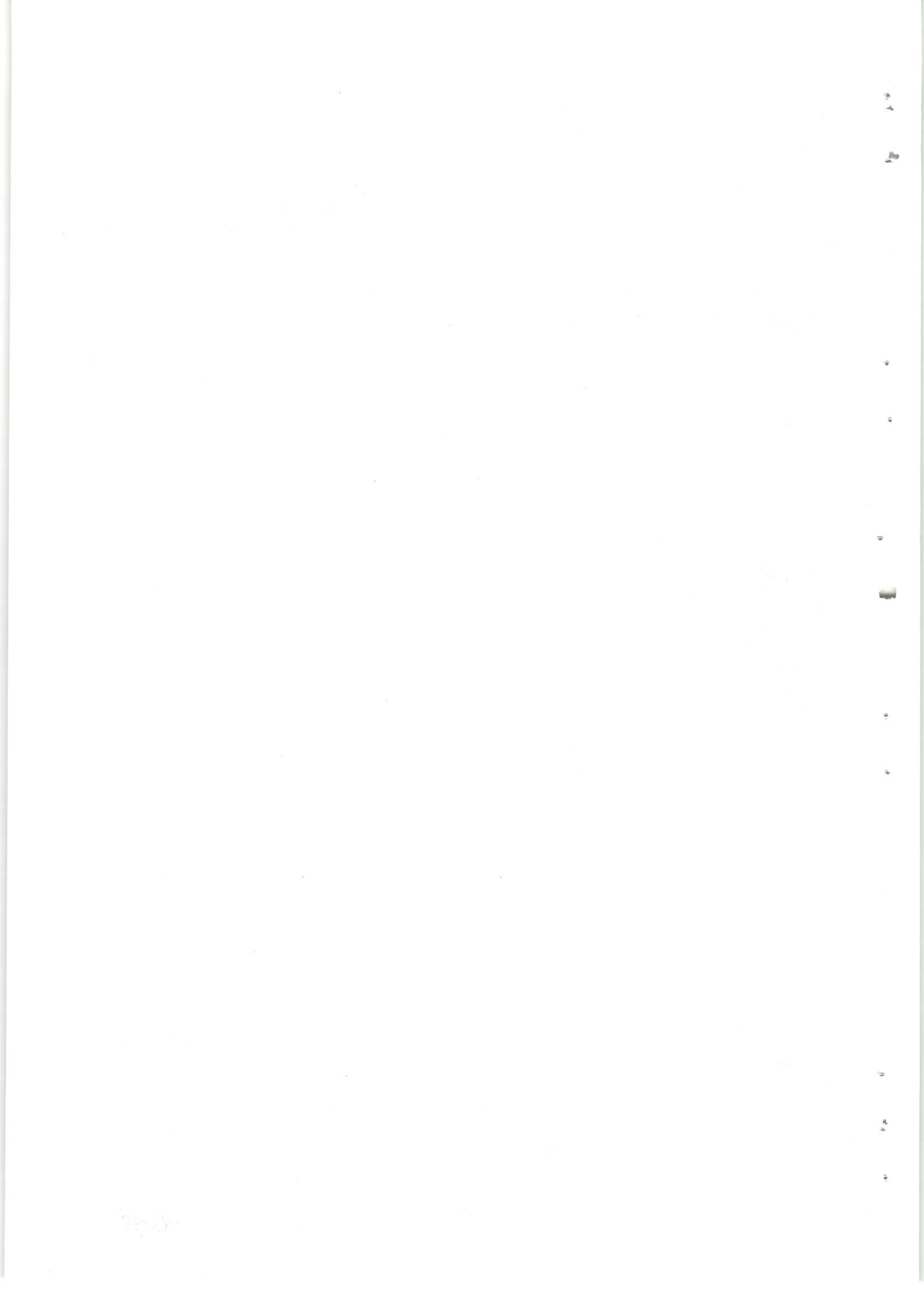


Figure 3.10 Components that were repaired

Source: Field survey

Around 12% of the respondents stated that some part of the biogas plant had been replaced. Here again it was found that the stove, gas valve and gas pipe were the most replaced parts. In 87% sample there was no faulty sub component observed by the study team. In some cases, the gas valve and gas pipe seemed faulty requiring repair or replacement.



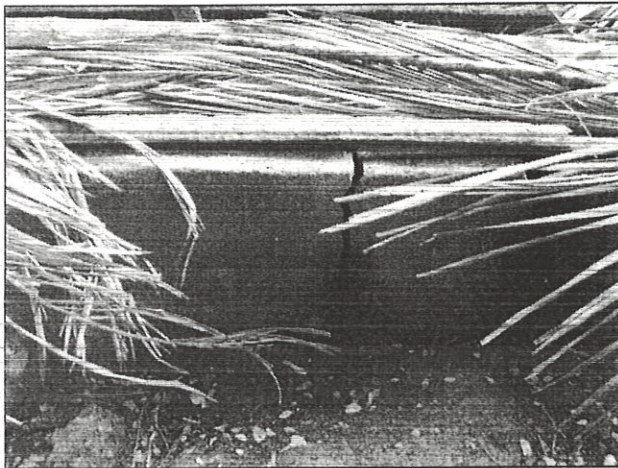


Plate 15 Cracked outlet tank in Davangere

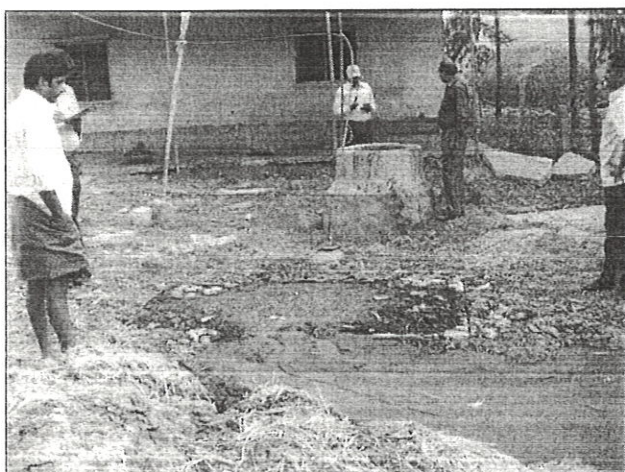


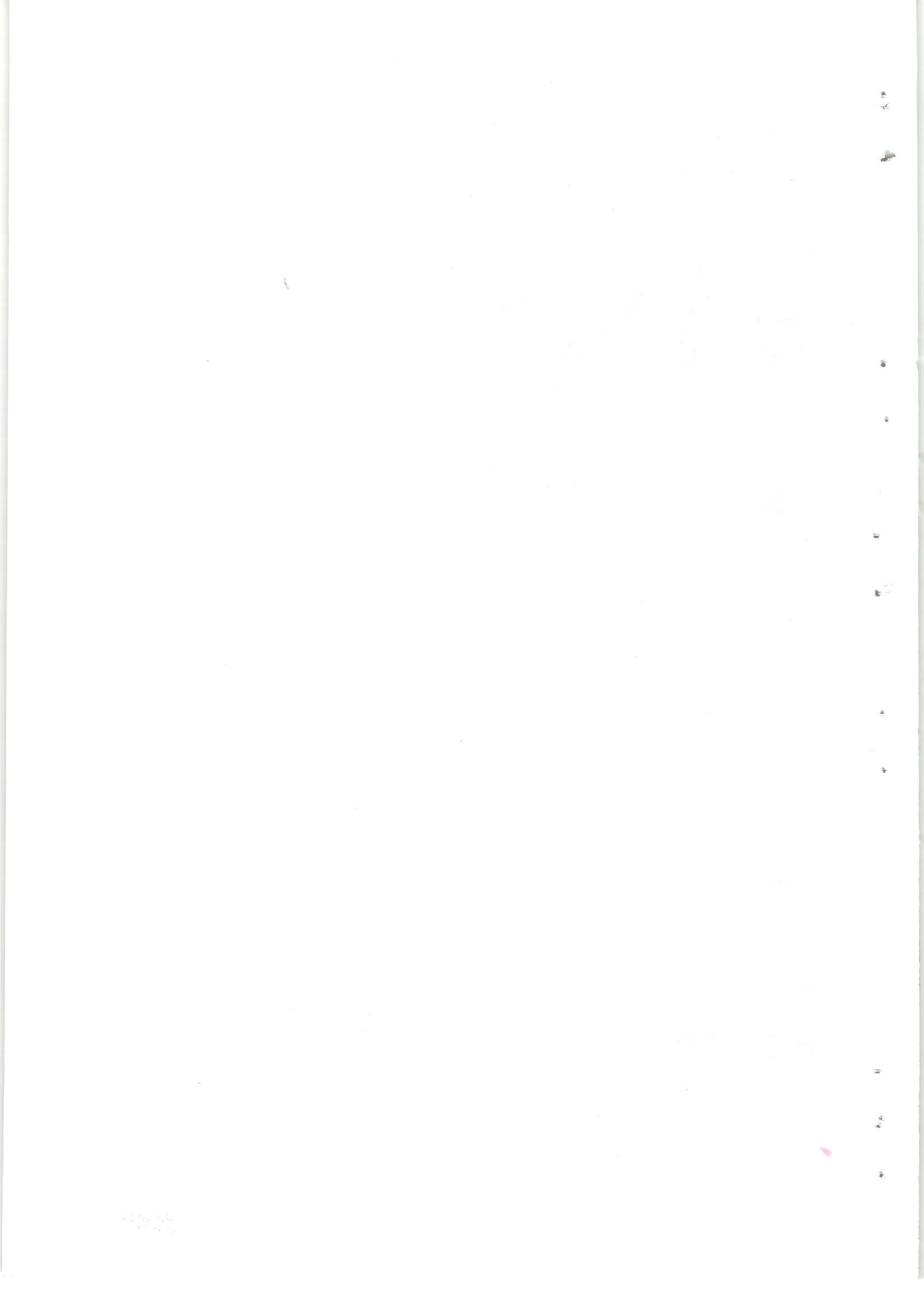
Plate 16 Over flowing slurry pit in Davangere

#### *Maintenance cost*

It was learnt from the respondents that around 58% of them spend less than Rs.500 till date for maintenance and repair of the biogas plant. Around 25% spent between Rs.501-1000 and the remaining spent over Rs.1500. Most of this expenditure was for replacing components such as stove, burner, gas valve and gas pipe.

#### *Training*

Although the scheme has a separate budget component for training, no formal training has been provided to beneficiaries in any location. However, in Uttara Kannada district, about 43% of the beneficiaries articulated that they had undergone a formal training by Sri Kshetra Dharmasthala Rural Development Project (SKDRDP), an NGO. The one-day training programme included both theory and practical aspects and was conducted without any fees. All the other beneficiaries recalled that they were given orientation on how to use the plant by the turnkey agent when the plant was commissioned.





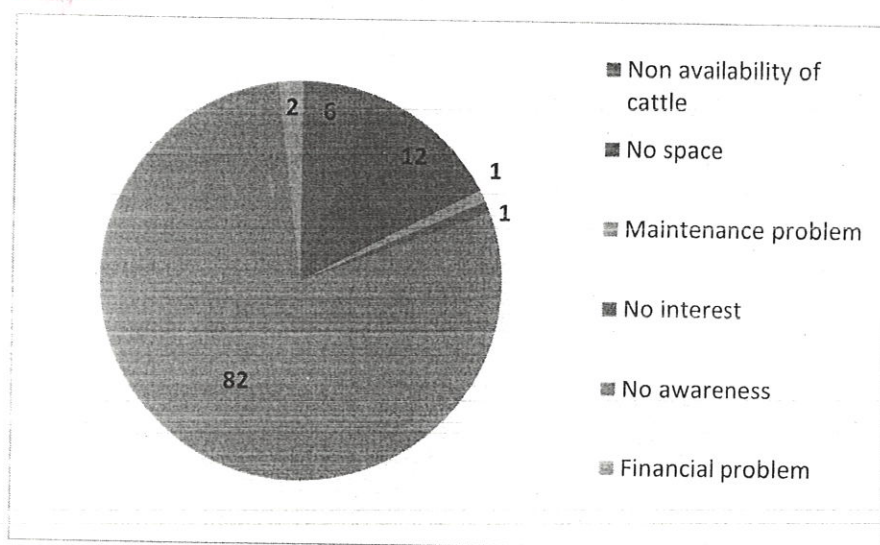
## 3.2 Views of the Community

Benefits of biogas plants as perceived by the beneficiaries, rejuvenation of plants, if any, positive and negative views of the community on the implementation and; the reasons for not installing biogas plants despite having scope as expressed by non-beneficiaries is the focus of this section.

### 3.2.1 Reasons for not opting for biogas plants

The study team made efforts to interact with a group of 10-15 non-beneficiaries in each taluk covered (a total of around 100 respondents) to understand the reasons for not installing biogas plants. Among these, people who owned cattle were given emphasis. Of the total 104 respondents, 89 had land, while 15 are landless. A total of 98 people had cattle ranging between 3-6 per household, while 6 respondents did not have cattle.

The reasons for not installing biogas plants varied from each district. However, an overall picture is presented in the figure below, which shows that **lack of awareness is the main reason.**



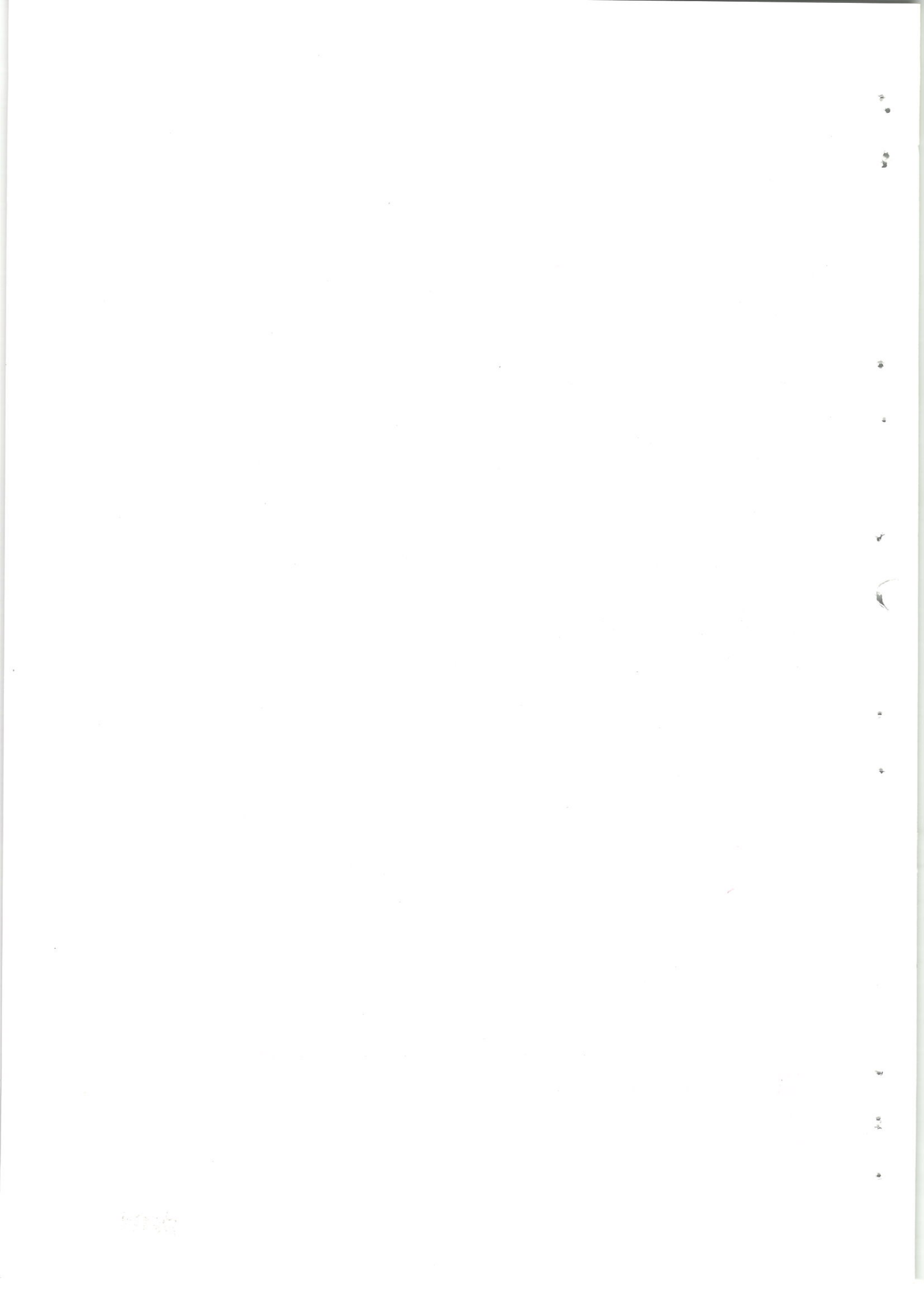
**Figure 3.11** Reasons for not opting for biogas plants

Note: Data labels denote number of responses and not percentage

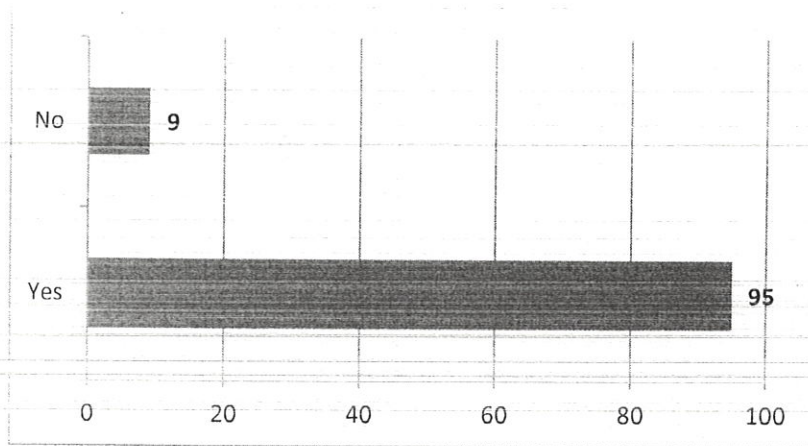
Source: Field survey

In Davangere, lack of awareness about the scheme and availability of appropriate site for installation seemed to a major reason. In Uttara Kannada, non-availability of appropriate space was stated as the main reason for not installing a biogas plant. In Mandya lack of awareness was the main reason for not opting for a biogas plant. Raichur presented a different picture. The turnkey agents who were from Andhra Pradesh chose only migrant people from Andhra Pradesh as beneficiaries, neglecting the local residents. This gave an impression that there is very little effort made to create awareness about the scheme.

It was heartening to note that most non-beneficiaries stated that if given a chance they would like to install biogas plants.



## Recommendations



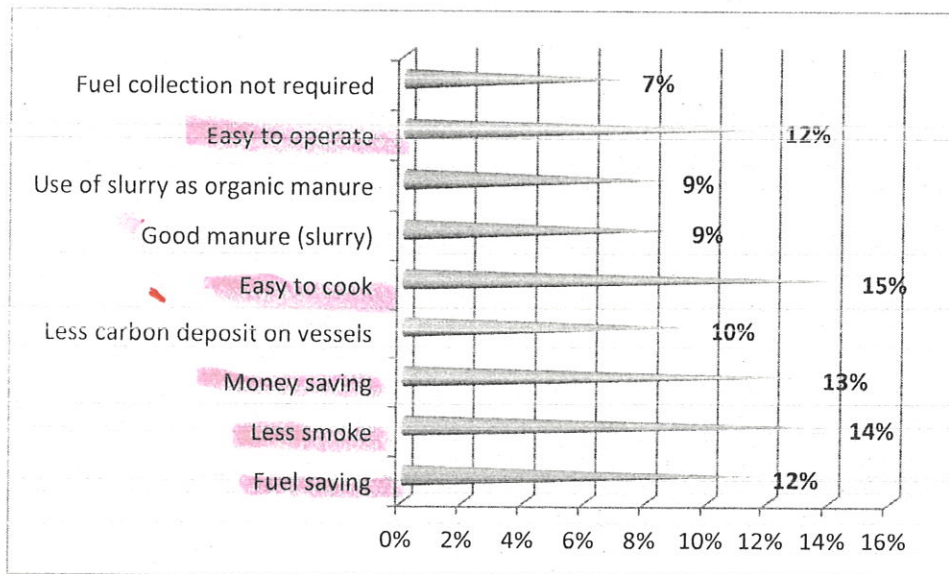
**Figure 3.12** Opinion of non-beneficiaries to install a biogas plant

Note: Data labels denote number of responses and not percentage

Source: Field survey

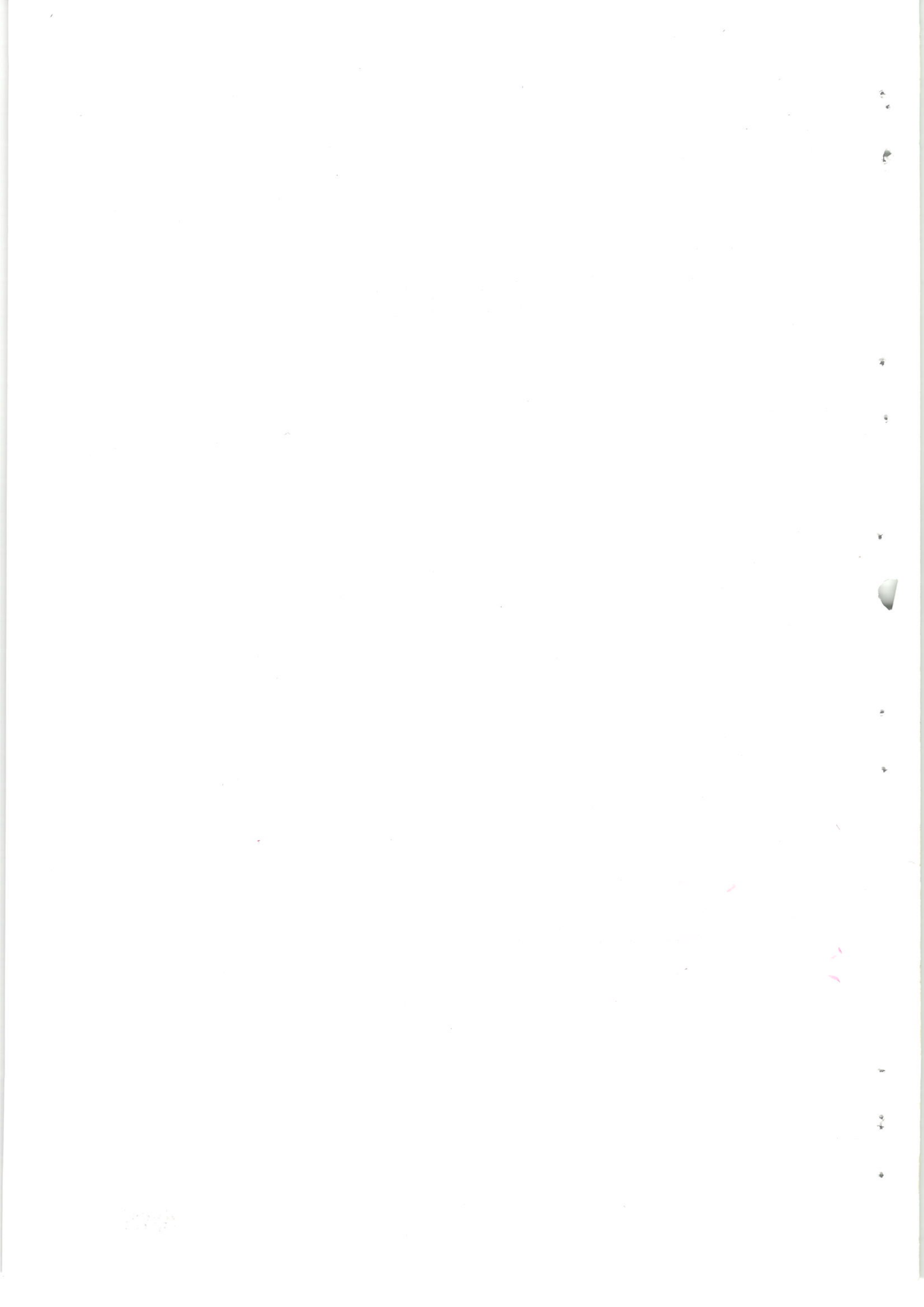
### 3.2.2 Benefits perceived by beneficiaries

There are many benefits of the biogas plant. The perception of the beneficiaries is captured in the figure below, which clearly indicates that ease of cooking and operation, fuel saving, money saving and less smoke are some of the most stated reasons. Some respondents also state that the slurry is being used as organic manure. The finding also subtly indicates that ease of cooking and less smoke are the most perceived benefits of biogas, which is due to the fact that it is very similar to the use of LPG gas stoves.



**Figure 3.13** Benefits perceived by beneficiaries

Source: Field survey





Similarly the problems perceived by the respondents were also sought, which is shown in the figure below. It is evident difficulty in maintaining and lack of service support are two problems often faced by respondents.

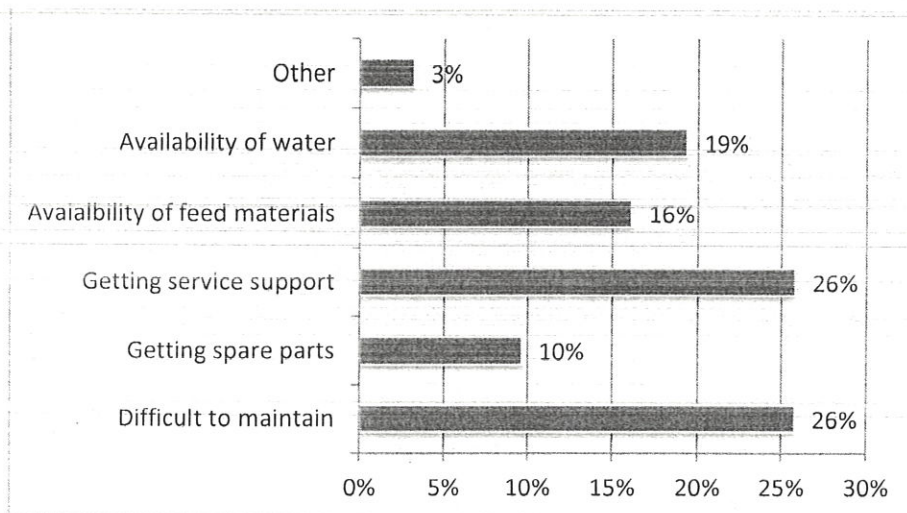


Figure 3.14 Problems perceived by beneficiaries

Source: Field survey

### 3.2.3 Rejuvenation of biogas plants

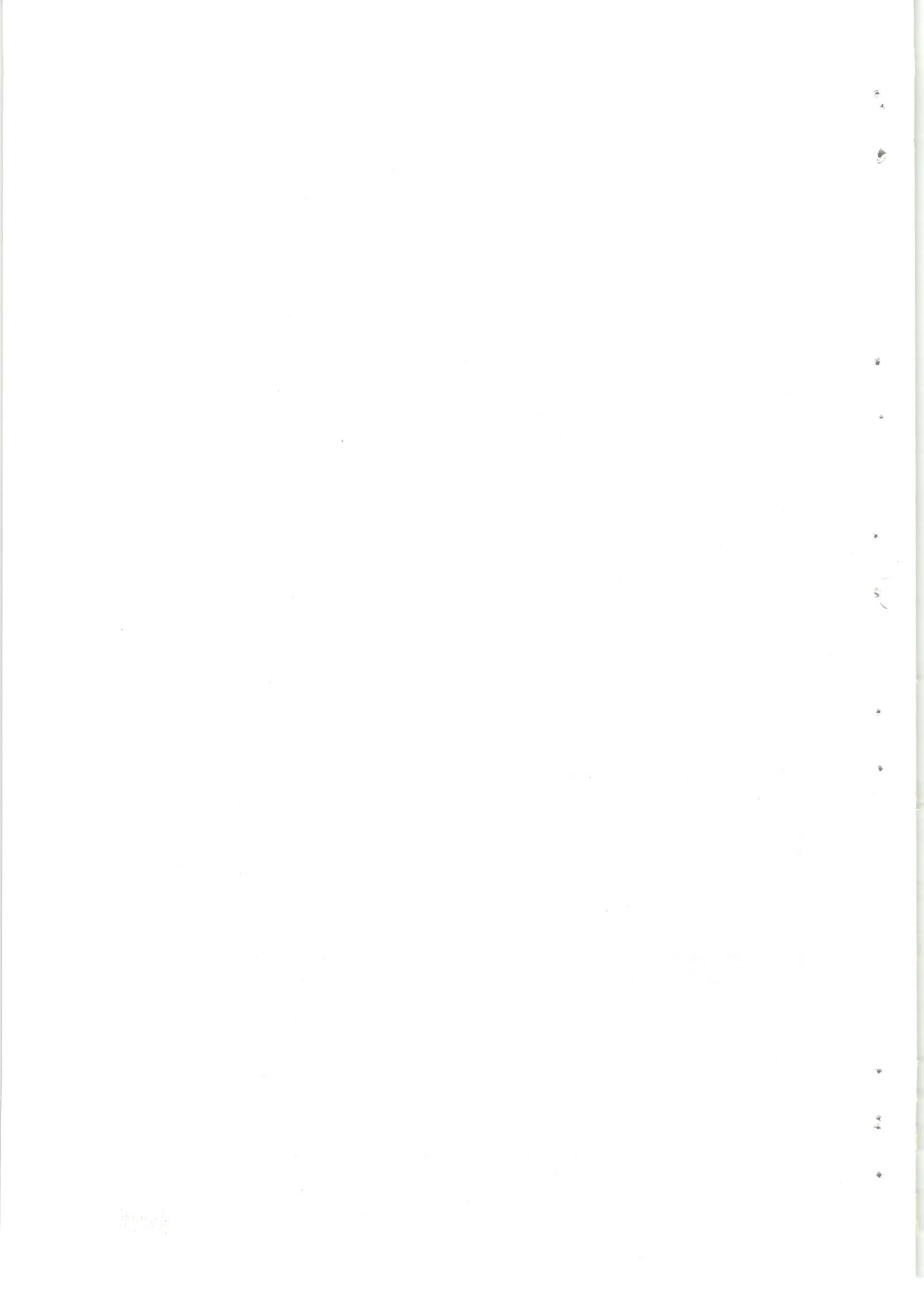
As per the data provided by the Project Engineers of the districts none of the plants installed have undergone rejuvenation. Hence analysis was not done on these aspects.

### 3.2.4 Positive and Negative views of the community on the implementation of the programme

The community is aware of the benefits of using a biogas plant. Ease of operation and less smoke seem to be the most attractive features of the programme. The subsidy amount given seems to be adequate as cost of materials such as sand, cement, iron and labour have increased.

There is very less awareness among the community on the scheme, which is one of the main reasons for not installing biogas plants despite a lot of potential. On the other hand, beneficiaries have not been selected in a systematic manner, which has left out many people dissatisfied. Lack of timely service support is a problem in some locations. The community have expressed that lack of warranty for some parts like stove and burner also needs to be addressed in the scheme.





### 3.3 Scope for further installation

This section deliberates on the livestock statistics, number of plants that have been installed by RDPR and the scope for the number of plants that can be installed in future.

#### Scope for installation of biogas plants

The livestock population such as exotic, cross breed, indigenous cattle and buffaloes was collected from the Veterinary Department. Data on sheep and goats was not considered since the faecal matter of sheep and goat are light in weight. This leads to scum formation in the biogas plant and hence is not considered suitable for biogas production.

The highest number of cattle population (including exotic, indigenous cattle and buffaloes) is 7,60,296 in Davangere as compared to other three districts selected for the study. The least cattle population is 5,37,441 in Uttara Kannada district. As per the data, the indigenous cattle are higher in number when compared to exotic and cross breed and buffaloes. The details of cattle population in each district is given below:

Table 3.8 District and Taluk-wise Livestock Data in the Selected Districts

| District and taluk | Exotic and Cross breed |               | Indigenous   |               | Buffaloes    |               | Total         |
|--------------------|------------------------|---------------|--------------|---------------|--------------|---------------|---------------|
|                    | Male (No.)             | Female (No.)  | Male (No.)   | Female (No.)  | Male (No.)   | Female (No.)  |               |
| <b>Davangere</b>   |                        |               |              |               |              |               |               |
| Channagiri         | 5194                   | 22148         | 5194         | 88872         | 6627         | 51845         | 179880        |
| Davangere          | 2927                   | 24596         | 2927         | 61023         | 4307         | 39880         | 135660        |
| Harapanahalli      | 635                    | 5981          | 635          | 77058         | 4331         | 42978         | 131618        |
| Harihar            | 1680                   | 17790         | 1680         | 29633         | 2464         | 24554         | 77801         |
| Honnali            | 3691                   | 33204         | 3691         | 83426         | 3492         | 32206         | 159710        |
| Jagalur            | 506                    | 4270          | 506          | 44251         | 3023         | 23071         | 75627         |
| <b>Total</b>       | <b>14633</b>           | <b>107989</b> | <b>14633</b> | <b>384263</b> | <b>24244</b> | <b>214534</b> | <b>760296</b> |
| <b>Mandya</b>      |                        |               |              |               |              |               |               |
| K R Pet            | 1290                   | 19408         | 1290         | 65108         | 2558         | 39529         | 129183        |
| Maddur             | 140                    | 22607         | 140          | 47492         | 627          | 24982         | 95988         |
| Malavalli          | 358                    | 20198         | 358          | 53816         | 859          | 21355         | 96944         |
| Mandya             | 315                    | 32436         | 315          | 60228         | 987          | 32909         | 127190        |
| Nagamagala         | 192                    | 16111         | 192          | 47344         | 1228         | 29352         | 94419         |
| Pandavapura        | 486                    | 16051         | 486          | 35833         | 496          | 11979         | 65331         |
| Shriragapatana     | 474                    | 18299         | 474          | 30500         | 195          | 4676          | 54618         |
| <b>Total</b>       | <b>3255</b>            | <b>145110</b> | <b>3255</b>  | <b>340321</b> | <b>6950</b>  | <b>164782</b> | <b>663673</b> |

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| District and taluk    | Exotic and Cross breed |              | Indigenous  |               | Buffalos     |               | Total         |
|-----------------------|------------------------|--------------|-------------|---------------|--------------|---------------|---------------|
| <b>Raichur</b>        |                        |              |             |               |              |               |               |
| Devadurga             | 176                    | 312          | 176         | 83123         | 3728         | 29395         | 116910        |
| Lingsugur             | 69                     | 385          | 69          | 84792         | 3577         | 31179         | 120071        |
| Manvi                 | 300                    | 967          | 300         | 87024         | 7739         | 55992         | 152322        |
| Raichur               | 17                     | 62           | 17          | 57542         | 1706         | 23616         | 82960         |
| Sindhnur              | 968                    | 9429         | 968         | 75356         | 4983         | 56192         | 147896        |
| <b>Total</b>          | <b>1530</b>            | <b>11155</b> | <b>1530</b> | <b>387837</b> | <b>21733</b> | <b>196374</b> | <b>620159</b> |
| <b>Uttara Kannada</b> |                        |              |             |               |              |               |               |
| Ankola                | 101                    | 828          | 101         | 26799         | 1860         | 5499          | 35188         |
| Bhatkal               | 185                    | 571          | 185         | 23936         | 2716         | 6028          | 33621         |
| Haliyal               | 234                    | 1107         | 234         | 38936         | 3727         | 18680         | 62918         |
| Honavar               | 350                    | 2253         | 350         | 47391         | 2269         | 8771          | 61384         |
| Karwar                | 5                      | 45           | 5           | 10700         | 2352         | 5264          | 18371         |
| Kumuta                | 204                    | 1485         | 204         | 32918         | 1740         | 5485          | 42036         |
| Mundgod               | 419                    | 2481         | 419         | 31314         | 1430         | 8355          | 44418         |
| Siddapur              | 840                    | 6403         | 840         | 41798         | 3597         | 17639         | 71117         |
| Sirsi                 | 1764                   | 13778        | 1764        | 50029         | 3061         | 17597         | 87993         |
| Supa                  | 17                     | 129          | 17          | 19051         | 3977         | 8222          | 31413         |
| Yallapur              | 773                    | 4748         | 773         | 29523         | 2461         | 10704         | 48982         |
| <b>Total</b>          | <b>4892</b>            | <b>33828</b> | <b>4892</b> | <b>352395</b> | <b>29190</b> | <b>112244</b> | <b>537441</b> |

Source: 18th Livestock Population, 2007, Ministry of Animal Husbandry, Government of India

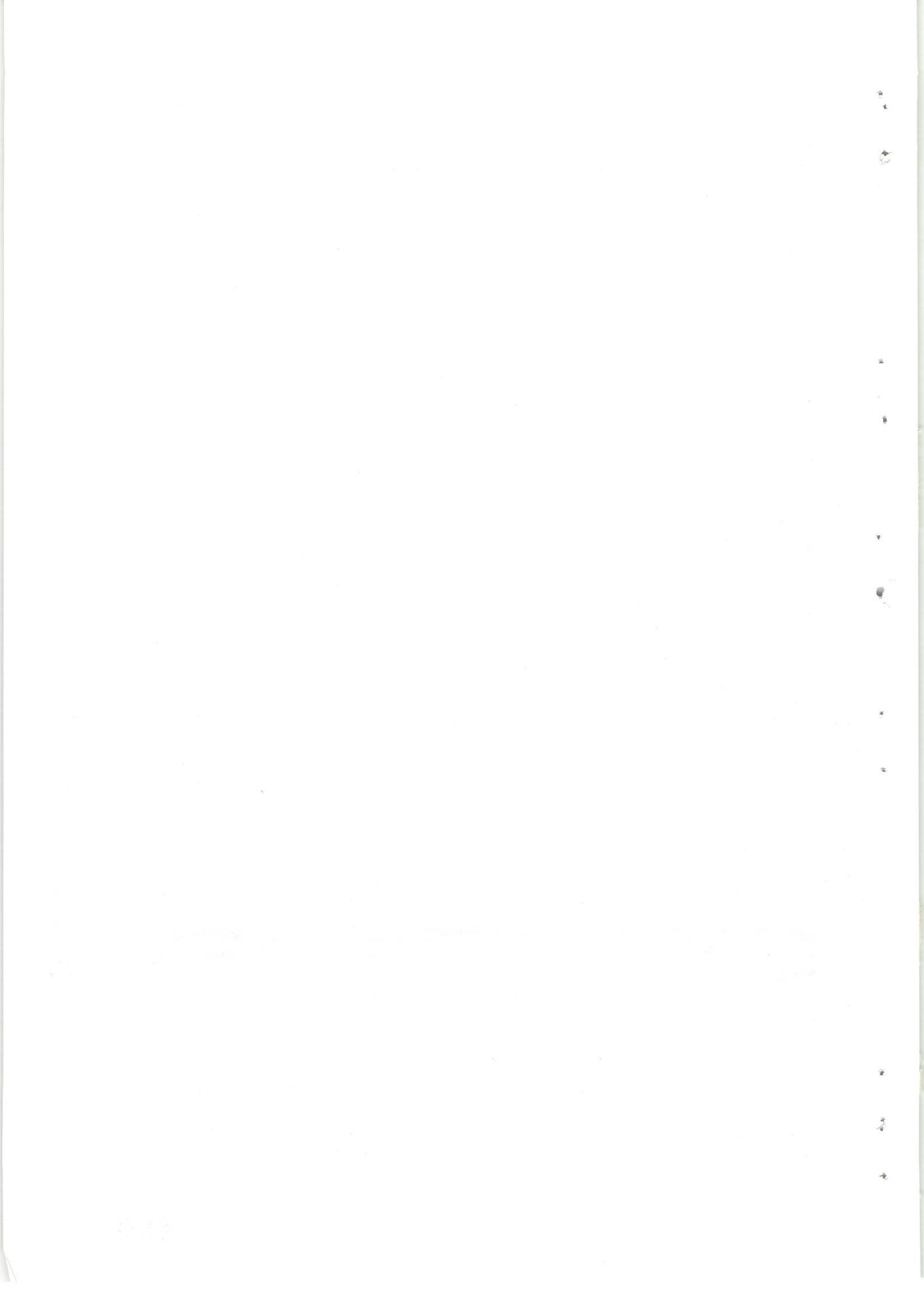
### Average Dung yield

According to Ravindranath et al (2005)<sup>2</sup>, dung production depends on the type of breed and, size of the cattle. All the dung produced by cattle is difficult to collect and use. In India, most cattle (except cross breed) are allowed to graze in open fields and hence, dung produced during grazing and working periods cannot be collected. Bullocks are largely used as draft animals for agricultural operations including rural transport and the dung cannot be collected. Hence, the dung collection would be mostly from droppings at the cattle sheds. Cross breed cows and buffalo are reared for milk production and generally stall-fed; thus, the dung collection efficiency is higher. Dung yield varies with breeds, animal, age, region and season. According to NIIR Board (2004)<sup>3</sup> and Ramachandra and Kamakshi (2005)<sup>4</sup>, the average dung obtained from buffaloes is 15 kgs per day, exotic and cross breed cattle is 10 kgs per day. In case of indigenous varieties of cattle, the average cow dung obtained is only 5 kgs per day.

<sup>2</sup> N.H. Ravindranatha, H.I. Somashekara, M.S. Nagarajaa, P. Sudhaa, G. Sangeethaa, S.C. Bhattacharyab, P. Abdul Salamb. 2005. 'Assessment of sustainable non-plantation biomass resources potential for energy in India' in Biomass and Bioenergy. Volume 29, Issue 3, September 2005, Pages 178-190.

<sup>3</sup> NIIR Board. 2004. Handbook on Biogas and it's application. National Institute of Industrial Research. New Delhi.

<sup>4</sup> Ramachandra.T.V. and Kamakshi.G. November 2005. Bioresource Potential of Karnataka (talukwise inventory with management options). Technical report no: 109. Centre of Ecological Science, Indian Institute of Science, Bangalore.





| Sl. No. | Living Beings        | Quantity of Dung / Night Soil produced (kg/living being/ day) |
|---------|----------------------|---|
| 1.      | Cow, Heifer          | 10.0  |
| 2.      | Bullock              | 14.0  |
| 3.      | Buffalo              | 15.0  |
| 4.      | Young bovine         | 5.0   |
| 5.      | Horse                | 14.0  |
| 6.      | Horse, young         | 6.0   |
| 7.      | Pigs, over 8 score   | 2.5   |
| 8.      | Pigs, under 8 score  | 1.0   |
| 9.      | Ewes, rams and goats | 1.0   |
| 11.     | Lambs                | 0.5   |
| 12.     | Duck                 | 0.1   |
| 13.     | 10 hens              | 0.4   |
| 14.     | Human beings         | 0.4   |

Source: <http://www.indg.in/rural-energy/technologies-under-rural-energy/energy-production/biogas/>

### Estimated cow dung from studied district

The dung availability maybe calculated based on the number of livestock (including exotic/ cross breed, indigenous and buffaloes). It may be observed in the table below that the dung availability is highest in Davangere (6802.37 metric tonnes) as the number of cattle is highest, while it is least in Uttara Kannada (4295.145 metric tonnes) since the number of cattle is also least.

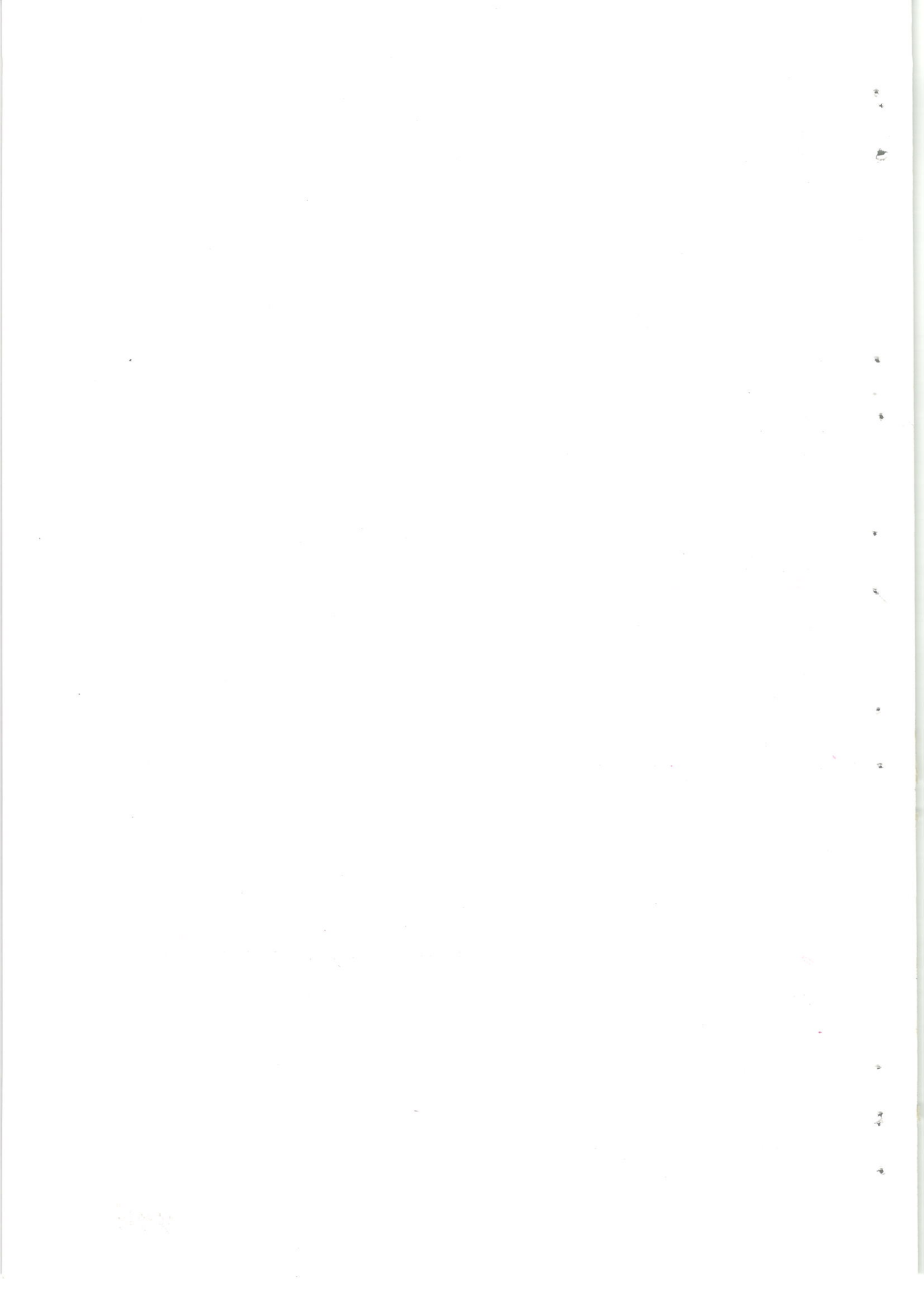
Table 3.9 Estimated quantity of cow dung availability

| District         | Exotic breed     |                              | Indigenous       |                              | Buffalo          |                              | Total livestock and dung availability |                              |
|------------------|------------------|------------------------------|------------------|------------------------------|------------------|------------------------------|---------------------------------------|------------------------------|
|                  | Population (no.) | Dung availability (kgs/ day) | Population (no.) | Dung availability (kgs/ day) | Population (no.) | Dung availability (kgs/ day) | Population (no.)                      | Dung availability (kgs/ day) |
| Davangere        | 122622           | 1226220                      | 398896           | 1994480                      | 238778           | 3581670                      | 760296                                | 6802370                      |
| Mandya           | 148365           | 1483650                      | 343576           | 1717880                      | 171732           | 2575980                      | 663673                                | 5777510                      |
| Raichur          | 12685            | 126850                       | 389367           | 1946835                      | 218107           | 3271605                      | 620159                                | 5345290                      |
| Uttar<br>Kannada | 38720            | 387200                       | 357287           | 1786435                      | 141434           | 2121510                      | 537441                                | 4295145                      |
| <b>Total</b>     | <b>322392</b>    | <b>3223920</b>               | <b>1489126</b>   | <b>7445630</b>               | <b>770051</b>    | <b>11550765</b>              | <b>2581569</b>                        | <b>22220315</b>              |

Source: 18th Livestock Population, 2007, Ministry of Animal Husbandry, Government of India

### Current status of Biogas plants installation

Between 2001 and 2010, 12701 biogas plants have been installed in the selected four districts from by RDPR. Data on the biogas plants installed prior to this period and biogas plants installed by other agencies such as KVIC, other programmes such as CDM and organic farming mission, plants installed by farmers on their own initiative was not available.



The table below indicates that Davangere has the highest number of biogas plants, which is in keeping with the cattle population which is also high. Raichur has the least number of biogas plants.

**Table 3.10** Data on biogas installation by RDPR from 2001-02 to 2011-12

| Year         | Davanagere  | Mandya      | Raichur     | Uttara Kannada |
|--------------|-------------|-------------|-------------|----------------|
| 2001-02      | 905         | 874         | 211         | 663            |
| 2002-03      | 410         | 613         | 173         | 354            |
| 2003-04      | 993         | 0           | 34          | 97             |
| 2004-05      | 1200        | 500         | 68          | 300            |
| 2005-06      | 146         | 0           | 0           | 62             |
| 2006-07      | 400         | 300         | 50          | 100            |
| 2007-08      | 166         | 120         | 200         | 83             |
| 2008-09      | 277         | 500         | 50          | 83             |
| 2009-10      | 472         | 250         | 100         | 126            |
| 2010-11      | 750         | 50          | 100         | 172            |
| 2011-12      | 201         | 209         | 113         | 226            |
| <b>Total</b> | <b>5920</b> | <b>3416</b> | <b>1099</b> | <b>2266</b>    |

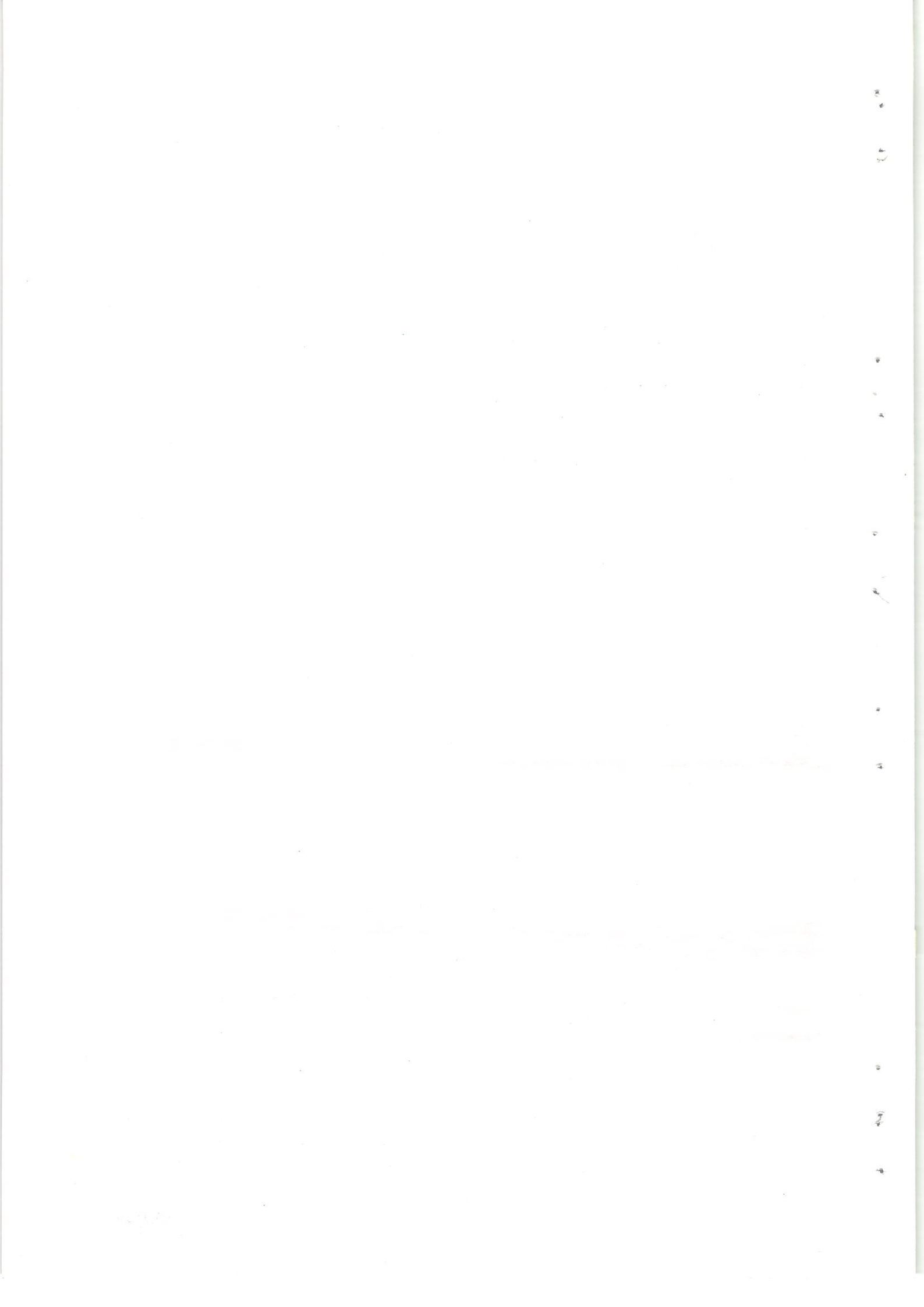
Source: Rural Development and Panchayat Raj, Government of Karnataka, 2011-12

#### Potential for installation of biogas plants in studied districts

According to the District Level Household and Facility Survey (DLHS-3), 2007-08, Ministry of Health and Family Welfare, the average household size in Karnataka is 5.0<sup>5</sup>. The required capacity of biogas plant for a family of this size is 2 m<sup>3</sup>. This has been recommended under the scheme that is being evaluated also. This size is appropriate for domestic purpose and it is also appropriate and easy to get the feeding materials for the same. The daily dung requirement for a biogas of 2 m<sup>3</sup> is 50 kgs. A 1 m<sup>3</sup> biogas plant is inadequate for the current family size and they may have to depend on other fuel sources for cooking. A 3 m<sup>3</sup> biogas plant is oversized for the current family size and it is very difficult to procure feed materials. Hence for calculating the scope for installation of biogas plants, 2 m<sup>3</sup> has been considered.

Based on the livestock data, there is scope to install biogas plants in all the districts studied. However, precaution should be taken for selecting the beneficiaries. A minimum of three cattle are required in case of Crossbreed cows and buffaloes and in case of indigenous cattle a minimum of five cattle are required. The table below indicates the detailed scope for district-wise installation of biogas plants of 2 m<sup>3</sup> based on livestock dung yield (calculated on the basis of average dung yield mentioned earlier). However, accurate data on the biogas plants installed by other agencies, institutions and departments was not available for comparison.

<sup>5</sup> [http://nrhm-mis.nic.in/firm\\_dlhs\\_iii.aspx#KA](http://nrhm-mis.nic.in/firm_dlhs_iii.aspx#KA)

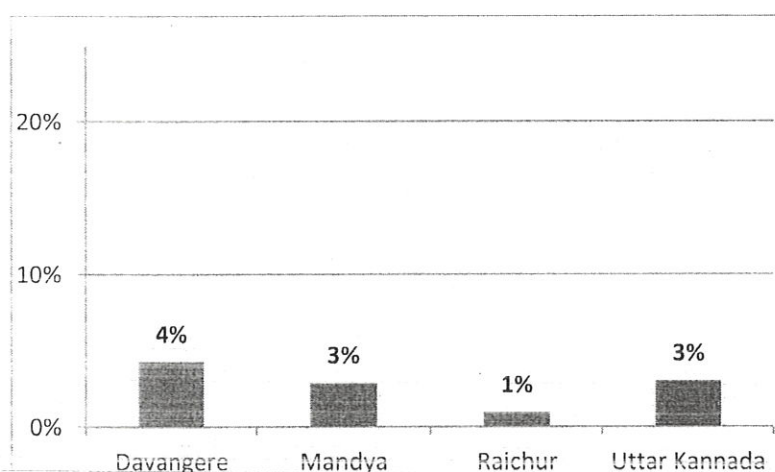




**Table 3.11** Scope for further installation

| District      | Total livestock and dung availability |                              | Potential for installing biogas plants based on livestock population (no.) | Potential for installing biogas plants based on dung availability (no.) | Biogas plants installed in the past 10 years by RDPR (no.) | Scope for further installation (no.) |
|---------------|---------------------------------------|------------------------------|--|---|--|--------------------------------------|
|               | Population (no.)                      | Dung availability (kgs/ day) |  |   |  |                                      |
| Davangere     | 760296                                | 6802370                      | 152059   | 136047  | 5920   | 130127                               |
| Mandya        | 663673                                | 5777510                      | 132735   | 115550  | 3416   | 112134                               |
| Raichur       | 620159                                | 5345290                      | 124032   | 106906  | 1099   | 105807                               |
| Uttar Kannada | 537441                                | 4295145                      | 107488   | 85903   | 2666   | 83237                                |
| <b>Total</b>  | <b>2581569</b>                        | <b>22220315</b>              | <b>516314</b>  | <b>444406</b>   | <b>13101</b>   | <b>431305</b>                        |

Source: 18th Livestock Population, 2007, Ministry of Animal Husbandry, Government of India



**Figure 3.15** District-wise achievements based on potential

Source: Field survey

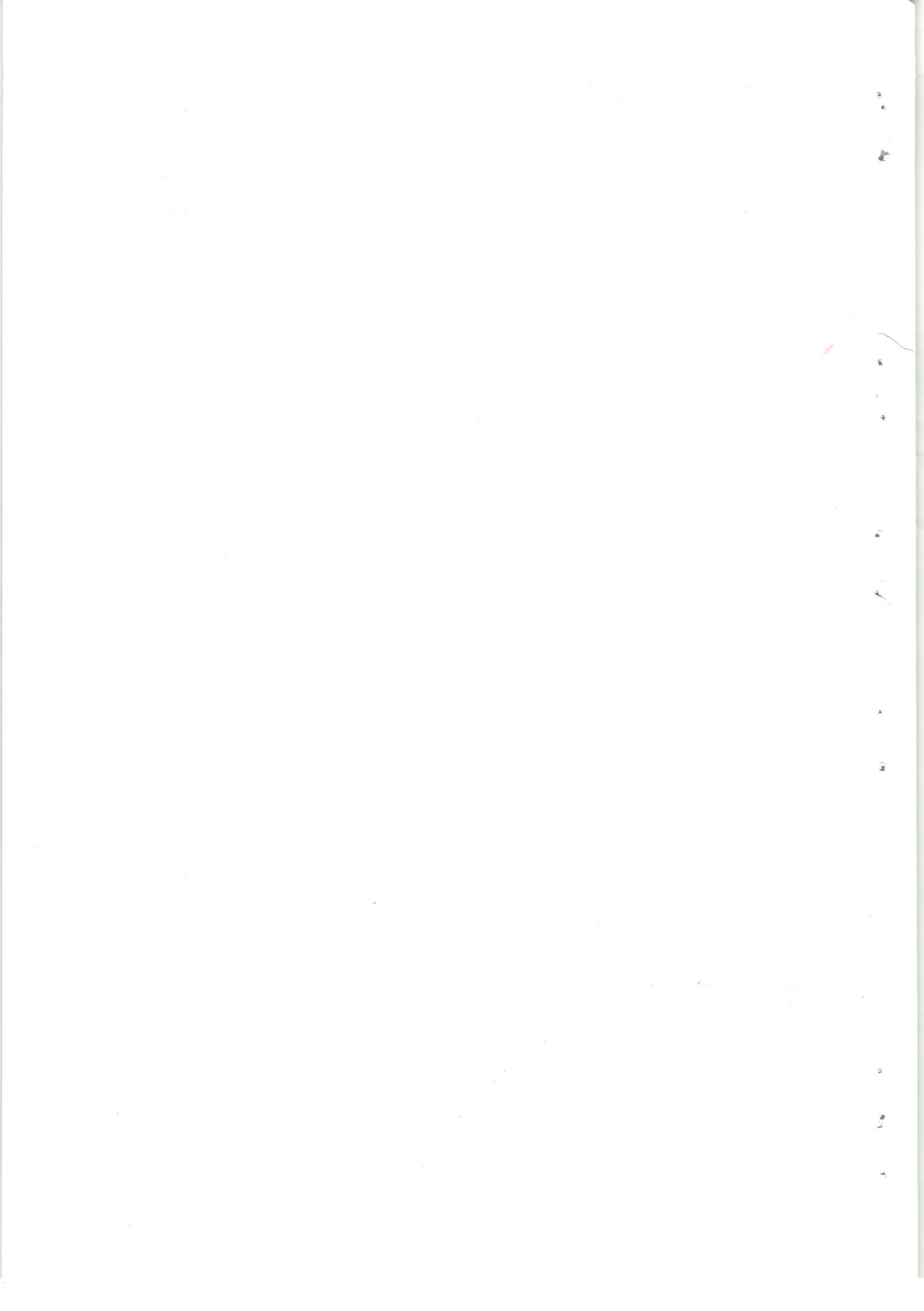
### 3.4 Views of Turnkey Agents

TERI interviewed 10 turnkey agents with a checklist, who were involved in the implementation of NBMMP. The turnkey agents seemed to be quite experienced with an average of 20 years of experience. Other than construction of biogas plants, a few of them have secondary occupations like installing mobile towers, selling solar equipment and agriculture etc.

#### Motivation and Income

The motivation of getting into the business of construction biogas plants seems to their own interest in doing some good for the community, with good encouragement from family and friends, development of rapport with people, etc., . The biogas construction business is a full





time occupation for the agents for about six months in a year. The average number of plants constructed in a month is about 15 – 30 plants. The average profit margin for the agents is Rs.1000-1500 per plant. Some of the problems faced by the agents are labour problems, political interference and delayed release in the subsidy amount.

#### *Payment and subsidy*

The turnkey agents are aware that they are eligible for a fee of Rs.1500 for each plant. Explaining the problems in delay in the release of subsidy and instalments thereafter, the turnkey agents mentioned that Rs.200 per annum for four years during the period of warranty is a prolonged process and suggested that it must be given immediately after commissioning of the biogas plant.

#### *Training and creating awareness*

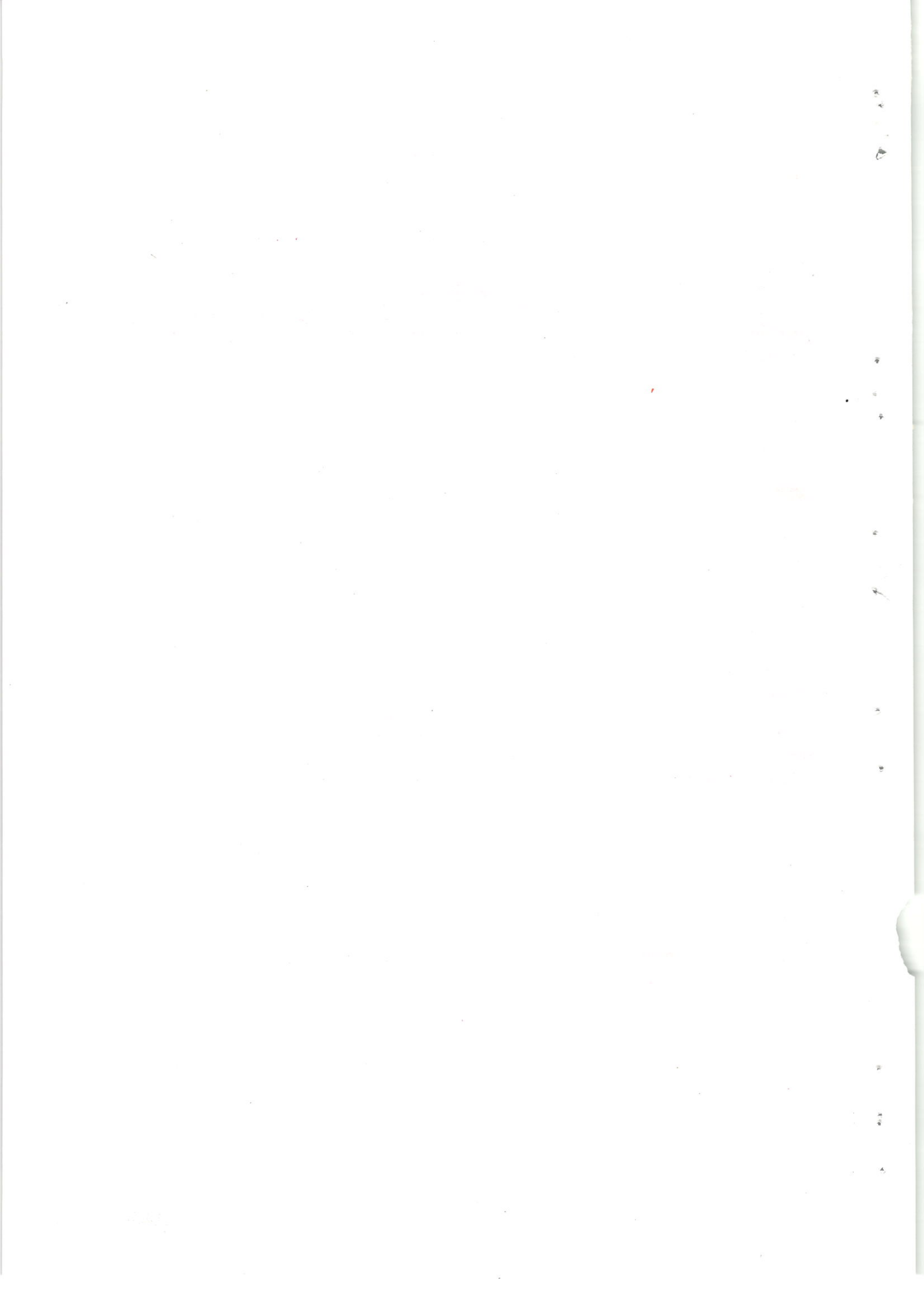
The turnkey agents mainly campaign among their friends and select beneficiaries based on their interest level, space availability, livestock available in the household etc. There is no formal training given to beneficiaries, however they are oriented on-site after commissioning of the plant. In Uttara Kannada the SKDRDP, an NGO is involved in creating awareness about the scheme and also a formal training is given to beneficiaries. The turnkey agents have undergone a training programme in GKVK, Bangalore on the different types of biogas plants.

#### *Institutional aspects*

With regard to the allotment of biogas plants to each agent, none of the agents seem to be aware of any criteria for allotment from the Zilla Panchayat. The agents were not provided any construction kit. In some locations the agents provide only the cement, iron and pipes, while the pit, sand, bricks are given by the beneficiary. While in some cases, only the pit was dug by the beneficiary and all other materials were provided by the turnkey agents and subsidy amount was taken by the turnkey agents.

#### *Interaction with beneficiaries and implementing agency*

All turnkey agents mentioned that they provide a five-year warranty. They provide service support as and when required by the beneficiaries. The most common complaints they faced was scum formation, broken stove knob broken and stove leakages, gas pipe leakages etc. In Davangere, the frequency of scum formation was more since unripe paddy was also fed to the biogas plants. None of the agents has regular communication or interactions with the technical back-up unit.





## 4. Recommendations

As mentioned earlier, the present study is quite early to make concrete observations on the sustainability of the scheme. Since the present scope of the study included only plants that received subsidy in 2010-11, a more comprehensive evaluation for the plants installed throughout the 11<sup>th</sup> plan period may be more appropriate to give long term recommendations. However, within the scope of the present study, the following recommendations are being made to improve the reach, quality and effectiveness of the NBMMP:

### 1. Awareness to the community

In all the districts studied, lack of awareness among the community seems to be the main reason for people who own cattle and have appropriate logistics not installing biogas plants. The non-beneficiaries showed keen interest to adopt biogas technology. This situation is despite the fact that the scheme has budgetary provision for awareness creation among the rural community. It is imperative to conduct large scale awareness campaigns to improve the reach of the scheme among potential beneficiaries. The campaign could focus on the benefits of using a biogas plant, smoke free cooking experience and importance of adopting a biogas in view of the reducing availability of LPG, firewood and other fossil fuels. The awareness will also ensure some equity in selecting beneficiaries.

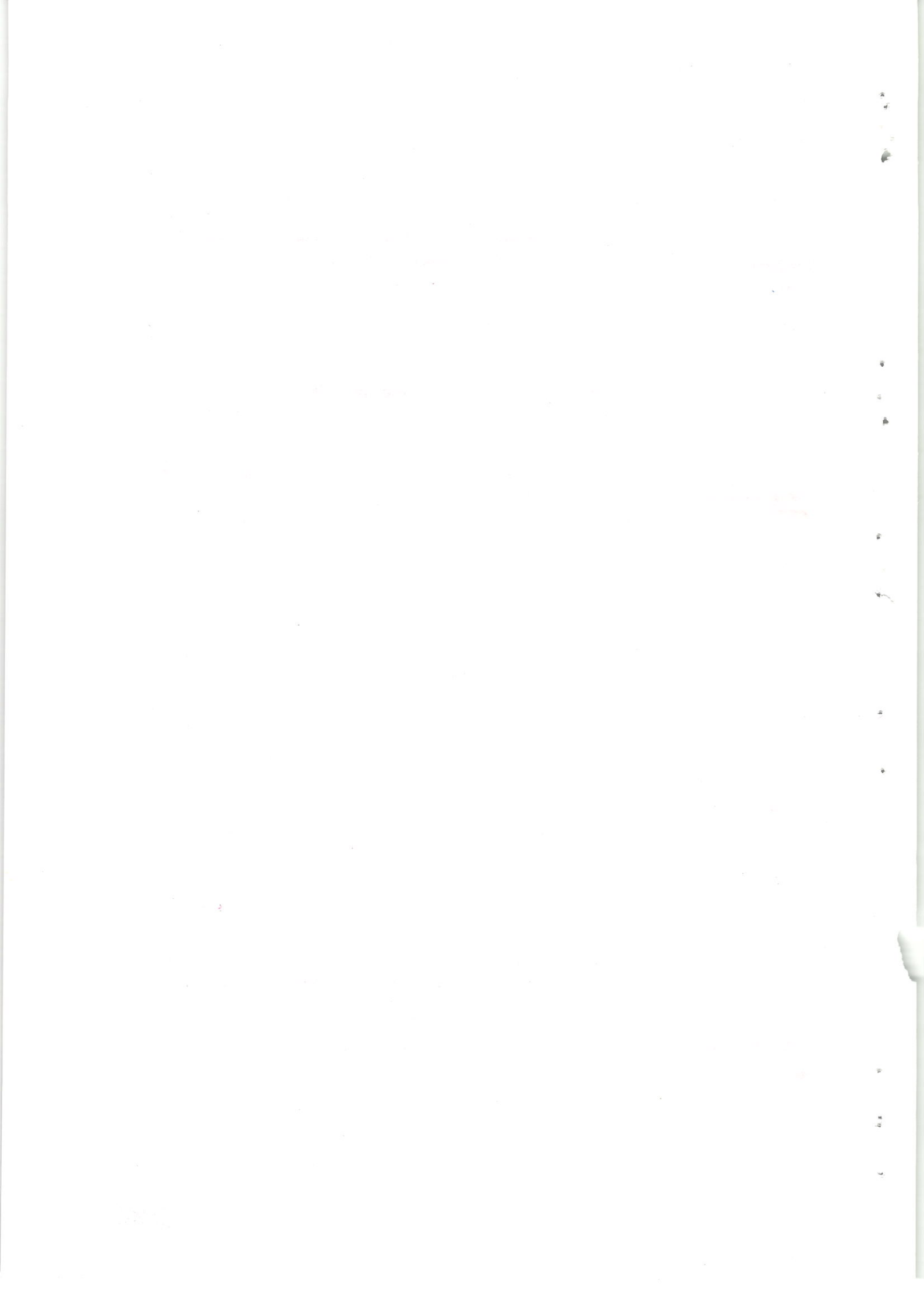
A satellite based training about the NBMMP programme could be conducted through Abdul Nasir Sab State Institute for Rural Development (ANSSIRD) for functionaries of Grama Panchayat and Taluk Panchayat.

### 2. Appropriateness in selection of beneficiaries

In most locations studied, the beneficiaries are marginal farmers, which is a good selection. However, some of the beneficiary households own about 1-2 cattle, which in the long run will not provide adequate feed materials for a 2 m<sup>3</sup> plant. Hence case must be taken to select households which have at least three cross breed cows or three buffaloes and at least a minimum of 4-5 indigenous cows. The aim is to obtain at least 40-50 kgs of dung per day for a 2 m<sup>3</sup> plant.

### 3. Implementation in accordance with guidelines

The scheme is mostly being implemented as per the guidelines of the central and state. However, the process of giving subsidy to the beneficiaries is not being followed uniformly in most the locations studied. Hence this needs to be streamlined. A common problem expressed during the course of the study is the long delay in the release of central subsidy amount. Timely release of subsidy amount will motivate the beneficiaries and turnkey agents.





#### 4. Role of NGOs, SHGs in the implementation

Currently there is no involvement of NGOs and SHGs in the scheme. The NGOs have expertise in social mobilisation, have a good rapport with the rural communities and also work with women closely. At the same time the SHGs are a good platform to promote the benefits of using a clean cooking fuel like biogas. Also most SHG members take up cattle rearing as an income generation activity. Hence it only becomes logical to involve the NGOs and SHGs to create awareness through jathas, campaigns; street plays etc and extend the outreach of the scheme. They could also be involved in selecting potential beneficiaries, small repairs, selling spare parts etc.

In another instance, NGOs who have expertise in biogas technology can be roped in to train beneficiaries.

#### 5. Training for Project Engineers and Turnkey agents

The Project Engineers and turnkey agents need orientation and exposure to the new biogas technologies such as kitchen waste based biogas plants, possibility of waste management through biogas plant. The Project Engineers and Turnkey agents must be involved in regular follow-up and monitoring the biogas plants during and after construction and commissioning.

#### 6. Training to beneficiaries and production of an implementation cum user Manual

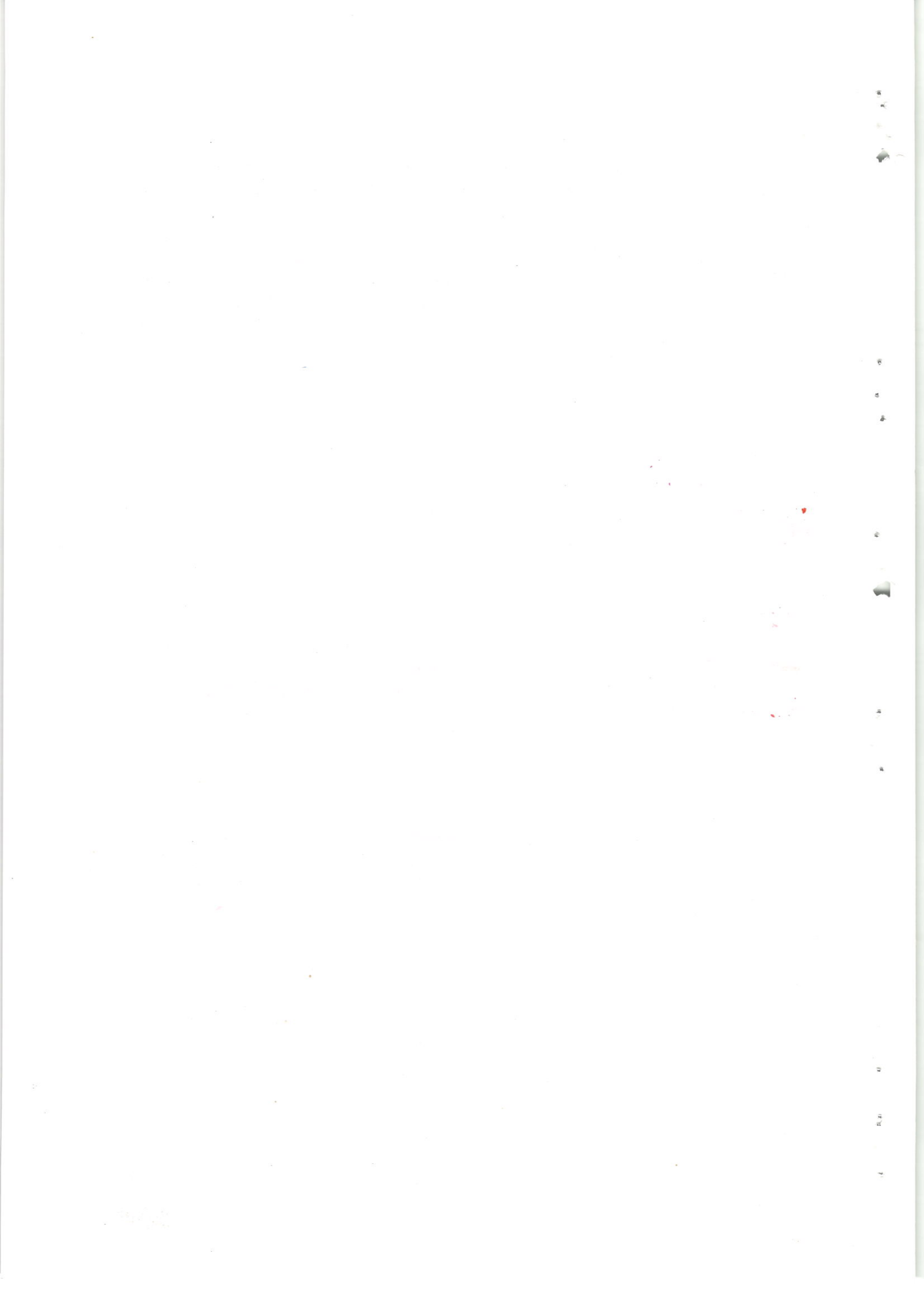
As per the scheme, there is a provision to conduct a one-day formal training programme to beneficiaries, but this has not been done in most locations, which was inferred during the survey. This is a crucial step in proper operation and maintenance of the biogas plants, which affects functionality in the long term. Hence a formal training program with practical exposure, sharing of experience by other beneficiaries, use of multiple feed materials (e.g. cow dung and kitchen waste) has to be made mandatory. Orienting the beneficiaries on the details of the scheme including warranty and subsidy must also be part of the programme.

An illustrative user manual in the local language including implementation process, warranty, subsidy eligibility, time duration of release of subsidy, commitments of turnkey agents, operation, maintenance, type and quantity of feed materials, trouble shooting, use of slurry, must be given to every beneficiary after commissioning of the biogas plant.

#### 7. Qualitative construction as per technical specifications

The materials used for the biogas construction seem to be satisfactory. However, some components like alignment of pipe, non-installation of water trap, absence of gas valve, absence cover for the outlet tank, improper/ lack of slurry pits need to be focused upon. It should also be made mandatory to inscribe the month and year of installation, name of the scheme and capacity on the inlet tank.

Stoves made of mild steel perform best using biogas and hence these could be given along with the biogas plant.





### 8. Fees to Turnkey agents

It may be appropriate to enhance the fees (both installation and maintenance) paid to turnkey agents in view of the overall escalation in the material and labour costs.

### 9. Data at the Gram Panchayath level

A year-wise record of all the beneficiaries, subsidy provided, turnkey agents involved should be maintained at each Gram Panchayath. Details of the scheme in any form understandable by neo-literate citizens or illiterates (e.g. illustrated poster or wall painting) must be made available at the Gram Panchayath level. Contact details of the project engineers and turnkey agents should also be made available at the Panchayath office.

### 10. Rejuvenation of old plants

It was observed that many old plants are non-functional. The Gram Panchayath, with the support of the turnkey agents, could identify, physically verify and recommend for rejuvenation of old non-functional plants.

### 11. Service support

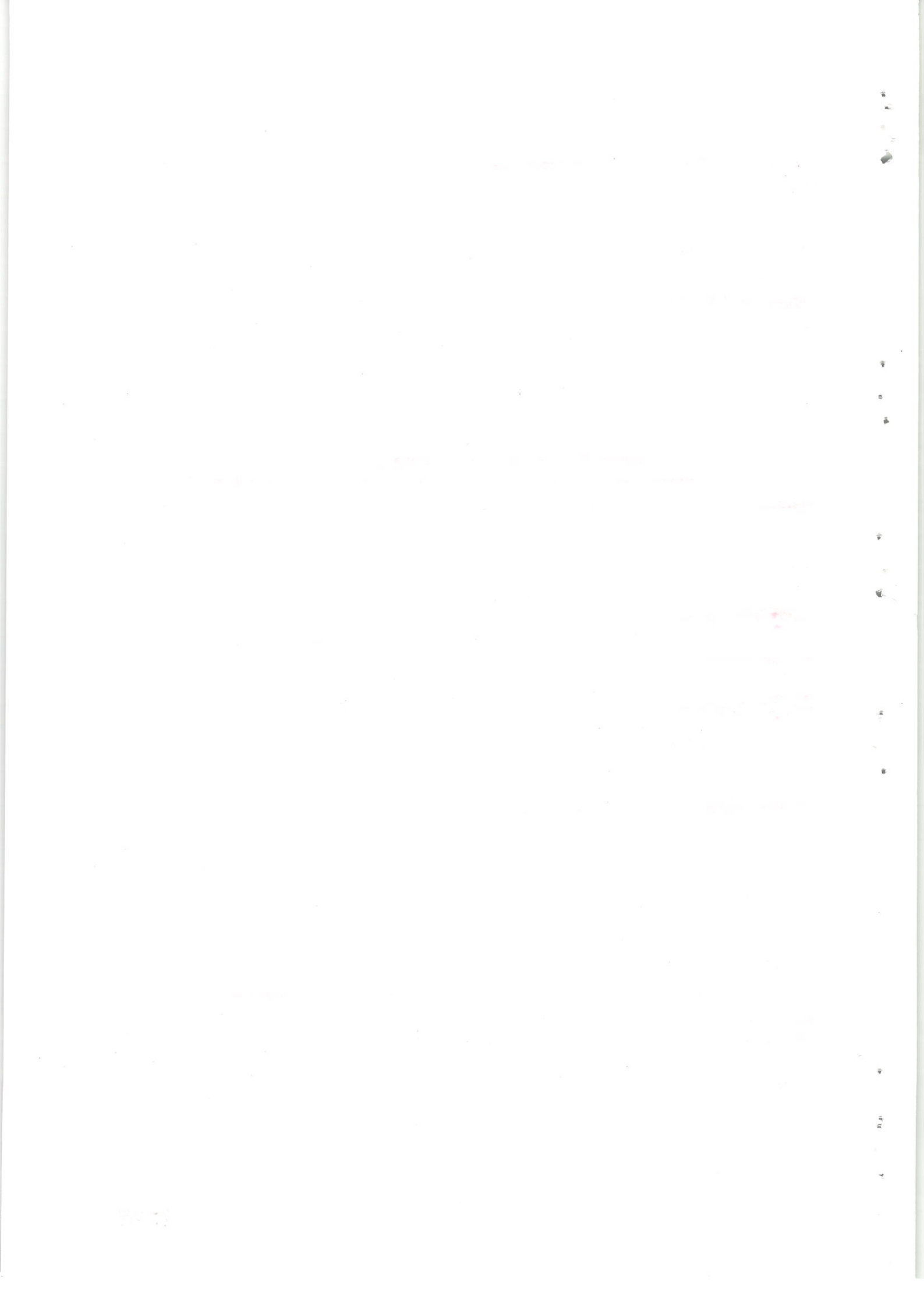
Although the scheme provides for a five-year warranty, in some cases the turnkey agents do not provide adequate and timely service support. The year-wise turnkey fees paid to turnkey agents against warranty can be released after obtaining a service attended log by the turnkey agents. The agents must also visit the plant once every year and check for any problems to ensure functionality of the plant and report on the same. There could be a month fixed for submission of this log and report to ensure timely release of the turnkey agents' fees. Selection of local turnkey agents is a key factor in ensuring sustained service support. Hence local agents must be given priority.

### 12. Periodic monitoring and evaluation

A periodic random verification of the biogas plants installed could be done by a designated expert appointed on behalf of the Department of Rural Development and Panchayath Raj. In addition, a comprehensive study on the plants installed in the 11<sup>th</sup> five year plan may be carried out to gain an in-depth insight into the nuances of the NBMMP.

### 13. Convergence

Other than RDPR, many other departments, agencies and organisations are promoting biogas under various programmes and schemes. This leads to duplication of efforts. Convergence between these agencies will lead to a more coordinated effort and improve the impact and effectiveness of the overall purpose of promoting biogas technology as a clean energy source. One of the agencies could become a nodal agency to maintain data on the biogas units promoted.



## Conclusion

In analysing the findings of the study, the achievements of the programme in terms of the objectives set may be concluded as mostly being in the right direction.

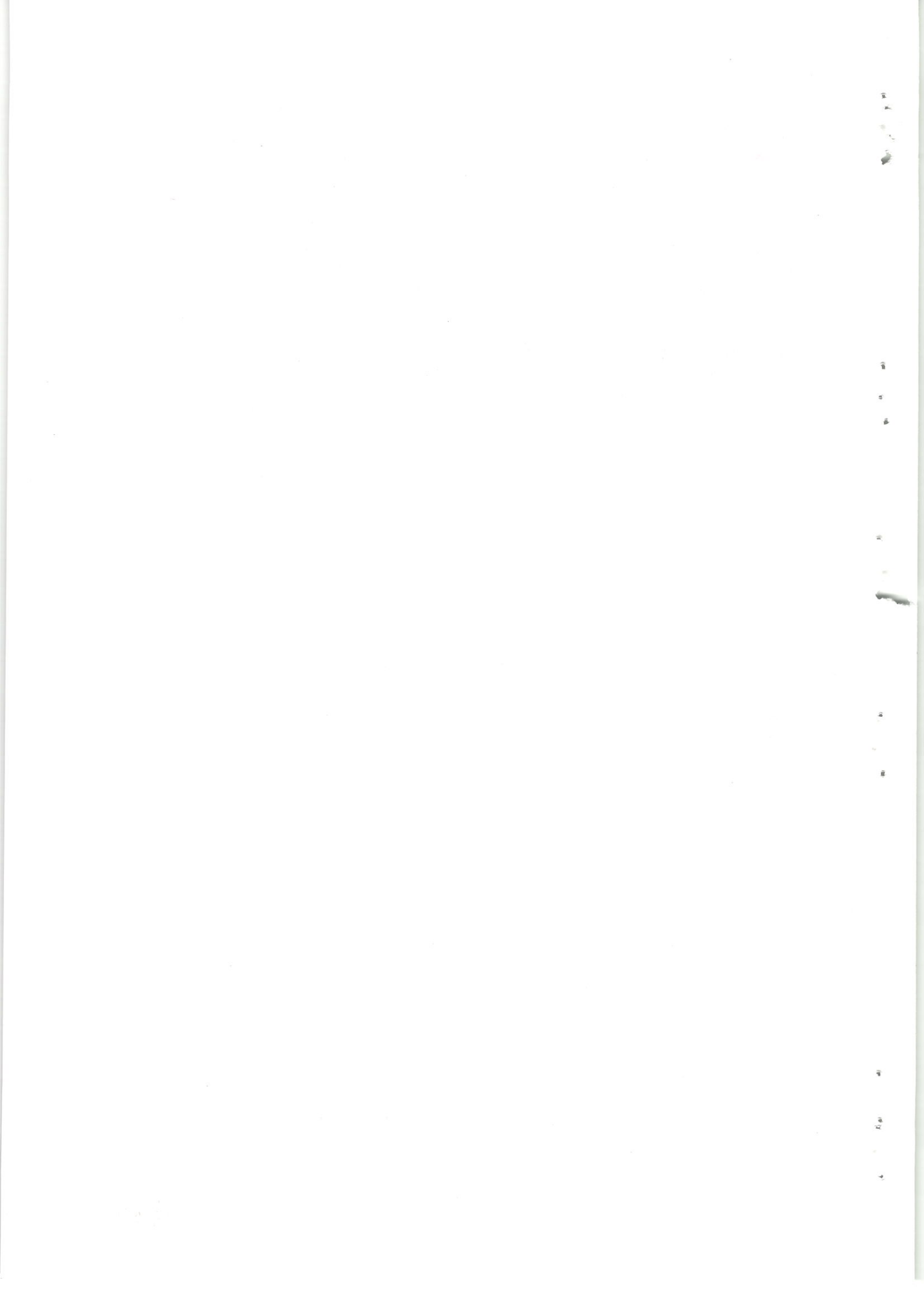
The biogas obtained is mainly being used as a cooking fuel by the beneficiary households. But the year-around usage of biogas is dependent on the dung yield of cattle owned by the households, which is subject to various external parameters. However, the biogas has reduced the usage of conventional fuels like firewood to some extent.

Most beneficiaries do not seem to be aware of the use of the biogas slurry as organic manure; hence awareness needs to be carried out in this regard. The study revealed that none of the biogas plants are connected to toilets, since this is not culturally acceptable in most rural areas.

The study brought out the fact that most beneficiaries experienced smoke free cooking, which reduces the drudgery of rural women in collecting and using conventional firewood. Various social benefits such as considerable reduction in indoor air pollution, very less expenditure on cooking energy and improvement in the health of the women have accrued. When viewed in a larger context, wide dissemination of the biogas plants can considerably reduce black carbon and methane emissions, while reducing the pressure on forests for firewood.

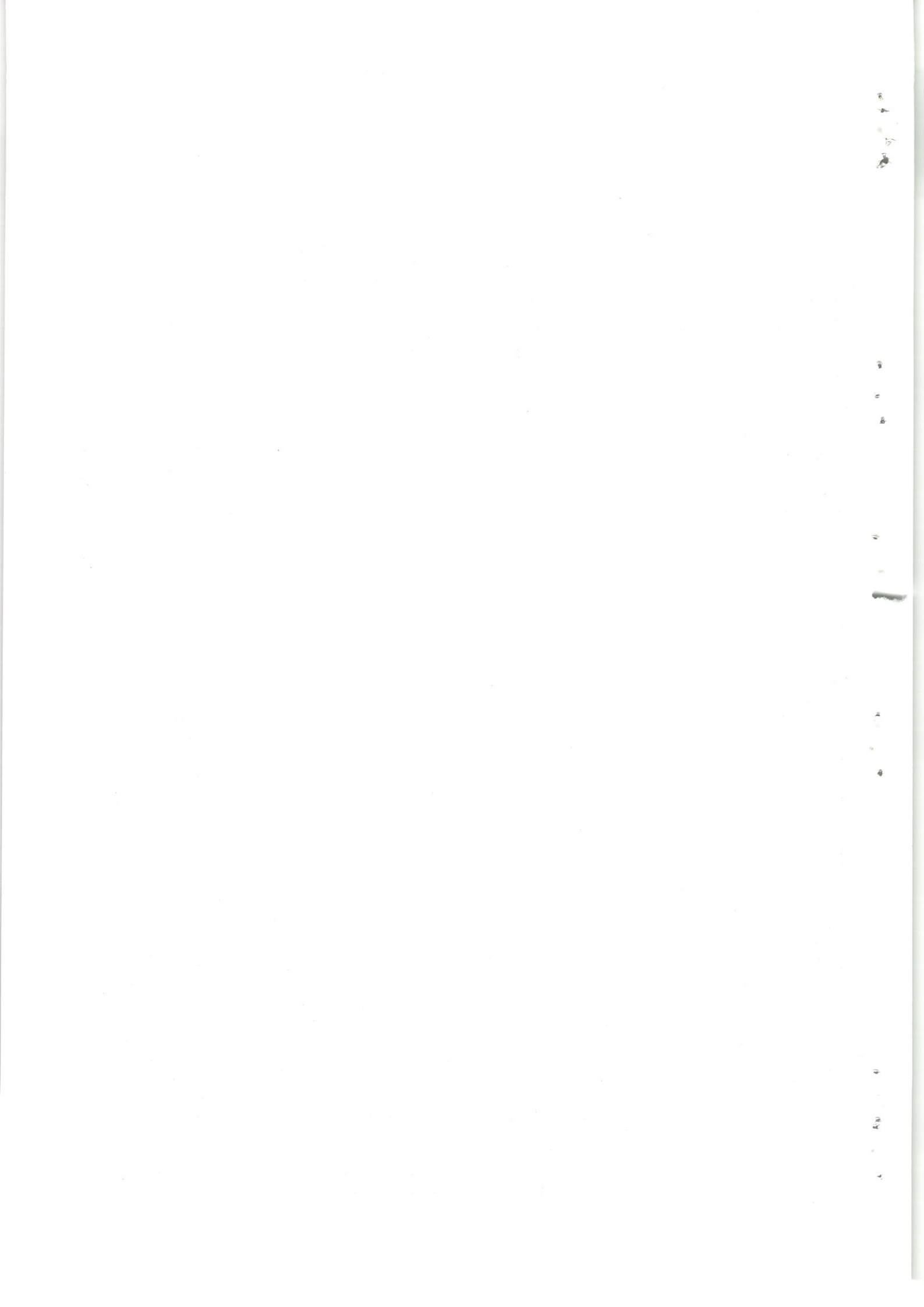
In conclusion, it may be said that the success of the programme depends on large scale awareness, proper selection of beneficiaries, sites for installation and turnkey agents, capacity building of all stakeholders, timely release of subsidy, streamlining procedures, involving NGOs/ SHGs and convergent efforts of various agencies, departments and organisations engaged in promoting biogas technologies.





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## DAVANGERE

## Gram Panchayath-wise details

| Sl.No. | Taluk         | Gram Panchayath     | Name of the Village | No.of biogas plants installed and commissioned during 2010-11 | No. of biogas plants that are rejuvenated (repaired) during 2010-11 |
|--------|---------------|---------------------|---------------------|---|---|
| 1      | 2             | 3                   | 4                   | 5   | 6   |
| 2      | Channagiri    | Belliganodu         | Belliganodu         | 1   | 0   |
| 3      | Channagiri    | Belliganodu         | Belliganodu         | 1   | 0   |
| 4      | Channagiri    | Belliganodu         | Chikkabanur         | 1   | 0   |
| 5      | Channagiri    | Nellihankallu       | Chikkasandi         | 6   | 0   |
| 6      | Channagiri    | Tavarakere          | Gondihosalli        | 1   | 0   |
| 7      | Channagiri    | Tavarakere          | Gondihosalli        | 1   | 0   |
| 8      | Channagiri    | Kotehal             | Harosagara          | 1   | 0   |
| 9      | Channagiri    | Nellihankallu       | Kalkere             | 1   | 0   |
| 10     | Channagiri    | Nellihankallu       | Khaggimanamatti     | 8   | 0   |
| 11     | Channagiri    | Kotehal             | Marabanahalli       | 2   | 0   |
| 12     | Channagiri    | Kotehal             | Marabanahalli       | 1   | 0   |
| 13     | Channagiri    | Santebennuru        | Santebennuru        | 1   | 0   |
| 14     | Channagiri    | Tavarakere          | Tavarakere          | 1   | 0   |
| 15     | Davangere     | Mudahadadi          | Hallebisaleri       | 2   | 0   |
| 16     | Davangere     | Kaidalu             | Kolikunte           | 1   | 0   |
| 17     | Davangere     | Nalkudure           | Nalkudure           | 1   | 0   |
| 18     | Davangere     | Shiramagondanahalli | Shiramagondanahalli | 2   | 0   |
| 19     | Harapanahalli | Bagali              | Bagali              | 2   | 0   |
| 20     | Harapanahalli | Bagali              | Bagali              | 3   | 0   |
| 21     | Harapanahalli | Nandibevuru         | Konganahosuru       | 1   | 0   |
| 22     | Harapanahalli | Nandibevuru         | Nandibevuru         | 4   | 0   |
| 23     | Harihara      | Hanagavadi          | Hanagavadi          | 3   | 0   |
| 24     | Harihara      | Hanagavadi          | Haraganahalli       | 1   | 0   |
| 25     | Honnali       | Kyasinakere         | Bairanahalli        | 5   | 0   |
| 26     | Honnali       | Bannikodu           | Bannikodu           | 3   | 0   |
| 27     | Honnali       | Benakanahalli       | Benakanahalli       | 2   | 0   |
| 28     | Honnali       | Benakana Hally      | Benakanahally       | 1   | 0   |
| 29     | Honnali       | H.Kadadakatte       | Bidaragadde         | 3   | 0   |
| 30     | Honnali       | Rampura             | Bullapura           | 1   | 0   |
| 31     | Honnali       | Benakana Hally      | chikkabasur         | 3   | 0   |
| 32     | Honnali       | Kammaragatta        | Gantypura           | 2   | 0   |
| 33     | Honnali       | Govinakovi          | Govinakovi          | 4   | 0   |
| 34     | Honnali       | Haralahalli         | Haralahalli         | 3   | 0   |
| 35     | Honnali       | Hosahally           | Hosahally           | 2   | 0   |
| 36     | Honnali       | Sasvehalli          | Inuru               | 7   | 0   |
| 37     | Honnali       | Kulambi             | kulambi             | 3   | 0   |
| 38     | Honnali       | Kumbaluru           | Kumbaluru           | 6   | 0   |
| 39     | Honnali       | Govinakovi          | Kuruva              | 3   | 0   |
| 40     | Honnali       | Govinakovi          | Kuruva tanda        | 3   | 0   |
| 41     | Honnali       | Lingapura           | Lingapura           | 2   | 0   |
| 42     | Honnali       | Arabagatte          | Madanabavi          | 4   | 0   |
| 43     | Honnali       | Sasvehalli          | Sasvehalli          | 1   | 0   |
| 44     | Honnali       | Soraturu            | Soraturu            | 4   | 0   |
| 45     | Honnali       | Yaraganalu          | Yaraganalu          | 2   | 0   |
| 46     | Jagalur       | Anaburu             | Anaburu             | 1   | 0   |
| 47     | Jagalur       | Bilichodu           | Bilichodu           | 1   | 0   |
| 48     | Jagalur       | Bilichodu           | Bilichodu           | 1   | 0   |
| 49     | Jagalur       | Hanumantapura       | Hanumantapura       | 1   | 0   |
| 50     | Jagalur       | Hanumantapura       | Hanumantapura       | 1   | 0   |
| 51     | Jagalur       | Jagalur             | Jagalur             | 1   | 0   |

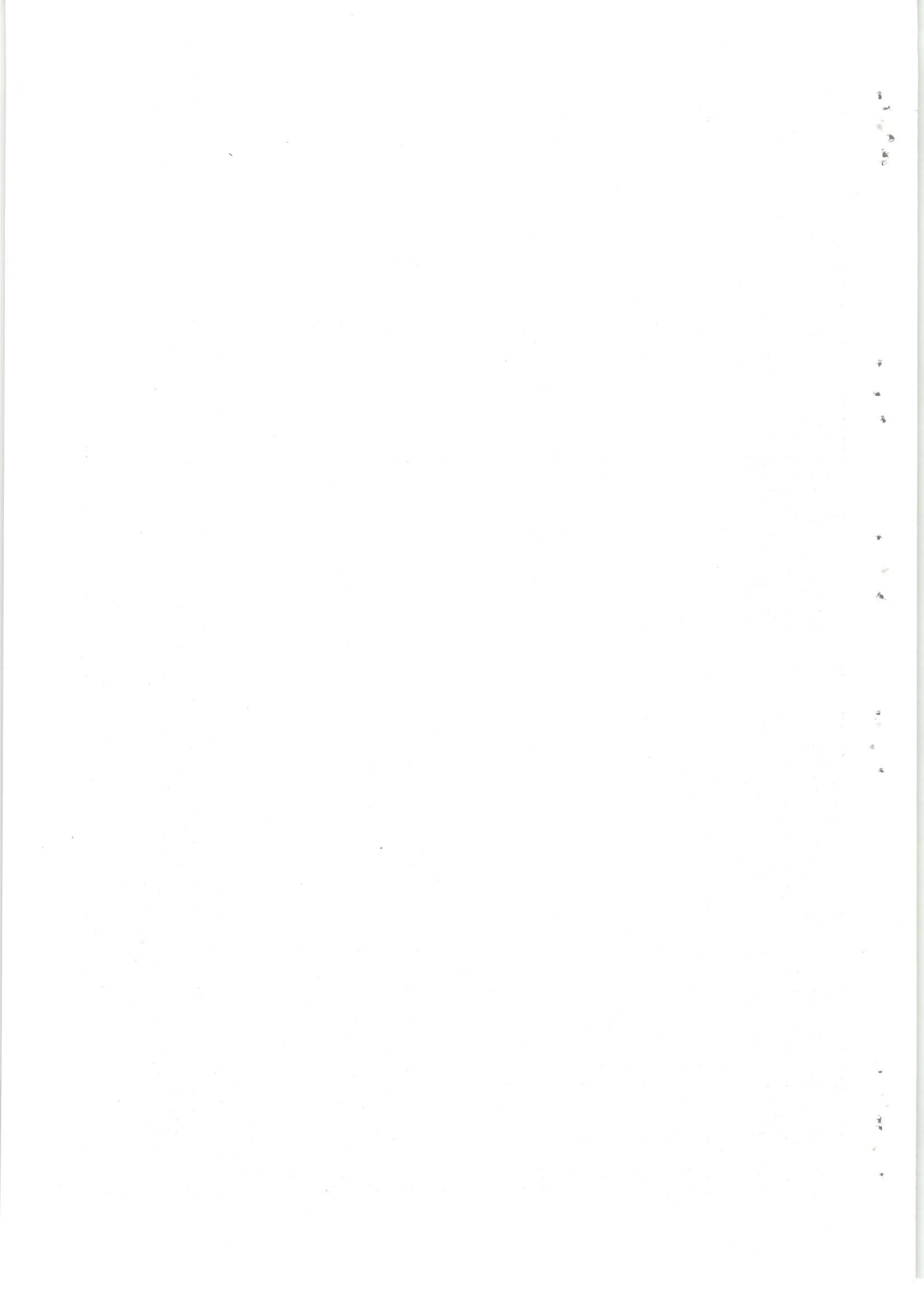




|    |         |                 |                      |            |   |
|----|---------|-----------------|----------------------|------------|---|
| 52 | Jagalur | Jagalur         | Jagalur              | 1          | 0 |
| 53 | Jagalur | Hanumantapura   | Jagalur Gollarahatti | 1          | 0 |
| 54 | Jagalur | Hiremallanahole | Kamandala gundi      | 1          | 0 |
| 55 | Jagalur | Thoranaghatta   | Kattigehalli         | 1          | 0 |
| 56 | Jagalur | Bistuvalli      | Malammanahalli       | 1          | 0 |
| 57 | Jagalur | Bistuvalli      | Malammanahalli       | 1          | 0 |
| 58 | Jagalur | Musturu         | Musturu              | 1          | 0 |
| 59 | Jagalur | Hiremallanahole | Salehalli            | 1          | 0 |
| 60 | Jagalur | Hanumantapura   | Tamelahalli          | 1          | 0 |
|    |         | <b>TOTAL</b>    |                      | <b>130</b> |   |

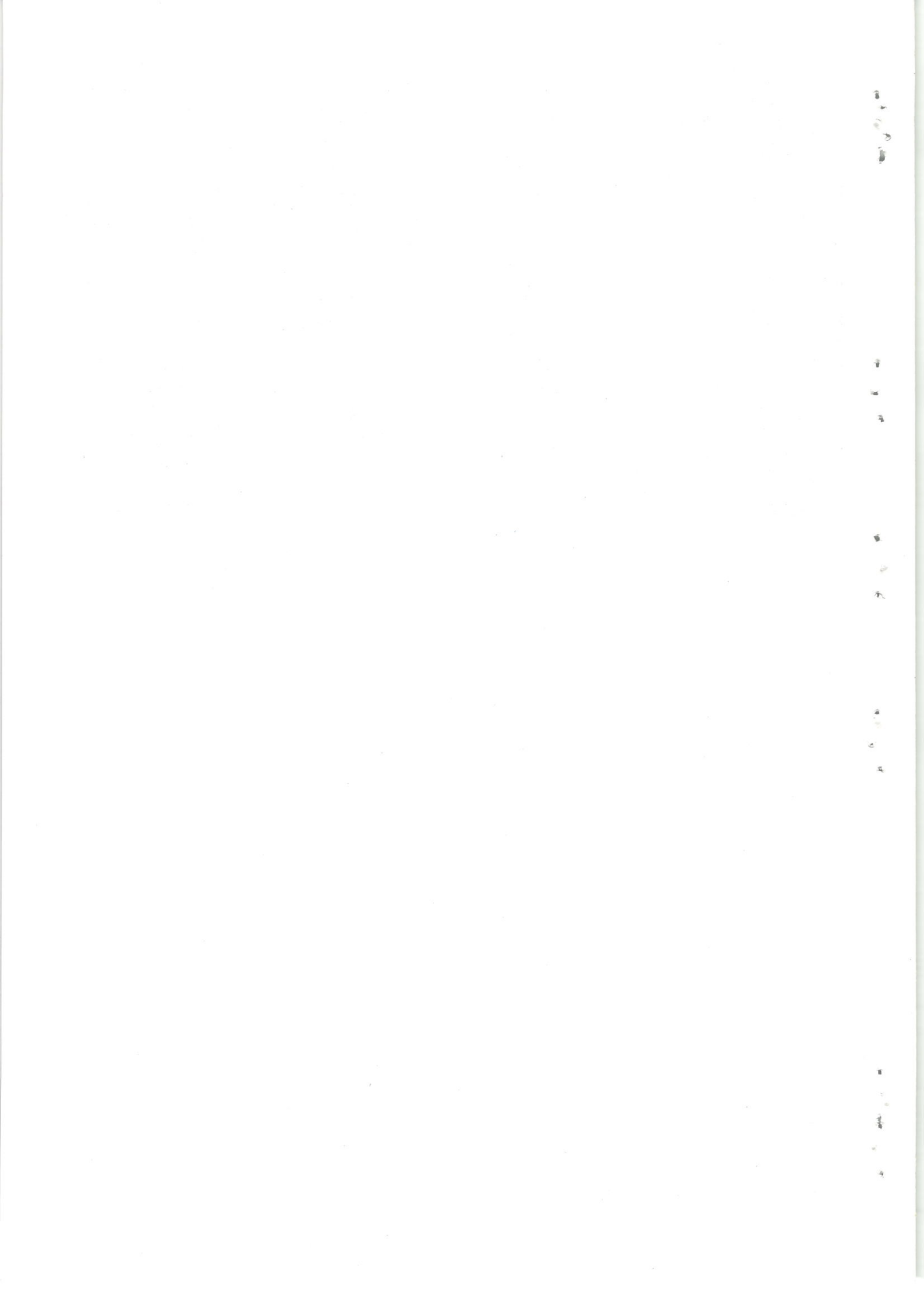
## Beneficiary-wise details

| Sl.No | Taluk         | Gram Panchayath     | Name of the Village | Name of the Beneficiary                | Turn Key Name        |
|-------|---------------|---------------------|---------------------|--|----------------------|
| 1     | Channagiri    | Basavapatanna       | Basavapatanna       | S.G.Dodda Channappa S/o Halappa        | K.M.Shivakumar       |
| 2     | Channagiri    | Basavapatanna       | Basavapatanna       | Hallesh S/o Maheshwarappa              | K.M.Shivakumar       |
| 3     | Channagiri    | Belliganodu         | Belliganodu         | Ashok S/o Halappa                      | S.R.Gopallappa       |
| 4     | Channagiri    | Belliganodu         | Belliganodu         | M.Barth Raj S/o Eshwarappa             | K.M.Shivakumar       |
| 5     | Channagiri    | Belliganodu         | Chikkabanur         | Siddappa S/o Siddappa                  | K.H.Patil            |
| 6     | Channagiri    | Nellihankallu       | Chikkasandi         | Lokesh S/o Kalleshappa                 | K.M.Shivakumar       |
| 7     | Channagiri    | Nellihankallu       | Chikkasandi         | Dinesh S/o Maheswarappa                | K.M.Shivakumar       |
| 8     | Channagiri    | Nellihankallu       | Chikkasandi         | Thippesh S/o Shankarappa               | K.M.Shivakumar       |
| 9     | Channagiri    | Nellihankallu       | Chikkasandi         | Maheswarappa S/o Rudrappa              | K.M.Shivakumar       |
| 10    | Channagiri    | Nellihankallu       | Chikkasandi         | Ningappa S/o Thamappa                  | K.M.Shivakumar       |
| 11    | Channagiri    | Nellihankallu       | Chikkasandi         | Siddaramappa S/o Eshwarappa            | K.M.Shivakumar       |
| 12    | Channagiri    | Tavarakere          | Gondhihosalli       | G.V.Parameshwarappa S/o Veerappa       | K.M.Shivakumar       |
| 13    | Channagiri    | Tavarakere          | Gondhihosalli       | Basavarajappa S/o Erappa               | K.M.Shivakumar       |
| 14    | Channagiri    | Kotehal             | Harosagara          | P.Rudramma W/o Channabasappa           | K.M.Shivakumar       |
| 15    | Channagiri    | Nellihankallu       | Kalkere             | Sakamma W/o Nagendrappa                | K.M.Shivakumar       |
| 16    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Nanjundayya S/o Maheswarayya           | K.M.Shivakumar       |
| 17    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Shekarappa S/o Maheswarappa            | K.M.Shivakumar       |
| 18    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Nanjundappa S/o Malleshappa            | K.M.Shivakumar       |
| 19    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Umesh S/o Malleshappa                  | K.M.Shivakumar       |
| 20    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Chandramati W/o Shekarayya             | K.M.Shivakumar       |
| 21    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Kumarayya S/o Maheswarappa             | K.M.Shivakumar       |
| 22    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Thippesh S/o Gurappa                   | K.M.Shivakumar       |
| 23    | Channagiri    | Nellihankallu       | Khaggimanamatti     | Dasappa Bovi S/o Sidda Bovi            | K.M.Shivakumar       |
| 24    | Channagiri    | Kotehal             | Marabanahalli       | P.Leela w/o Palanna                    | K.M.Shivakumar       |
| 25    | Channagiri    | Kotehal             | Marabanahalli       | Ratnamma W/o Panchaksharappa           | K.M.Shivakumar       |
| 26    | Channagiri    | Kotehal             | Marabanahalli       | Prabhakar S/o Basappa                  | K.M.Shivakumar       |
| 27    | Channagiri    | Santebennuru        | Santebennuru        | M.Malleshappa S/o Gangappa             | K.H.Patil            |
| 28    | Channagiri    | Tavarakere          | Tavarakere          | Rajappa S/o Parameshwarappa            | K.M.Shivakumar       |
| 29    | Davangere     | Mudahadadi          | Hallebisaleri       | B.G.Mahadevappa S/o Gurusiddappa       | G.S.V.Ramachandrarao |
| 30    | Davangere     | Mudahadadi          | Hallebisaleri       | Sri. Harinarayana S/o Venkata narayana | G.S.V.Ramachandrarao |
| 31    | Davangere     | Kaidalu             | Kolikunte           | N.Onkarappa S/o Ningappa               | G.S.V.Ramachandrarao |
| 32    | Davangere     | Nalkudure           | Nalkudure           | A.S.Beerappa S/o Kariyappa             | G.S.V.Ramachandrarao |
| 33    | Davangere     | Shiramagondanahalli | Shiramagondanahalli | C.G.Dinesh S/o Gangadharaiah G.B.      | Avinash Fabricators  |
| 34    | Davangere     | Shiramagondanahalli | Shiramagondanahalli | Ananda S/o Tagadimane Veerappa         | Avinash Fabricators  |
| 35    | Harapanahalli | Bagali              | Bagali              | Holalu Manjunath S/o Kallappa          | P.Basavanagowda      |
| 36    | Harapanahalli | Bagali              | Bagali              | M.Muddegowda                           | P.Basavanagowda      |
| 37    | Harapanahalli | Bagali              | Bagali              | S.Hallesh S/o Ujjappa                  | P.Basavanagowda      |
| 38    | Harapanahalli | Bagali              | Bagali              | Chandramma W/o Kotragowda              | P.Basavanagowda      |
| 39    | Harapanahalli | Bagali              | Bagali              | K.Basavaaraja S/o Shambhanna           | P.Basavanagowda      |
| 40    | Harapanahalli | Nandibevuru         | Konganahosuru       | K.Somu S/o K.Shivappa                  | P.Basavanagowda      |
| 41    | Harapanahalli | Nandibevuru         | Nandibevuru         | Ramannagowda S/o Channabasappa         | P.Basavanagowda      |
| 42    | Harapanahalli | Nandibevuru         | Nandibevuru         | U.K.Kotrabasappa S/o Gurusiddanagowda  | P.Basavanagowda      |
| 43    | Harapanahalli | Nandibevuru         | Nandibevuru         | C.Kotrash S/o Bharamappa               | P.Basavanagowda      |
| 44    | Harapanahalli | Nandibevuru         | Nandibevuru         | C.Nagaraja S/o Basavaraja              | P.Basavanagowda      |
| 45    | Harihara      | Hanagavadi          | Hanagavadi          | Laitamma W/o R.Puttappa                | Avinash Fabricators  |





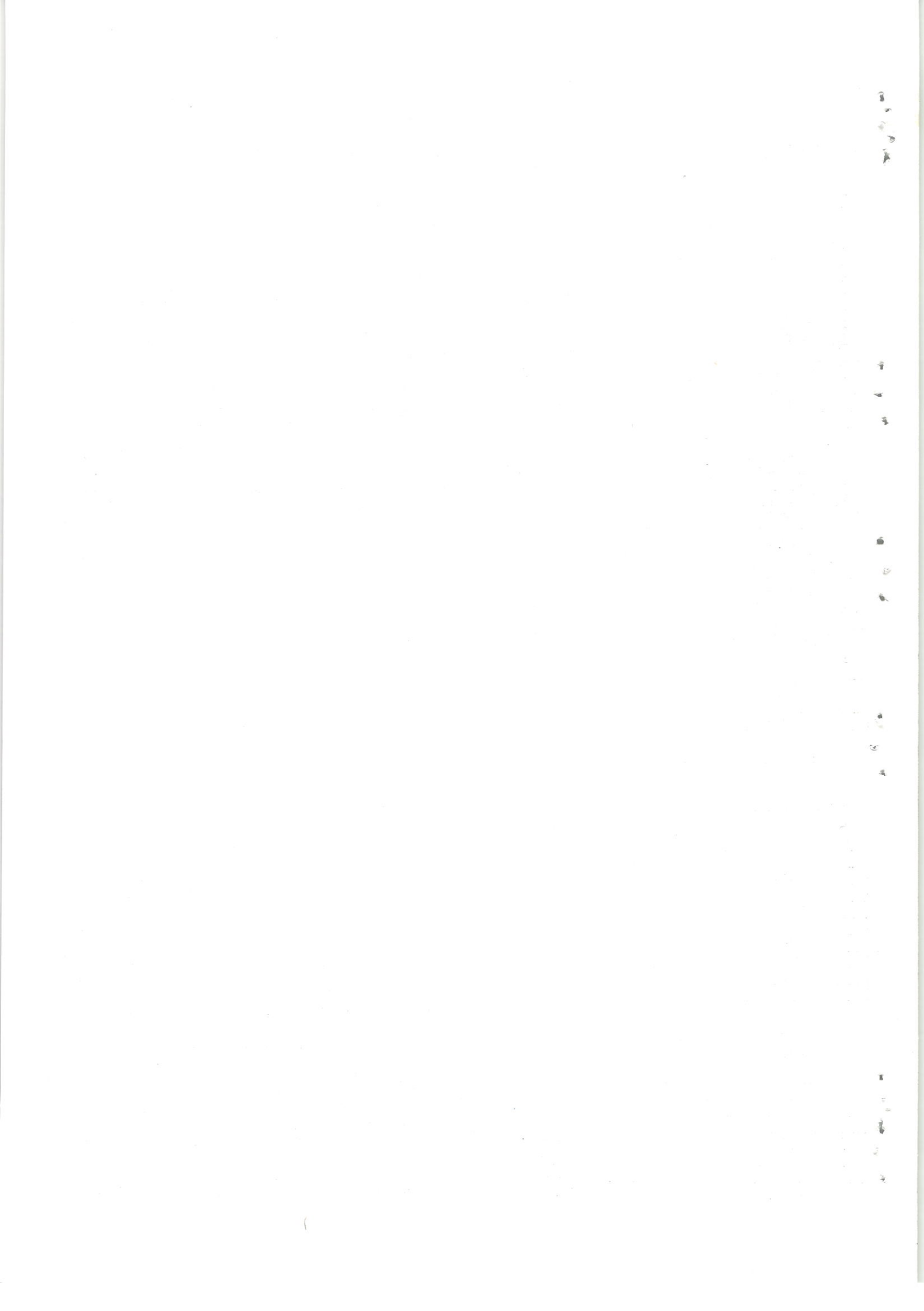
|     |          |                |               |                                       |                      |
|-----|----------|----------------|---------------|---------------------------------------|----------------------|
| 46  | Harihara | Hanagavadi     | Hanagavadi    | S.V.Basavaraj S/o S.Veerabhadrapa     | Avinash Fabricators  |
| 47  | Harihara | Hanagavadi     | Hanagavadi    | D.Revannasiddappa S/o Narappa         | Avinash Fabricators  |
| 48  | Harihara | Hanagavadi     | Haraganahalli | Nagaraja S/o S.Ramappa                | Avinash Fabricators  |
| 49  | Honnali  | Kyasinakere    | Bairanahalli  | K.G.Karibasappa S/o Siddappa          | S.R.Gopallappa       |
| 50  | Honnali  | Kyasinakere    | Bairanahalli  | Suma W/o Basavarajayya                | S.R.Gopallappa       |
| 51  | Honnali  | Kyasinakere    | Bairanahalli  | B.M.Channayya S/o Veerabasayya        | S.R.Gopallappa       |
| 52  | Honnali  | Kyasinakere    | Bairanahalli  | R.S.Halaswamy S/o Rajashekarappa      | S.R.Gopallappa       |
| 53  | Honnali  | Kyasinakere    | Bairanahalli  | Shankarappa S/o Veerupakshayya        | S.R.Gopallappa       |
| 54  | Honnali  | Bannikodu      | Bannikodu     | Shanthamma w/o Shivaji Rao            | AppalaRaju           |
| 55  | Honnali  | Bannikodu      | Bannikodu     | Ashok s/o Nagappa                     | AppalaRaju           |
| 56  | Honnali  | Bannikodu      | Bannikodu     | S.Rajappa s/o Hanumappa               | AppalaRaju           |
| 57  | Honnali  | Benakanahalli  | Benakanahalli | Prakash S/o Basavangowdru             | S.R.Gopallappa       |
| 58  | Honnali  | Benakanahalli  | Benakanahalli | Prasanna kumar S/o D.G.Basavanagowdru | S.R.Gopallappa       |
| 59  | Honnali  | Benakana Hally | Benakanahally | Sakamma w/o Basappa                   | AppalaRaju           |
| 60  | Honnali  | H.Kadadakatte  | Bidaragadde   | Ramesh S/o Ramappa                    | P.Prashantha         |
| 61  | Honnali  | H.Kadadakatte  | Bidaragadde   | Eshwarappa S/o Hanumantappa           | P.Prashantha         |
| 62  | Honnali  | H.Kadadakatte  | Bidaragadde   | Veeresh S/o Virupakshappa             | P.Prashantha         |
| 63  | Honnali  | Rampura        | Bullapura     | Parvathi W/o Nagaraja                 | S.R.Gopallappa       |
| 64  | Honnali  | Benakana Hally | chikkabasur   | K.Nagaraj s/o Hanumanthappa           | AppalaRaju           |
| 65  | Honnali  | Benakana Hally | chikkabasur   | C.H.Veerashekarappa s/o Basappa       | AppalaRaju           |
| 66  | Honnali  | Benakana Hally | chikkabasur   | Indramma w/o H.Jayappa                | AppalaRaju           |
| 67  | Honnali  | Kammaragatta   | Gantypura     | G.B.Kuberappa S/o Basappa             | S.R.Gopallappa       |
| 68  | Honnali  | Kammaragatta   | Gantypura     | B.Rudresh S/o Shivappa                | S.R.Gopallappa       |
| 69  | Honnali  | Govinakovi     | Govinakovi    | Nagamma W/o Shivamurty                | P.Prashantha         |
| 70  | Honnali  | Govinakovi     | Govinakovi    | Halappa S/o Manjappa                  | P.Prashantha         |
| 71  | Honnali  | Govinakovi     | Govinakovi    | Rudrappa S/o Ramappa                  | P.Prashantha         |
| 72  | Honnali  | Govinakovi     | Govinakovi    | Guddappa S/o Shivappa                 | P.Prashantha         |
| 73  | Honnali  | Haralahalli    | Haralahalli   | Eshwarappa S/o Ramappa                | P.Prashantha         |
| 74  | Honnali  | Haralahalli    | Haralahalli   | Mallesha S/o Tirthappa                | P.Prashantha         |
| 75  | Honnali  | Haralahalli    | Haralahalli   | Rangappa S/o Nagappa                  | P.Prashantha         |
| 76  | Honnali  | Hosahally      | Hosahally     | Sulochanamma w/o Rudrappa             | AppalaRaju           |
| 77  | Honnali  | Hosahally      | Hosahally     | T.Savitha D/o Thippeshappa            | S.R.Gopallappa       |
| 78  | Honnali  | Sasvehalli     | Inuru         | Sarojamma W/o Manjachar               | S.R.Gopallappa       |
| 79  | Honnali  | Sasvehalli     | Inuru         | Sureshchar S/o Darmachar              | S.R.Gopallappa       |
| 80  | Honnali  | Sasvehalli     | Inuru         | M.H.Lakshamma S/o Pandurangappa       | S.R.Gopallappa       |
| 81  | Honnali  | Sasvehalli     | Inuru         | Shudhamma W/o Thimmappa               | S.R.Gopallappa       |
| 82  | Honnali  | Sasvehalli     | Inuru         | Jayamma W/o Chandachar                | S.R.Gopallappa       |
| 83  | Honnali  | Sasvehalli     | Inuru         | T.S.Suresh S/o Hanumantappa           | S.R.Gopallappa       |
| 84  | Honnali  | Sasvehalli     | Inuru         | Neelamma W/o Haleshappa               | S.R.Gopallappa       |
| 85  | Honnali  | Kulambi        | kulambi       | Basavaraj s/o Mahadevappa             | AppalaRaju           |
| 86  | Honnali  | Kulambi        | Kulambi       | T.S.Rajshekarappa s/o Siddappa        | AppalaRaju           |
| 87  | Honnali  | Kulambi        | kulambi       | Lingaraj s/o Shivappa                 | AppalaRaju           |
| 88  | Honnali  | Kumbaluru      | Kumbaluru     | Puttappa S/o Rajappa                  | G.S.V.Ramachandrarao |
| 89  | Honnali  | Kumbaluru      | Kumbaluru     | M.Beerappa S/o Honnurappa             | G.S.V.Ramachandrarao |
| 90  | Honnali  | Kumbaluru      | Kumbaluru     | K.M.Govindaraju S/o Halappa           | G.S.V.Ramachandrarao |
| 91  | Honnali  | Kumbaluru      | Kumbaluru     | Halesh S/o Basavarajappa              | G.S.V.Ramachandrarao |
| 92  | Honnali  | Kumbaluru      | Kumbaluru     | Thammaiah S/o Revanappa               | G.S.V.Ramachandrarao |
| 93  | Honnali  | Kumbaluru      | Kumbaluru     | K.V.Anjaneya S/o K.M.Varadarajappa    | G.S.V.Ramachandrarao |
| 94  | Honnali  | Govinakovi     | Kuruva        | Nagarajappa S/o Eshwarappa            | P.Prashantha         |
| 95  | Honnali  | Govinakovi     | Kuruva        | Yashodamma W/o Rajappa                | P.Prashantha         |
| 96  | Honnali  | Govinakovi     | Kuruva        | Mallikarjunappa S/o Basavalingappa    | P.Prashantha         |
| 97  | Honnali  | Govinakovi     | Kuruva tanda  | Ramanayaka S/o Shankranaik            | P.Prashantha         |
| 98  | Honnali  | Govinakovi     | Kuruva tanda  | Vasantanaik S/o Devendranaik          | P.Prashantha         |
| 99  | Honnali  | Govinakovi     | Kuruva tanda  | Neelamma W/o Chandranaik              | P.Prashantha         |
| 100 | Honnali  | Lingapura      | Lingapura     | Krishnappa S/o Halappa                | S.R.Gopallappa       |
| 101 | Honnali  | Lingapura      | Lingapura     | R.Rangoji Rao S/o Ramappa             | S.R.Gopallappa       |
| 102 | Honnali  | Arabagatte     | Madanabavi    | Channaveerappa S/o G.Veerappa         | P.Prashantha         |
| 103 | Honnali  | Arabagatte     | Madanabavi    | Parvatamma W/o Shankrappa             | P.Prashantha         |
| 104 | Honnali  | Arabagatte     | Madanabavi    | Gowamma W/o Deveerappa                | P.Prashantha         |





|     |         |                 |                      |  |                 |
|-----|---------|-----------------|----------------------|--|-----------------|
| 105 | Honnali | Arabagatte      | Madanabavi           | Thirthappa S/o Basappa                     | P.Prashantha    |
| 106 | Honnali | Sasvehalli      | Sasvehalli           | Nagaraja S/o Ganeshchar                    | S.R.Gopallappa  |
| 107 | Honnali | Soraturu        | Soraturu             | Deveeramma W/o Ramappa                     | P.Prashantha    |
| 108 | Honnali | Soraturu        | Soraturu             | Eshwarappa S/o Shivanagowda                | P.Prashantha    |
| 109 | Honnali | Soraturu        | Soraturu             | Siddappa S/o Hanumantappa                  | P.Prashantha    |
| 110 | Honnali | Soraturu        | Soraturu             | Basavarajappa S/o Basavannappa             | P.Prashantha    |
| 111 | Honnali | Yaraganalu      | Yaraganalu           | Suresh S/o Rudreshappa                     | P.Prashantha    |
| 112 | Honnali | Yaraganalu      | Yaraganalu           | Ratnamma W/o Nagaraja                      | P.Prashantha    |
| 113 | Jagalur | Anaburu         | Anaburu              | Parvatamma W/o Nagaraja                    | B.Satyanarayana |
| 114 | Jagalur | Bilichodu       | Bilichodu            | G.V.Ravi S/o Vamadevappa                   | B.Satyanarayana |
| 115 | Jagalur | Bilichodu       | Bilichodu            | H.Veena W/o Kumaraswamy                    | B.Satyanarayana |
| 116 | Jagalur | Hanumantapura   | Hanumantapura        | J.H.Kalleshappa S/o Dyamappa               | B.Satyanarayana |
| 117 | Jagalur | Hanumantapura   | Hanumantapura        | H.L.Shivakumar S/o Lokeshappa              | B.Satyanarayana |
| 118 | Jagalur | Jagalur         | Jagalur              | J.N.Thippeswamy S/o Narasimhappa           | B.Satyanarayana |
| 119 | Jagalur | Jagalur         | Jagalur              | H.N.Emam Husen S/o H.N.Noor Ahamad         | B.Satyanarayana |
| 120 | Jagalur | Hanumantapura   | Jagalur Gollarahatti | D.V.Savith W/o Baratesha reddy             | B.Satyanarayana |
| 121 | Jagalur | Hiremallanahole | Kamandala gundi      | K.H.Sursh reddy S/o K.T. Hanumananth reddy | B.Satyanarayana |
| 122 | Jagalur | Thoranaghatta   | Kattigehalli         | P.S.Manjunath S/o Sharanappa               | B.Satyanarayana |
| 123 | Jagalur | Bistuvalli      | Malammanahalli       | G.H.Prabhudev S/o Gaddigeppa               | B.Satyanarayana |
| 124 | Jagalur | Bistuvalli      | Malammanahalli       | Ahamadh Esmail S/o Ahamadh Anwar           | B.Satyanarayana |
| 125 | Jagalur | Musturu         | Musturu              | Umesh S/o M.P.Jayashankara                 | B.Satyanarayana |
| 126 | Jagalur | Hiremallanahole | Salehalli            | M.N.Govindarddy S/o Hanumananth reddy      | B.Satyanarayana |
| 127 | Jagalur | Hanumantapura   | Tamelahalli          | D.R.Hanumanthappa S/o Banda rangappa       | B.Satyanarayana |





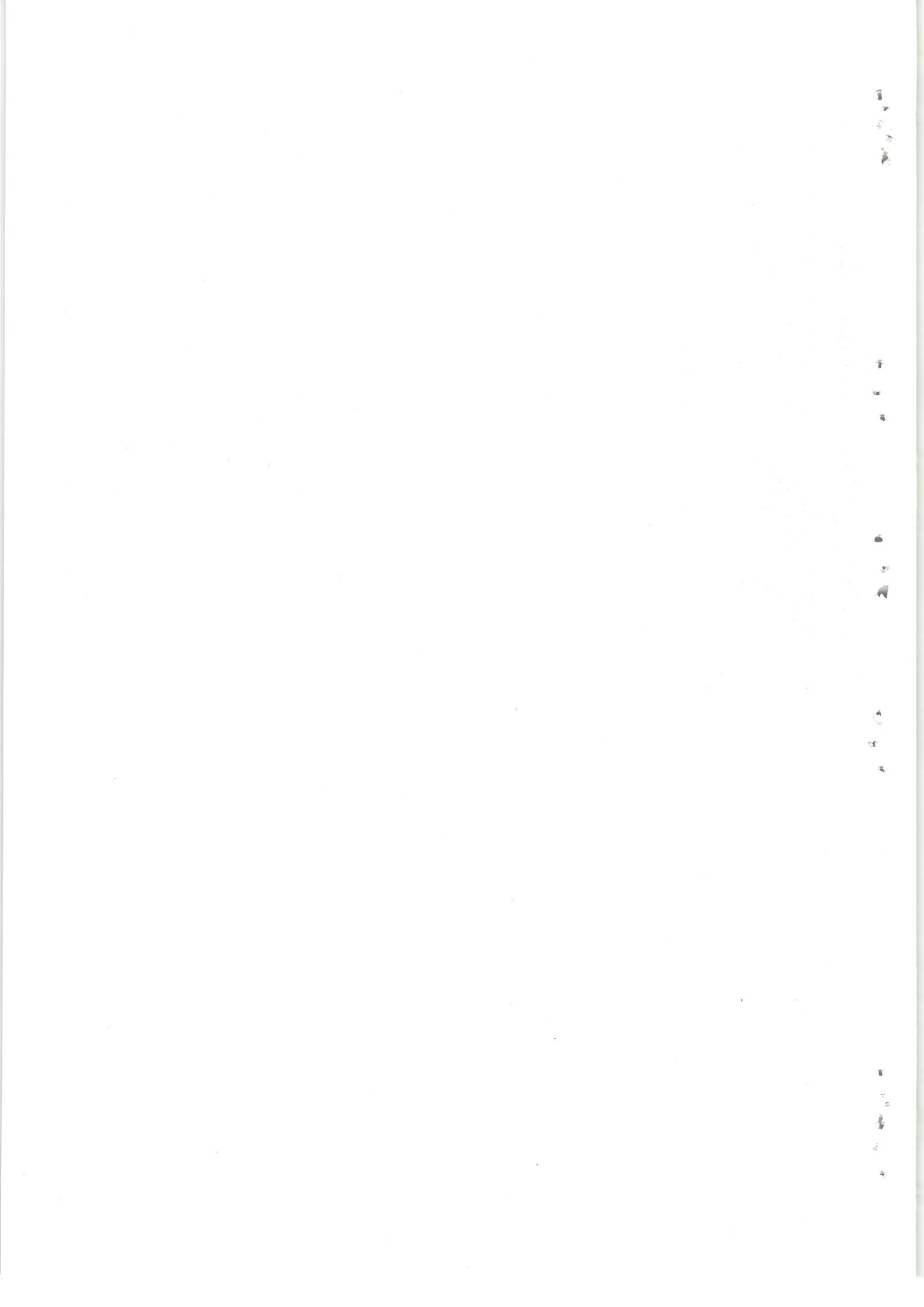
## MANDYA

## Gram Panchayath-wise details

| Sl. No. | Taluk       | Grama panchayath   | Village           | No. of biogas plants installed and commissioned during 2010-11 | No. of biogas plants that are rejuvenated (repaired) during 2010-11 |
|---------|-------------|--------------------|-------------------|--|---|
| 1       | 2           | 3                  | 4                 | 5  | 6   |
| 1       | Maddur      | C.A.Kere           | Gurudevahalli     | 2  | -   |
| 2       | Maddur      | K.Belluru          | Bhimanakere       | 1  | -   |
| 3       | Maddur      | Kyathaghatta       | Thorechakanahalli | 2  | -   |
| 4       | Maddur      | Nidaghatta         | Madanayakanahalli | 2  | -   |
| 5       | Maddur      | Niluvagilu         | Mudigere          | 1  | -   |
| 6       | Mandya      | B.Changalu         | B.Chandagalu      | 1  | -   |
| 7       | Mandya      | Bevinahalli        | A.Hullukere       | 2  | -   |
| 8       | Mandya      | Hodaghatta         | Echagere          | 1  | -   |
| 9       | Mandya      | Maragowdanahalli   | Shivara           | 2  | -   |
| 10      | Mandya      | Santhekasalagere   | Haniyambadi       | 2  | -   |
| 11      | Mandya      | Sathanuru          | Sathanuru         | 2  | -   |
| 12      | Mandya      | Taggahalli         | Taggahalli        | 2  | -   |
| 13      | Nagamangala | Anchechittanahalli | Byranahalli       | 2  | -   |
| 14      | Nagamangala | Arani              | Honnenahalli      | 1  | -   |
| 15      | Nagamangala | Arani              | Adakathahalli     | 1  | -   |
| 16      | Pandavapura | Doddabydarahalli   | Chikkabydarahalli | 8  | -   |
| 17      | Pandavapura | Doddabydarahalli   | Doddabydarahalli  | 4  | -   |
| 18      | Pandavapura | Doddabydarahalli   | Thirumalapuru     | 1  | -   |
| 19      | Pandavapura | Halebeedu          | Mudalakoppalu     | 1  | -   |
| 20      | Pandavapura | Kanaganamaradi     | Chikkamarali      | 1  | -   |
| 21      | Pandavapura | Kanaganamaradi     | Kurahtti          | 1  | -   |
| 22      | S.R.Patna   | Ballekere          | Ballekere         | 1  | -   |
| 23      | S.R.Patna   | Gamanahalli        | Neralakere        | 1  | -   |
| 24      | S.R.Patna   | Hulikere           | Hulikere          | 1  | -   |
| 25      | S.R.Patna   | Kodiyala           | Doddaharohalli    | 3  | -   |
| 26      | S.R.Patna   | Kodiyala           | Kodiyala          | 1  | -   |
| 27      | S.R.Patna   | Kodiyala           | Hunasnahalli      | 1  | -   |
| 28      | S.R.Patna   | Mundugadore        | Doddapalya        | 1  | -   |
| 29      | S.R.Patna   | Mundugadore        | Allapattana       | 1  | -   |
|         | TOTAL       |                    |                   | 50   |   |

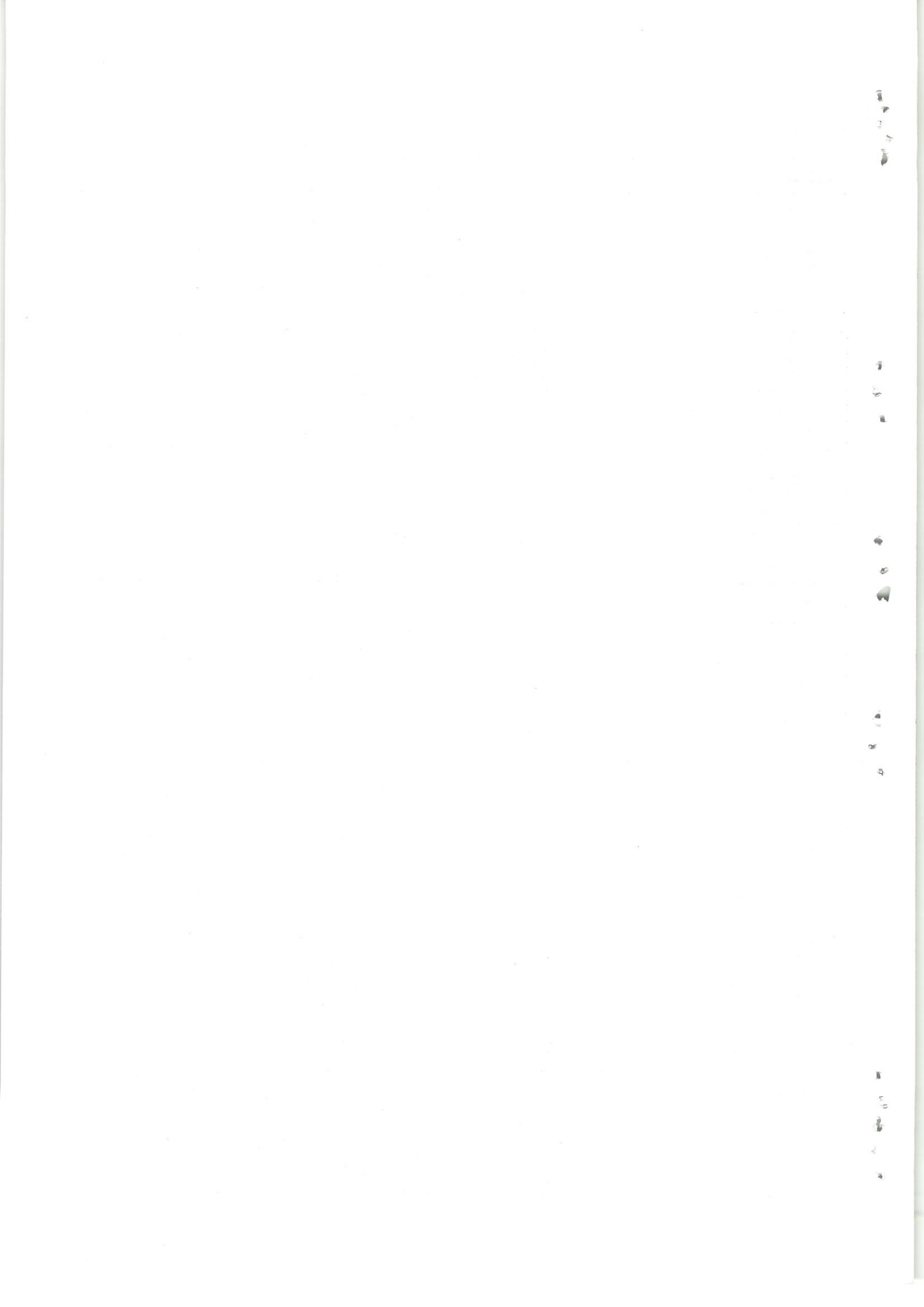
## Beneficiary-wise details

| Sl. No. | Taluk  | Grama panchayath | Village           | Beneficiaries Name and address       | Address & contact number |
|---------|--------|------------------|-------------------|--------------------------------------|--------------------------|
| 1       | 2      | 3                | 4                 | 5                                    | 6                        |
| 1       | Maddur | C.A.Kere         | Gurudevahalli     | Gowamma W/o Doddathammegowda         | -                        |
| 2       | Maddur | C.A.Kere         | Gurudevahalli     | Channamma W/o Subbegowda             | -                        |
| 3       | Maddur | K.Belluru        | Bhimanakere       | Sampath kumar B.K S/o B.V.Krishnaiah | -                        |
| 4       | Maddur | Kyathaghatta     | Thorechakanahalli | Venkatajyar S/o C.R.Mannarswamy      | -                        |
| 5       | Maddur | Kyathaghatta     | Thorechakanahalli | Jayaramu S/o Boregowda               | -                        |
| 6       | Maddur | Nidaghatta       | Madanayakanahalli | Sumithra W/o Devaraju                | -                        |
| 7       | Maddur | Nidaghatta       | Madanayakanahalli | Loksha S/o Lakshmana                 | -                        |
| 8       | Maddur | Niluvagilu       | Mudigere          | Lakshamma W/o M.S.Kumaraswamy        | -                        |
| 9       | Mandya | B.Changalu       | B.Chandagalu      | Vijayalakshmi W/o B.Shankaregowda    | -                        |
| 10      | Mandya | Bevinahalli      | A.Hullukere       | Manchashetty S/o Manchashetty        | -                        |
| 11      | Mandya | Bevinahalli      | A.Hullukere       | Mamatha G.W/o Sampathkumar           | -                        |
| 12      | Mandya | Hodaghatta       | Echagere          | Panchegowda S/o Marigowda            | -                        |
| 13      | Mandya | Maragowdanahalli | Shivara           | Jyothi S.K D/o Karigowda             | -                        |
| 14      | Mandya | Maragowdanahalli | Sivara            | Bhadregowda S/o Late.Hiregowda       | -                        |
| 15      | Mandya | Santhekasalagere | Haniyambadi       | H.P.Raju S/o Puttaswamygowda         | -                        |
| 16      | Mandya | Santhekasalagere | Haniyambadi       | K.Jayamma W/o H.B.Puttaswamy         | -                        |
| 17      | Mandya | Sathanuru        | Sathanuru         | Channamma W/o Puttaswamy             | -                        |
| 18      | Mandya | Sathanuru        | Sathanuru         | Punyavathi W/o Rajanna S.K           | -                        |
| 19      | Mandya | Taggahalli       | Taggahalli        | Prameela W/o Venkatesh               | -                        |
| 20      | Mandya | Thaggahalli      | Thaggahalli       | T.S.Nagaraju S/o Siddegowda          | -                        |



| Sl. No. | Taluk       | Grama pancheyath   | Village          | Beneficiaries Name and address         | Address & contact number |
|---------|-------------|--------------------|------------------|--|--------------------------|
| 21      | Nagamangala | Anchechittanahalli | Byranahalli      | Kamamma W/o Srinivasa                  | -                        |
| 22      | Nagamangala | Anchechittanahalli | Byranahalli      | Javaregowda S/o thirumalegowda         | -                        |
| 23      | Nagamangala | Arani              | Adakathahalli    | Ravikumar S/o Rangegowda               | -                        |
| 24      | Nagamangala | Arani              | Honnenahalli     | Manjula W/o Devarajegowda              | -                        |
| 25      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Ningegowda S/o Maribuddegowda          | -                        |
| 26      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Prabhavathi W/o Chandrashekar          | -                        |
| 27      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | S.S.Kumar S/o A.C.Shivalingegowda      | -                        |
| 28      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Kumar S/o Shivalingegowda              | -                        |
| 29      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Gayathri W/o Mahadevu                  | -                        |
| 30      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Jayamma W/o Channegowda                | -                        |
| 31      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Bommalingaiah S/o Javaraiah            | -                        |
| 32      | Pandavapura | Doddabydarahalli   | Cikkabydarahalli | Parvathamma W/o Ningaiah               | -                        |
| 33      | Pandavapura | Doddabydarahalli   | Doddabydarahalli | Rajeshwari W/o Late Karigowda          | -                        |
| 34      | Pandavapura | Doddabydarahalli   | Doddabydarahalli | R.Venkataramu S/o Rangaiah             | -                        |
| 35      | Pandavapura | Doddabydarahalli   | Doddabydarahalli | Girish S/o Gurumurthy                  | -                        |
| 36      | Pandavapura | Doddabydarahalli   | Doddabydarahalli | Dharma S/o Gadi Boraiah                | -                        |
| 37      | Pandavapura | Doddabydarahalli   | Thirumalapuru    | Indramma W/o Chikkegowda               | -                        |
| 38      | Pandavapura | Halebeedu          | Mudalakoppalu    | M.R.Manjunath S/o Ramegowda            | -                        |
| 39      | Pandavapura | Kanaganamaradi     | Chikkamarali     | Jnanesha S/o Shivanegowda              | -                        |
| 40      | Pandavapura | Kanaganamaradi     | Kurahtti         | Jayamma W/o Nagaraju                   | -                        |
| 41      | S.R.Patna   | Ballekere          | Ballekere        | Thimmegowda S/o karigowda              | -                        |
| 42      | S.R.Patna   | Gamanahalli        | Neralakere       | Savitha W/o Puttaswamy                 | -                        |
| 43      | S.R.Patna   | Hulikere           | Hulikere         | M.Hemanthraj S/o H.Madegowda           | -                        |
| 44      | S.R.Patna   | Kodiyala           | Doddaharohalli   | M.Shivaramu S/o Mudalagirigowda        | -                        |
| 45      | S.R.Patna   | Kodiyala           | Doddaharohalli   | Devamma W/o Krishnegowda               | -                        |
| 46      | S.R.Patna   | Kodiyala           | Doddaharohalli   | C.Puttaswamy S/o Chalugegowda          | -                        |
| 47      | S.R.Patna   | Kodiyala           | Hunasanahalli    | H.M.Puttaswamygowda S/o Late Marigowda | -                        |
| 48      | S.R.Patna   | Kodiyala           | Kodiyala         | Prema W/o Puttaswamy                   | -                        |
| 49      | S.R.Patna   | Mundugadore        | Allapattana      | A.C.Siddegowda S/o Chikkahonnegowda    | -                        |
| 50      | S.R.Patna   | Mundugadore        | Doddapalya       | Javaregowda S/o Chikkahonnegowda       | -                        |





## RAICHUR

## Gram Panchayath-wise details

| SI No. | Taluk      | Gram Panchayath | Name of village     | No. of biogas plants installed and commissioned during 2010-11 | No. of plants that are rejuvenated |
|--------|------------|-----------------|---------------------|--|------------------------------------|
| 1      | Sindhanuru | Turavihal       | Basanna Camp        | 2  | -                                  |
| 2      | _do_       | _do_            | Madhya Camp         | 5  | -                                  |
| 3      | _do_       | _do_            | Bengali Camp        | 2  | -                                  |
| 4      | _do_       | _do_            | Hosahalli Camp      | 3  | -                                  |
| 5      | _do_       | _do_            | Gunjahalli Camp     | 14   | -                                  |
| 6      | _do_       | Pagadadinni     | Gunturu Camp        | 3  | -                                  |
| 7      | _do_       | Buthaladinni    | Raithanagra Camp    | 13   | -                                  |
| 8      | _do_       | Gunjahalli      | Nagalingshwara Camp | 2  | -                                  |
| 9      | _do_       | _do_            | 7th Mail Camp       | 1  | -                                  |
| 10     | _do_       | _do_            | K.Hosahalli         | 1  | -                                  |
| 11     | _do_       | R.H.NO:1        | R.H.NO:1            | 1  | -                                  |
| 12     | _do_       | _do_            | R.H.NO:2            | 19   | -                                  |
|        |            |                 | Total               | 66   | -                                  |

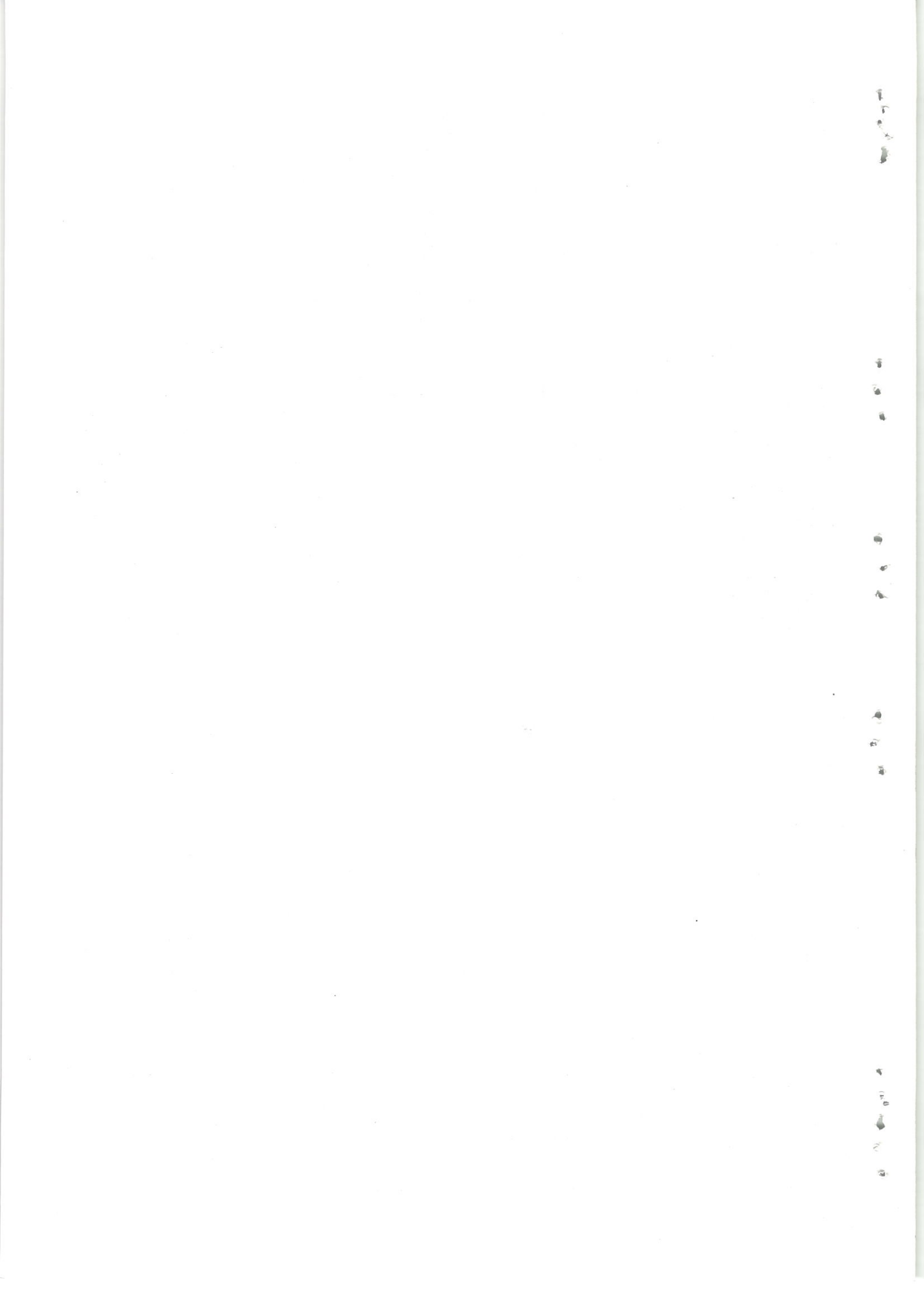
## Beneficiary-wise details

| SI No. | Taluk      | Gram Panchayath | Name of village  | Name of beneficiary                        | Address and contact No. |
|--------|------------|-----------------|------------------|--|-------------------------|
| 1      | Sindhanuru | Turavihala      | Basanna Camp     | R.Gopalakrishna s/o Subbarao               |                         |
| 2      | _do_       | _do_            | Basanna Camp     | E.Rambabu s/o Satyanarayana                |                         |
| 3      | _do_       | _do_            | Madya Camp       | Eramma w/o Erappa                          |                         |
| 4      | _do_       | _do_            | Madya Camp       | Ningappa s/o Hanumanthappa                 |                         |
| 5      | _do_       | _do_            | Madya Camp       | Sharanappa s/o Ningappa                    |                         |
| 6      | _do_       | _do_            | Madya Camp       | Yamunamm s/o Dyamanna                      |                         |
| 7      | _do_       | _do_            | Madya Camp       | Hanumanthappa s/o Lingappa                 |                         |
| 8      | _do_       | _do_            | Bangali Camp     | Somanna s/o Shanmukhappa                   |                         |
| 9      | _do_       | _do_            | Bangali Camp     | Yallamma s/o Sharanabasappa                |                         |
| 10     | _do_       | _do_            | Hosahalli Camp   | Hanumareddy s/o Basanna                    |                         |
| 11     | _do_       | _do_            | Hosahalli Camp   | Rangappa s/o Kantappa                      |                         |
| 12     | _do_       | _do_            | Hosahalli Camp   | Parshurama s/o Mudukappa                   |                         |
| 13     | _do_       | _do_            | Gunturu Camp     | A.Manamma w/o Veeraraju                    |                         |
| 14     | _do_       | _do_            | Gunturu Camp     | A.Paparao s/o Venkanna                     |                         |
| 15     | _do_       | _do_            | Gunturu Camp     | N.Nayudore s/o Veeranna                    |                         |
| 21     | _do_       | _do_            | Gunjali Camp     | H.Revna s/o LiNgappa                       | 8147232326              |
| 22     | _do_       | _do_            | Gunjali Camp     | A.Sattaraju s/o Suryanarayana              | 9480411290              |
| 23     | _do_       | _do_            | Gunjali Camp     | S.Lakshmi w/o Dorayyagaru                  | 200650                  |
| 24     | _do_       | _do_            | Gunjali Camp     | Shivamma w/o Vidyadhara                    | 9590073866              |
| 25     | _do_       | _do_            | Gunjali Camp     | V.Soubhagyalakshmi w/o Subbarao            | 9035558319              |
| 26     | _do_       | _do_            | Gunjali Camp     | Veerappa Kadagal s/o Channabasappa         | 9900855618              |
| 27     | _do_       | _do_            | Gunjali Camp     | Hanumesh s/o Siddesh                       | 9871095776              |
| 28     | _do_       | _do_            | Gunjali Camp     | Toti Satish s/o Ramakrishna                | 8971095776              |
| 29     | _do_       | _do_            | Gunjali Camp     | Tippanna Marati s/o Bhimarayappa           | 9008990367              |
| 30     | _do_       | _do_            | Gunjali Camp     | Shamkamma w/o Devendrappa                  |                         |
| 31     | _do_       | _do_            | Gunjali Camp     | Yadapalli Jayalakshmi w/o Rangarao         | 8970153281              |
| 32     | _do_       | _do_            | Gunjali Camp     | BJP Seenu s/o Suryanarayana                |                         |
| 33     | _do_       | _do_            | Gunjali Camp     | Damayanthi w/o Venkatarao                  | 265035                  |
| 34     | _do_       | _do_            | Gunjali Camp     | Lakshmi w/o Viresh                         | 9741802817              |
| 16     | _do_       | Buthaladinni    | Raitanagara Camp | A.Shankara reddy s/o Narayanareddy         |                         |
| 17     | _do_       | _do_            | Raitanagara Camp | K.Venkatarama subbareddy s/o Venkatarreddy |                         |
| 18     | _do_       | _do_            | Raitanagara Camp | N.Ramasubbareddy s/o Subbareddy            |                         |
| 19     | _do_       | _do_            | Raitanagara Camp | P.Chandrashekhara reddy s/o Pedaramareddy  |                         |



|    |      |            |                      |  |            |
|----|------|------------|----------------------|--|------------|
| 20 | _do_ | _do_       | Raitanagara Camp     | K.Venkatarao s/o Ramarao                   |            |
| 39 | _do_ | _do_       | Raitanagara Camp     | Alamelu w/o Ramachandrarao                 | 9845222853 |
| 40 | _do_ | _do_       | Raitanagara Camp     | J.Annamani w/o Pullarao                    | 9916125112 |
| 41 | _do_ | _do_       | Raitanagara Camp     | B.Bhavani w/o Venkataramana                |            |
| 42 | _do_ | _do_       | Raitanagara Camp     | Mudiyappa s/o Venkanagouda                 | 9902989603 |
| 43 | _do_ | _do_       | Raitanagara Camp     | Subbalakshmi w/o Kondarao                  |            |
| 44 | _do_ | _do_       | Raitanagara Camp     | Satyavithi w/o Ramarao                     |            |
| 45 | _do_ | _do_       | Raitanagara Camp     | Parachuri venakateshwararao s/o Venkatarao |            |
| 46 | _do_ | _do_       | Raitanagara Camp     | Parachuri Koteswararao s/o Venkatarao      |            |
| 35 | _do_ | Gunjahalli | Nagalingeshwara Camp | Viresh s/o Nagappa                         | 9972289744 |
| 36 | _do_ | _do_       | Nagalingeshwara Camp | Mallikarjuna s/o Basappa                   | 9945738340 |
| 37 | _do_ | _do_       | 7th Mail Camp        | Bhoolakshmi s/o Venkatarao                 |            |
| 38 | _do_ | _do_       | K.Hosahalli          | Timmareddy s/o Devendrapa                  |            |
| 47 | _do_ | R.H.NO:1   | R.H.NO:1             | Vijayalakshmi w/o Indran                   |            |
| 48 | _do_ | _do_       | R.H.NO:2             | Arunabairagi s/o Arunadasa bairagi         | 9741093694 |
| 49 | _do_ | _do_       | R.H.NO:2             | Gourapada mandala s/o Narendranatha        | 9901020351 |
| 50 | _do_ | _do_       | R.H.NO:2             | Rnjitha mandala s/o Rasika mandala         | 9901202351 |
| 51 | _do_ | _do_       | R.H.NO:2             | Pramitha w/o Prashanta                     | 9036583637 |
| 52 | _do_ | _do_       | R.H.NO:2             | Rinahaldara w/o Dineshahaldara             | 8105342110 |
| 53 | _do_ | _do_       | R.H.NO:2             | Dipak raya s/o Amullyaraya                 | 9482172303 |
| 54 | _do_ | _do_       | R.H.NO:2             | Suresh chandra haldara s/o Purnacharana    |            |
| 55 | _do_ | _do_       | R.H.NO:2             | Ritamandala w/o Maritoshamandala           | 9972683733 |
| 56 | _do_ | _do_       | R.H.NO:2             | Dolimandala w/o Chittaranjanamandala       |            |
| 57 | _do_ | _do_       | R.H.NO:2             | Kalyanimaldara w/o Dipak maldara           | 9731888501 |
| 58 | _do_ | _do_       | R.H.NO:2             | Manjumandala w/o Rabinamandala             |            |
| 59 | _do_ | _do_       | R.H.NO:2             | Manoranjanamallika s/o Kumudaranjana       |            |
| 60 | _do_ | _do_       | R.H.NO:2             | Jamburaniray w/o Manojaray                 |            |
| 61 | _do_ | _do_       | R.H.NO:2             | Chanchnatha s/o Uttama                     |            |
| 62 | _do_ | _do_       | R.H.NO:2             | Joseph s/o Aruladu                         |            |
| 63 | _do_ | _do_       | R.H.NO:2             | Arogyaswamy s/o Rayar                      |            |
| 64 | _do_ | _do_       | R.H.NO:2             | Sripadasrakara s/o Durgacharana            |            |
| 65 | _do_ | _do_       | R.H.NO:2             | Sunalimandala w/o Niranjana                |            |
| 66 | _do_ | _do_       | R.H.NO:2             | Somalamandala w/o Anatho                   |            |

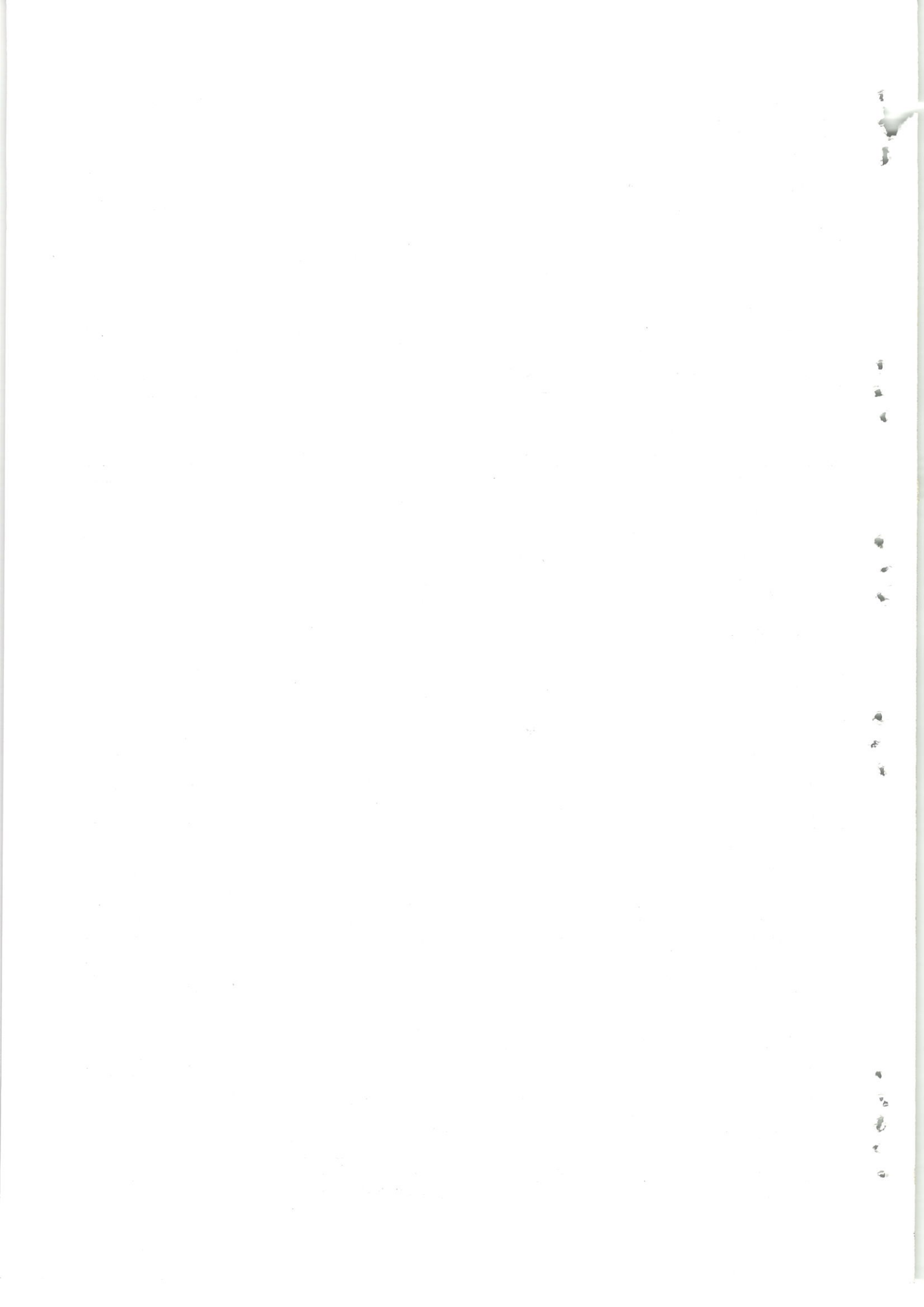




## UTTARA KANNADA

## Gram Panchayath-wise details

| Sl.No. | Taluk    | Gram Panchayat | Name of the Village | No. of biogas plants installed and commissioned during 2010-11 | No. of biogas plants that are rejuvenated (repaired) during 2010-11 |
|--------|----------|----------------|---------------------|--|---|
| 1      | 2        | 3              | 4                   | 5  | 6   |
| 1      | Yallapur | Dehalli        | Geral               | 1  | 0   |
| 2      | Yallapur | Ummachagi      | Kangod              | 1  | 0   |
| 3      | Yallapur | Ummachagi      | Kanenalli           | 1  | 0   |
| 4      | Yallapur | Ummachagi      | Ummachagi           | 1  | 0   |
| 5      | Yallapur | Ummachagi      | Sankadgundi         | 1  | 0   |
| 6      | Yallapur | Ummachagi      | Naleesara           | 1  | 0   |
| 7      | Yallapur | Ummachagi      | Bandimane           | 1  | 0   |
| 8      | Yallapur | Ummachagi      | Soorimane           | 1  | 0   |
| 9      | Yallapur | Hasanagi       | Shirnal             | 1  | 0   |
| 10     | Yallapur | Hasanagi       | Alwada              | 1  | 0   |
| 11     | Yallapur | Hasanagi       | Kokkar              | 1  | 0   |
| 12     | Yallapur | Hasanagi       | Malagimane          | 1  | 0   |
| 13     | Yallapur | Hasanagi       | Keregadde           | 1  | 0   |
| 14     | Yallapur | Kundargi       | Ballambi            | 2  | 0   |
| 15     | Yallapur | Kundargi       | Hasalmane           | 1  | 0   |
| 16     | Yallapur | Kundargi       | Doddabena           | 1  | 0   |
| 17     | Yallapur | Angod          | Angod               | 3  | 0   |
| 18     | Yallapur | Angod          | Gaveguli            | 1  | 0   |
| 19     | Yallapur | Angod          | Geral               | 2  | 0   |
| 20     | Yallapur | Nandolli       | Malalgaon           | 1  | 0   |
| 21     | Yallapur | Nandolli       | Shiravalli          | 1  | 0   |
| 22     | Yallapur | Nandolli       | Nandolli            | 2  | 0   |
| 23     | Yallapur | Nandolli       | Devargadde          | 1  | 0   |
| 24     | Yallapur | Nandolli       | Karadipal           | 1  | 0   |
| 25     | Yallapur | Hittlalli      | Illegundi           | 1  | 0   |
| 26     | Yallapur | Hittlalli      | Nandgar             | 1  | 0   |
| 27     | Yallapur | Hittlalli      | Hittlalli           | 1  | 0   |
| 28     | Yallapur | Hittlalli      | Nalisara            | 1  | 0   |
| 29     | Yallapur | Hittlalli      | Bidralli            | 2  | 0   |
| 30     | Yallapur | Manchikeri     | Tumbebed            | 1  | 0   |
| 31     | Yallapur | Manchikeri     | Nagarjeddi          | 1  | 0   |
| 32     | Yallapur | Manchikeri     | Kanchikodlu         | 1  | 0   |
| 33     | Yallapur | Manchikeri     | Kampli              | 1  | 0   |
| 34     | Yallapur | Manchikeri     | Balagal             | 1  | 0   |
| 35     | Yallapur | Kannigeri      | Lalguli             | 1  | 0   |
| 36     | Sirsi    | Yadalli        | Yadalli             | 2  | 0   |
| 37     | Sirsi    | Isaloor        | Isaloor             | 1  | 0   |
| 38     | Sirsi    | Hulekal        | Sonda               | 1  | 0   |
| 39     | Sirsi    | Hulekal        | Kodigar             | 2  | 0   |
| 40     | Sirsi    | Bhairumbe      | Gundigadde          | 1  | 0   |
| 41     | Sirsi    | Bhairumbe      | Hulgola             | 1  | 0   |
| 42     | Sirsi    | Bhairumbe      | Arasapur            | 1  | 0   |
| 43     | Sirsi    | Devanalli      | Kallalli            | 1  | 0   |
| 44     | Sirsi    | Neggu          | Nadaguli            | 1  | 0   |
| 45     | Sirsi    | Bislakoppa     | Shivalli            | 1  | 0   |
| 46     | Sirsi    | Bandal         | Kurse               | 1  | 0   |
| 47     | Sirsi    | Kangod         | Ajjibal             | 1  | 0   |
| 48     | Sirsi    | Hutgar         | Hutgar              | 1  | 0   |
| 49     | Honnavar | Kadle          | Gangolli            | 1  | 0   |
| 50     | Honnavar | Karsarkod      | Nelavanki           | 2  | 0   |
| 51     | Honnavar | Kasarkod       | Kalasinamute        | 1  | 0   |
| 52     | Honnavar | Haladipur      | Haladipur           | 1  | 1   |
| 53     | Honnavar | Kelaginoor     | Gunavante           | 1  | 0   |
| 54     | Honnavar | Upponi         | Upponi              | 3  | 0   |
| 55     | Ankola   | Dongri         | Heggar              | 4  | 0   |





|     |          |             |              |     |   |
|-----|----------|-------------|--------------|-----|---|
| 56  | Ankola   | Dongri      | Dongri       | 4   | 0 |
| 57  | Ankola   | Dongri      | Konala       | 2   | 0 |
| 58  | Ankola   | Dongri      | Halavalli    | 3   | 0 |
| 59  | Ankola   | Aragoan     | Aragoan      | 2   | 0 |
| 60  | Ankola   | Aragoan     | Bailakeri    | 1   | 0 |
| 61  | Ankola   | Sagadageri  | Hilluru      | 1   | 0 |
| 62  | Ankola   | Sagadageri  | Udavare      | 2   | 0 |
| 63  | Ankola   | Belase      | Belase       | 2   | 0 |
| 64  | Ankola   | Bellambar   | Bellambar    | 3   | 0 |
| 65  | Ankola   | Hattikeri   | Sakalbena    | 2   | 0 |
| 66  | Ankola   | Hattikeri   | Hattikeri    | 1   | 0 |
| 67  | Ankola   | Sunksala    | Sunksala     | 5   | 0 |
| 68  | Ankola   | Mogata      | Mogata       | 2   | 0 |
| 69  | Ankola   | Achave      | Achave       | 2   | 0 |
| 70  | Ankola   | Hilluru     | Hilluru      | 1   | 0 |
| 71  | Ankola   | Hilluru     | Manikar      | 1   | 0 |
| 72  | Siddapur | Shiralagi   | Shiralagi    | 1   | 0 |
| 73  | Siddapur | Shiralagi   | Sampekeri    | 1   | 0 |
| 74  | Siddapur | Itagi       | Gunjagod     | 1   | 0 |
| 75  | Siddapur | Bedkani     | Bedkani      | 1   | 0 |
| 76  | Siddapur | Bedkani     | Tyarasi      | 1   | 0 |
| 77  | Siddapur | Harsikatta  | Hutgar       | 3   | 0 |
| 78  | Siddapur | Kansoor     | Giragadde    | 2   | 0 |
| 79  | Kumta    | Alakod      | Yana         | 1   | 0 |
| 80  | Kumta    | Alakod      | Alakod       | 1   | 0 |
| 81  | Kumta    | Alakod      | Hulsekoppa   | 1   | 0 |
| 82  | Kumta    | Alakod      | Kodamballi   | 1   | 0 |
| 83  | Kumta    | Alakod      | Uppinpattana | 2   | 0 |
| 84  | Kumta    | Alakod      | Hebbail      | 2   | 0 |
| 85  | Kumta    | Mirjan      | Yalavalli    | 1   | 0 |
| 86  | Kumta    | Mirjan      | Nilkod       | 1   | 0 |
| 87  | Kumta    | Mirjan      | Nagoor       | 8   | 0 |
| 88  | Kumta    | Mirjan      | Brahmmur     | 2   | 0 |
| 89  | Kumta    | Walgalli    | Walgalli     | 1   | 0 |
| 90  | Kumta    | Devagiri    | Harnir       | 1   | 0 |
| 91  | Kumta    | Santeguli   | Harvalli     | 3   | 0 |
| 92  | Kumta    | Heregutti   | Heregutti    | 4   | 0 |
| 93  | Kumta    | Bargi       | Bargi        | 2   | 0 |
| 94  | Kumta    | Hanehalli   | Hanehalli    | 1   | 0 |
| 95  | Kumta    | Kalbhaq     | Baggona      | 2   | 0 |
| 96  | Kumta    | Divagi      | Divagi       | 1   | 0 |
| 97  | Kumta    | Holanagadde | Holanagadde  | 1   | 0 |
| 98  | Kumta    | Kagal       | Kagal        | 1   | 0 |
| 99  | Mundgod  | Indoor      | Koppa        | 6   | 0 |
| 100 | Mundgod  | Malagi      | Kolagi       | 3   | 0 |
| 101 | Mundgod  | Malagi      | Bharatnalli  | 1   | 0 |
| 102 | Mundgod  | Bedsgaon    | Togargalli   | 5   | 0 |
| 103 | Mundgod  | Hungund     | Hungund      | 1   | 0 |
| 104 | Bhatkal  | Kaikini     | Kaikini      | 1   | 0 |
| 105 | Joida    | Aveda       | Aveda        | 1   | 0 |
| 106 | Joida    | Aveda       | Moulangi     | 2   | 0 |
| 107 | Haliyal  | Kesarolli   | Domagera     | 1   | 0 |
| 108 | Haliyal  | Janaga      | Bantargali   | 1   | 0 |
|     |          |             | Total        | 172 | 0 |

## Beneficiary-wise details

| Sl.No. | Taluk    | Gram Panchayat | Name of the Village | Name of the beneficiary      | Address and contact number |
|--------|----------|----------------|---------------------|------------------------------|----------------------------|
| 1      | 2        | 3              | 4                   | 5                            | 6                          |
| 1      | Yallapur | Dehalli        | Geral               | Vishweshwar Ramchandra Bhat  | Geral                      |
| 2      | Yallapur | Ummachagi      | Kangod              | Shripad Venkatraman Hegde    | Kangod                     |
| 3      | Yallapur | Hasangi        | Shiranal            | Chandrashekhar Subray Hegde  | Shiranal                   |
| 4      | Yallapur | Hasangi        | Alwada              | Prashant Narayan Hegde       | Alwada                     |
| 5      | Yallapur | Kundargi       | Bellambi            | Satish Kereswamy Goudar      | Bellambi                   |
| 6      | Yallapur | Angod          | Angod               | Gopalkrishna Nagappa Bhagwat | Angod                      |





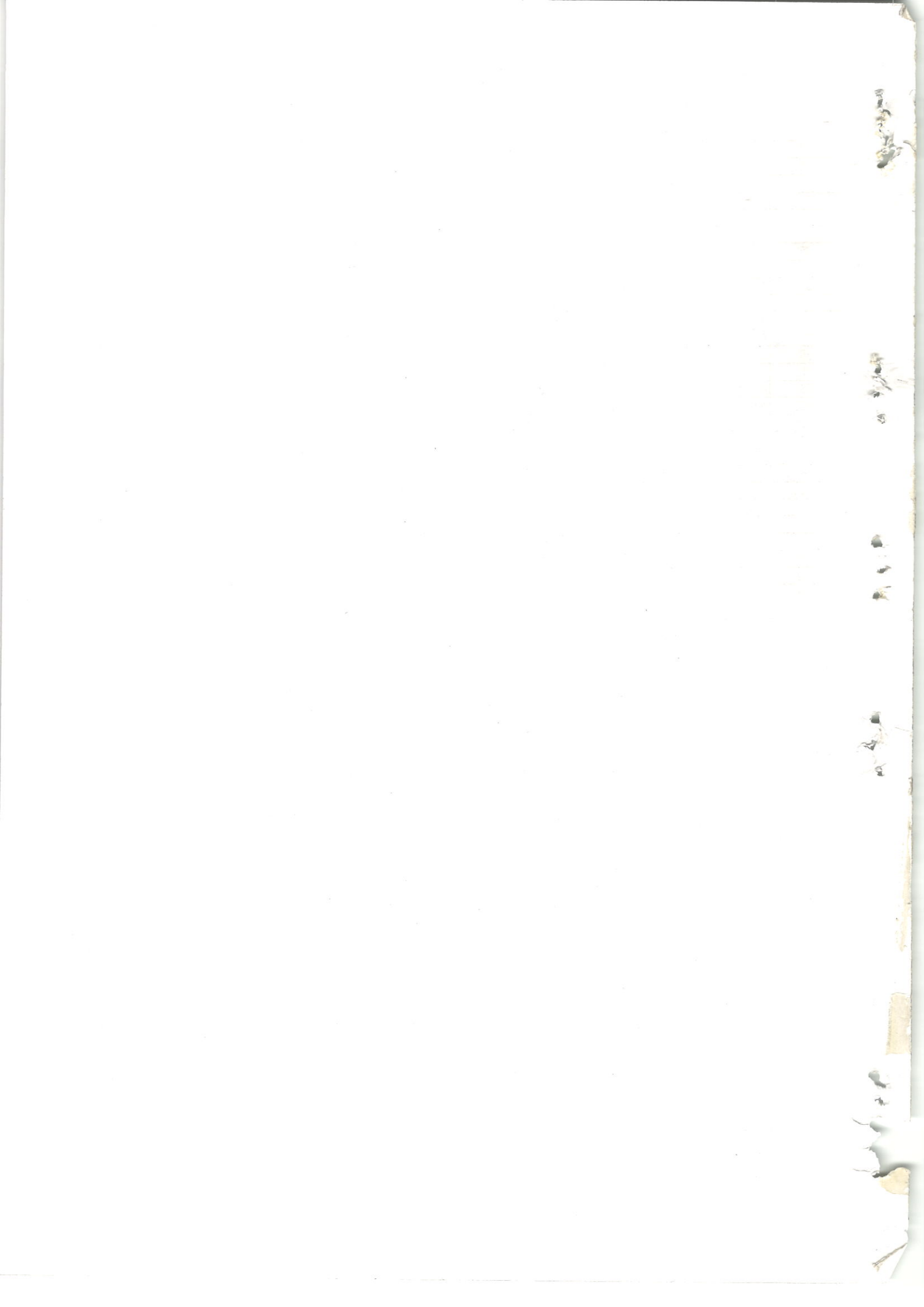
|    |          |            |              |                                     |              |
|----|----------|------------|--------------|-------------------------------------|--------------|
| 7  | Yallapur | Angod      | Gaveguli     | Ramchandra Subray Hegde             | Gaveguli     |
| 8  | Yallapur | Nandolli   | Malalgaon    | Ganapati Krishnappa Bhagwat         | Malalgaon    |
| 9  | Yallapur | Nandolli   | Shiravalli   | Raghavendra Ramakrishna Bhat        | Shiravalli   |
| 10 | Yallapur | Nandolli   | Nandolli     | Mahabaleshwar Nagesh Hegde          | Nandolli     |
| 11 | Yallapur | Hasangi    | Kokkar       | Muralidhar Subray Bhat              | Kokkar       |
| 12 | Yallapur | Hitlalli   | Ilegundi     | Ganapati Subray Hegde               | Ilegundi     |
| 13 | Yallapur | Ummachagi  | Kanenalli    | Gajanan Ganapati Bhat               | Kanenalli    |
| 14 | Yallapur | Angod      | Geral        | Mahabaleshwar Nagappa Bhagwat       | Geral        |
| 15 | Yallapur | Angod      | Geral        | Krishna Gopal Bhat, Shigepal        | Geral        |
| 16 | Yallapur | Angod      | Angod        | Suresh krishna Bhat                 | Angod        |
| 17 | Yallapur | Hitlalli   | Nandgar      | Venkatramana Ganapati Hegde,        | Nandgar      |
| 18 | Yallapur | Hitlalli   | Hitalli      | Narahari Ganapati Hegde,            | Hitalli      |
| 19 | Yallapur | Kundargi   | Bellambi     | Mallikarjun Jayashil Goudar,        | Bellambi     |
| 20 | Yallapur | Kundargi   | Hasalmane    | Yashodha Shripad Hegde,             | Hasalmane    |
| 21 | Yallapur | Kundargi   | Doddabena    | Chandrashekhhar Manjunath Shetty,   | Doddabena    |
| 22 | Yallapur | Nandolli   | Devargadde   | Subray Mabareshwar Hegde            | Devargadde   |
| 23 | Yallapur | Nandolli   | Kardipal     | Savitri Mabareshwar Bhat,           | Kardipal     |
| 24 | Yallapur | Hasangi    | Malagimane   | Krishna Ramachandra Hegde           | Malagimane   |
| 25 | Yallapur | Hasangi    | Keregadde    | Beptishta Franceis Maskaranas       | Keregadde    |
| 26 | Yallapur | Ummachagi  | Ummachagi    | Satish Narayan Hegde                | Ummachagi    |
| 27 | Yallapur | Ummachagi  | Sankadgundi  | Ganapati Jaya Patgar                | Sankadgundi  |
| 28 | Yallapur | Ummachagi  | Naleesar     | Dhananjaya Narayan Hegde            | Naleesar     |
| 29 | Yallapur | Manchikeri | Tumbebeedu   | Parameshwar Venkatramana Bhat       | Tumbebeedu   |
| 30 | Yallapur | Manchikeri | Nagarjetti   | Shankar Subbu Bandi                 | Nagarjetti   |
| 31 | Yallapur | Manchikeri | Kachekodlu   | Ramachandra Narayan Bhat            | Kachekodlu   |
| 32 | Yallapur | Hitlalli   | Nalisar      | Ganapati Vinayak Hegde              | Nalisar      |
| 33 | Yallapur | Hitlalli   | Bidralli     | Satyanarayan Ganapati Hegde         | Bidralli     |
| 34 | Yallapur | Hitlalli   | Bidralli     | Subray Gopal Hegde                  | Bidralli     |
| 35 | Yallapur | Manchikeri | Kampli       | Mahabaleshwar Sarveshwar Hegde      | Kampli       |
| 36 | Yallapur | Manchikeri | Balagal      | Subramanya Mahabaleshwar Bhat       | Balagal      |
| 37 | Yallapur | Ummachagi  | Bhandimane   | Timmappa Gopalkrishna Hegde         | Bhandimane   |
| 38 | Yallapur | Ummachagi  | Soorimane    | Ramchandra Mahabaleshwar Bhat       | Soorimane    |
| 39 | Yallapur | Kannigeri  | Lalaguli     | Krishna Nagesh Gaonkar              | Lalaguli     |
| 40 | Yallapur | Nandolli   | Nandolli     | Vishweshwar Ganapati Bhat           | Nandolli     |
| 41 | Yallapur | Angod      | Angod        | Ramchandra Mahabaleshwar Gaonkar    | Angod        |
| 42 | Sirsi    | Yadalli    | Yadalli      | M.R. Hegde                          | Yadalli      |
| 43 | Sirsi    | Isaloor    | Isaloor      | Narayan Devaru Hegde                | Isaloor      |
| 44 | Sirsi    | Hulekal    | Sonda        | Shri Bhattakalanka Swamy, Jain math | Sonda        |
| 45 | Sirsi    | Yadalli    | Yadalli      | Mahabaleshwar Ramchandra Hegde      | Yadalli      |
| 46 | Sirsi    | Bhairumbe  | Gundigadde   | Ramesh Ramchandra Hegde             | Gundigadde   |
| 47 | Sirsi    | Hulekal    | Kodigar      | Gajanan Putta Naik                  | Kodigar      |
| 48 | Sirsi    | Devanalli  | Kallalli     | Chidambar Govind Hegde              | Kallalli     |
| 49 | Sirsi    | Neggu      | Nadagulli    | Vinayak Venkatramana Bhat           | Nadagulli    |
| 50 | Sirsi    | Bhairumbe  | Arasapur     | Subray Ramachandra Hegde            | Arasapur     |
| 51 | Sirsi    | Bhairumbe  | Hulagola     | Manjunath Parameshwar Hegde         | Hulagola     |
| 52 | Sirsi    | Hulekal    | Kodigar      | Gurupad Ramachandra Joshi           | Kodigar      |
| 53 | Sirsi    | Bislakoppa | Shivalli     | Soma Mava Marla Devadiga            | Shivalli     |
| 54 | Sirsi    | Bandal     | Kurse        | Seetaram Venkatramana Hegde         | Kurse        |
| 55 | Sirsi    | Kangod     | Ajiballa     | Gurupad Gajanan Hegde               | Ajiballa     |
| 56 | Sirsi    | Hutgar     | Hutgar       | Manjunath Venkatramana Hegde        | Hutgar       |
| 57 | Honnavar | Kadle      | Gangolli     | Devu Nagu Gouda                     | Gangolli     |
| 58 | Honnavar | Kasarkod   | Nelavanki    | Manju Jattu Gouda                   | Nelavanki    |
| 59 | Honnavar | Jalavalli  | Alawalli     | Keshav Timmanna Gouda               | Alawalli     |
| 60 | Honnavar | Haladipur  | Haladipur    | Sri Sanstan Krishnashrama Math      | Haladipur    |
| 61 | Honnavar | Upponi     | Upponi       | Gopal Timmanna Bhagwat              | Upponi       |
| 62 | Honnavar | Upponi     | Upponi       | Subrahmanya Timmanna Hegde          | Upponi       |
| 63 | Honnavar | Upponi     | Upponi       | Ramachandra B. Ambig                | Upponi       |
| 64 | Honnavar | Kelaginoor | Gunavante    | Ganapi Narayan Gouda                | Gunavante    |
| 65 | Honnavar | Kasarkod   | Kalasin Mote | Vasanth Mahabaleshwar Naik,         | Kalasin Mote |
| 66 | Ankola   | Dongri     | Heggar       | Ramchandra Ramkrishna Bhat          | Heggar       |
| 67 | Ankola   | Dongri     | Heggar       | Narasinha Narayan Bhagwat           | Heggar       |
| 68 | Ankola   | Dongri     | Heggar       | Ananth Tammayya Bhat                | Heggar       |
| 69 | Ankola   | Dongri     | Heggar       | Ganapati Narayan Bhat               | Heggar       |
| 70 | Ankola   | Agragon    | Agragon      | Babu Narayan Gouda,                 | Agragon      |
| 71 | Ankola   | Agragon    | Bailkeri     | Suresh Shankar Gouda                | Bailkeri     |
| 72 | Ankola   | Sagadageri | Hilluru      | Meenakshi Timmanna Naik             | Hilluru      |





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| 73  | Ankola   | Belase     | Belase      | Beeranna B Naik                     | Belase      |
| 74  | Ankola   | Belase     | Belase      | Bebi B. Naik                        | Belase      |
| 75  | Ankola   | Belambar   | Belambar    | Kalpna Bommayya Naik                | Belambar    |
| 76  | Ankola   | Belambar   | Belambar    | Thaku Nagu Gouda                    | Belambar    |
| 77  | Ankola   | Belambar   | Belambar    | Lakshmi Budhu Gouda                 | Belambar    |
| 78  | Ankola   | Hattikeri  | Sakalbene   | Padma Digambar Naik                 | Sakalbene   |
| 79  | Ankola   | Hattikeri  | Hattikeri   | Ashvini Naik                        | Hattikeri   |
| 80  | Ankola   | Hattikeri  | Sakalbene   | Krishna Shivaram Naik               | Sakalbene   |
| 81  | Ankola   | Dongri     | Dongri      | Krishna Masti Naik                  | Dongri      |
| 82  | Ankola   | Dongri     | Konale      | Ramchandra V. Bhat                  | Konale      |
| 83  | Ankola   | Dongri     | Halavalli   | Ullas Vithal Naik                   | Halavalli   |
| 84  | Ankola   | Dongri     | Halavalli   | Devendra Nagappa Naik               | Halavalli   |
| 85  | Ankola   | Dongri     | Dongri      | Ranjani Naik                        | Dongri      |
| 86  | Ankola   | Dongri     | Dongri      | Shridevi Jatta Patagar              | Dongri      |
| 87  | Ankola   | Dongri     | Halavalli   | Dakshayani Shankar Patagar          | Halavalli   |
| 88  | Ankola   | Sunkasala  | Sunkasal    | Sharavati Hegde                     | Sunkasal    |
| 89  | Ankola   | Sunkasala  | Sunkasal    | Krishnabai D. Naik                  | Sunkasal    |
| 90  | Ankola   | Sunkasala  | Sunkasal    | Malati M. Mayankar                  | Sunkasal    |
| 91  | Ankola   | Sunkasala  | Sunkasal    | Sujata D. Naik                      | Sunkasal    |
| 92  | Ankola   | Sunkasala  | Sunkasal    | Deepa S. Hegde                      | Sunkasal    |
| 93  | Ankola   | Mogata     | Mogata      | Raju R. Naik                        | Mogata      |
| 94  | Ankola   | Mogata     | Mogata      | Lakshmi Gajanan Achari              | Mogata      |
| 95  | Ankola   | Achve      | Achave      | Devamma Uday Gaonkar                | Achave      |
| 96  | Ankola   | Achve      | Achave      | Sheela Rajiv Gaonkar                | Achave      |
| 97  | Ankola   | Hilluru    | Hilluru     | Geeta Rohidas Naik                  | Hilluru     |
| 98  | Ankola   | Hilluru    | Manikar     | Mahesh Ganapati Patagar             | Manikar     |
| 99  | Ankola   | Sagadageri | Udavare     | Sudheer Satya Naik                  | Udavare     |
| 100 | Ankola   | Sagadageri | Udavare     | Sadanand S. Naik                    | Udavare     |
| 101 | Ankola   | Dongri     | Konala      | Raghavendra P. Patagar              | Konala      |
| 102 | Ankola   | Agragon    | Agragon     | Ramachandra Venku Gouda             | Agragon     |
| 103 | Ankola   | Dongri     | Dongri      | Parameshwar Nagappa Patgar          | Dongri      |
| 104 | Siddapur | Shiralagi  | Shiralagi   | Ganapati Narayan Bhandari           | Shiralagi   |
| 105 | Siddapur | Shiralagi  | Sampekeri   | Ramchandra Ira Naik                 | Sampekeri   |
| 106 | Siddapur | Itagi      | Gunjgod     | Kavita Ashok Rao, Dombekai,         | Gunjgod     |
| 107 | Siddapur | Bedkani    | Bedakani    | Gangadhar Shiva Naik,               | Bedakani    |
| 108 | Siddapur | Kansoor    | Girgadde    | Vishwanath Lakshminarayan Hegde     | Girgadde    |
| 109 | Siddapur | Bedkani    | Tyarasi     | Gurupad Paramayya Hegde             | Tyarasi     |
| 110 | Siddapur | Harsikatta | Hutgar      | Beera Shivu Gouda                   | Hutgar      |
| 111 | Siddapur | Harsikatta | Hutgar      | Keriya Narayan Gouda                | Hutgar      |
| 112 | Siddapur | Harsikatta | Hutgar      | Narayan Kalli Gouda                 | Hutgar      |
| 113 | Siddapur | Kanasoor   | Girgadde    | Mahabaleshwar Shankar Narayan Hegde | Girgadde    |
| 114 | Kumta    | Alkod      | Yana        | Bhaskar Ishwar Bhat                 | Yana        |
| 115 | Kumta    | Alkod      | Alakod      | Mahadev Manjunath Gaonkar           | Alakod      |
| 116 | Kumta    | Mirjan     | Yalavalli   | Balakrishna Vasudev Madival         | Yalavalli   |
| 117 | Kumta    | Mirjan     | Neelkod     | Kamalakar R. Hegde, Yalavalli       | Neelkod     |
| 118 | Kumta    | Valagalli  | Valagalli   | Shankar Mahabaleshwar Hegde         | Valagalli   |
| 119 | Kumta    | Devqiri    | Haraneer    | Manjunath S. Naik                   | Haraneer    |
| 120 | Kumta    | Santeguli  | Haravalli   | Ganapati Vasudev Deshbandari        | Haravalli   |
| 121 | Kumta    | Santeguli  | Haravalli   | Gange Beera Gouda                   | Haravalli   |
| 122 | Kumta    | Santeguli  | Haravalli   | Vishnu Jetti Deshabandari           | Haravalli   |
| 123 | Kumta    | Alakod     | Hulasekoppa | Mohan Govind Naik,                  | Hulasekoppa |
| 124 | Kumta    | Alakod     | Kodamballi  | Ganesh Devendra Shetty,             | Kodamballi  |
| 125 | Kumta    | Hiregutti  | Hiregutti   | Usha S. Patagar,                    | Hiregutti   |
| 126 | Kumta    | Hiregutti  | Hiregutti   | Nagesh V. Prabhu,                   | Hiregutti   |
| 127 | Kumta    | Hiregutti  | Hiregutti   | Gulabi S. Naik,                     | Hiregutti   |
| 128 | Kumta    | Hiregutti  | Hiregutti   | Mahadevi Patagar,                   | Hiregutti   |
| 129 | Kumta    | Mirjan     | Nagooru     | Veena Santosh Naik,                 | Nagooru     |
| 130 | Kumta    | Mirjan     | Nagooru     | Lalita Nagappa Mirjan,              | Nagooru     |
| 131 | Kumta    | Mirjan     | Nagooru     | Ananth Bappa Patagar,               | Nagooru     |
| 132 | Kumta    | Mirjan     | Nagooru     | Manjunath Umesh Madival,            | Nagooru     |
| 133 | Kumta    | Mirjan     | Nagooru     | Dileep Sudharkar Madival,           | Nagooru     |
| 134 | Kumta    | Mirjan     | Nagooru     | Shrikanth Ramachandra Madival,      | Nagooru     |
| 135 | Kumta    | Mirjan     | Brahmooru   | Krishnamoorti Dayanand Madival,     | Brahmooru   |
| 136 | Kumta    | Mirjan     | Nagooru     | Nagamma Baleendra Naik              | Nagooru     |
| 137 | Kumta    | Mirjan     | Bhrahmooru  | Nagaraj H. Madival                  | Bhrahmooru  |
| 138 | Kumta    | Bargi      | Bargi       | Jyoti Sooryanarayan Pandit          | Bargi       |





|     |         |             |              |                                     |              |
|-----|---------|-------------|--------------|-------------------------------------|--------------|
| 139 | Kumta   | Bargi       | Bargi        | Jayashree Mohan Naik                | Bargi        |
| 140 | Kumta   | Hanehalli   | Hanehalli    | Lata Keshav Naik                    | Hanehalli    |
| 141 | Kumta   | Kalabhag    | Baggona      | Manjunath Devu Gouda                | Baggona      |
| 142 | Kumta   | Divagi      | Divagi       | Devi Krishna Gouda                  | Divagi       |
| 143 | Kumta   | Alakod      | Uppinapottan | Jayalakshmi Gopal Bhat              | Uppinapottan |
| 144 | Kumta   | Alakod      | Uppinapottan | Vasanth Nagesh Deshbandari          | Uppinapottan |
| 145 | Kumta   | Alakod      | Hebail       | Bhavani Shankar Naik                | Hebail       |
| 146 | Kumta   | Alakod      | Hebail       | Vinod Habbu Naik                    | Hebail       |
| 147 | Kumta   | Mirjan      | Nagooru      | Yamuna Chandra Hegde                | Nagooru      |
| 148 | Kumta   | Kalabhag    | Baggona      | Satish Hanumanth Patgar             | Baggona      |
| 149 | Kumta   | Holanagadde | Holanagadde  | Janaki Ganapati Naik                | Holanagadde  |
| 150 | Kumta   | Kagal       | Kagal        | Lata Vishnu Naik                    | Kagal        |
| 151 | Mundgod | Indooru     | Koppa        | Mailari Sambanna Narasoji           | Koppa        |
| 152 | Mundgod | Indooru     | Koppa        | Saralabai Hanumantappa Tokoji       | Koppa        |
| 153 | Mundgod | Indooru     | Koppa        | Ganesh Grajappa Kantappanavar       | Koppa        |
| 154 | Mundgod | Indooru     | Koppa        | Kastoori Rama Nemannanavar          | Koppa        |
| 155 | Mundgod | Indooru     | Koppa        | Shankamma Manjunath Kattimani       | Koppa        |
| 156 | Mundgod | Indooru     | Koppa        | Neelavva Hanmantappa Hakari         | Koppa        |
| 157 | Mundgod | Malagi      | Kolagi       | Sanmukha Gouda Somangouda Patil     | Kolagi       |
| 158 | Mundgod | Malagi      | Kolagi       | Chidanand Subhash Patil             | Kolagi       |
| 159 | Mundgod | Bedasgaon   | Togaralli    | Yamuna Gangadhar Naik               | Togaralli    |
| 160 | Mundgod | Bedasgaon   | Togaralli    | Ramachandra Kuppa Naik              | Togaralli    |
| 161 | Mundgod | Bedasgaon   | Togaralli    | Anusooya Narasinha Hegde            | Togaralli    |
| 162 | Mundgod | Bedasgaon   | Togaralli    | Ratnabai Satrijaya Mesta            | Togaralli    |
| 163 | Mundgod | Hungund     | Hunagund     | Basavaraj Irappa Muddegouda         | Hunagund     |
| 164 | Mundgod | Bedasgaon   | Togaralli    | Ningappa Hanumanth Naik             | Togaralli    |
| 165 | Mundgod | Malagi      | Bharatanalli | Smt. Roopa Veerupaksha Bharatanalli | Bharatanalli |
| 166 | Mundgod | Malagi      | Kolagi       | Vinaya Subhashgouda Patil           | Kolagi       |
| 167 | Bhatkal | Kaikini     | Kaikini      | Vishnu Hadiyappa Naik               | Kaikini      |
| 168 | Joida   | Aveda       | Mavalangi    | Shanta Adivappa Kalakundri          | Mavalangi    |
| 169 | Joida   | Aveda       | Aveda        | Uday Subrav Chandagadkar            | Aveda        |
| 170 | Joida   | Aveda       | Mavalangi    | Shakuntala Lakshman Kalkundri       | Mavalangi    |
| 171 | Haliyal | Kesarolli   | Domagera     | Krishna Demanna Kambrekar,          | Domagera     |
| 172 | Haliyal | Janaga      | Bantargali   | Subray Appayya Shindhe,             | Bantargali   |