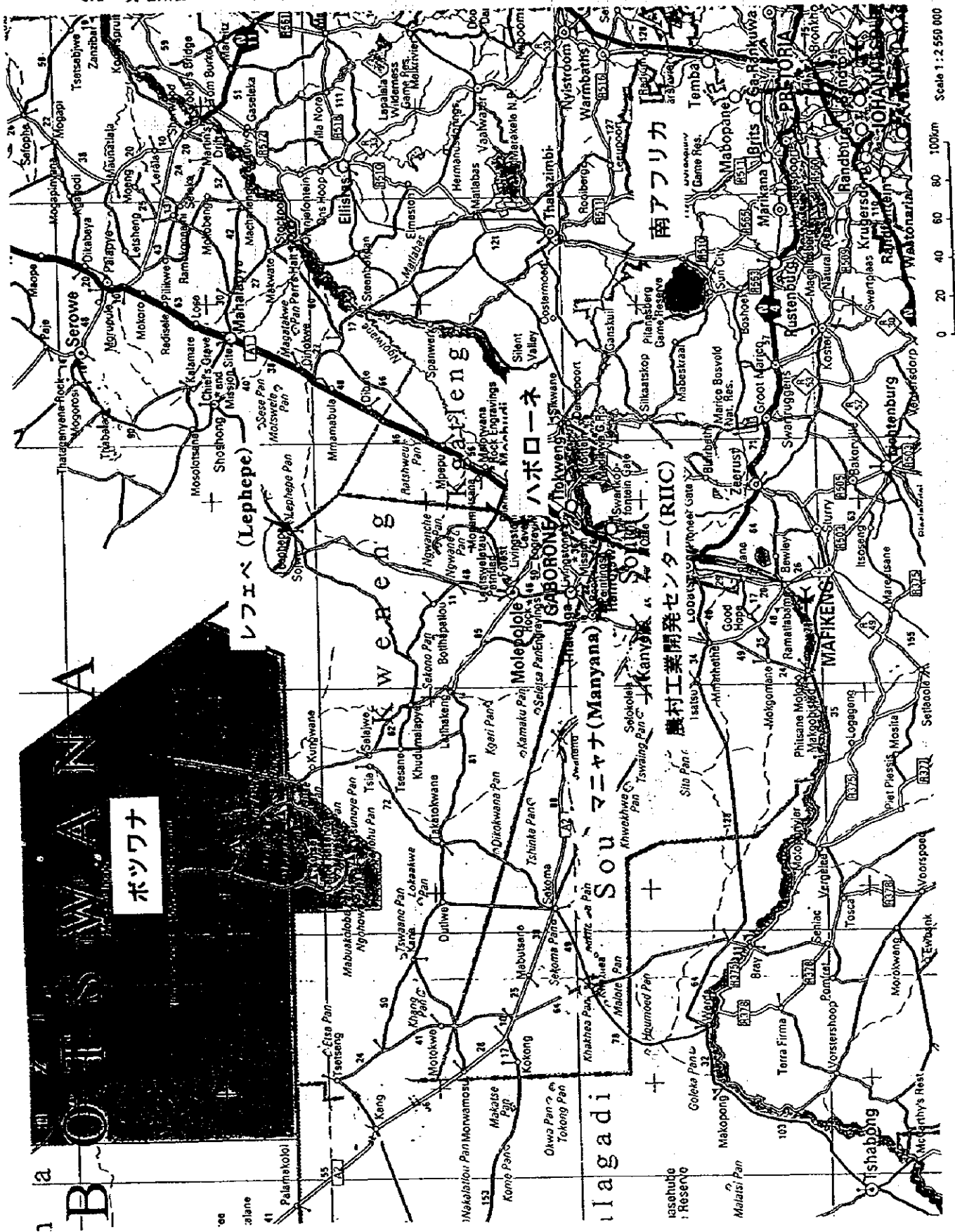


第6章 現地踏査

6.1 現地踏査したサイト位置図



## 6.2 マニャナ (Manyana) パイロットプロジェクト現地調査

マニャナ村は人口 2511 人、住宅戸数 431 軒で、首都ハボローネから約 50km に位置している。鉱物資源水資源省はマニャナ村において、1992 年に 42 戸の住宅、7 基の街路灯、クリニックの照明及びワクチン冷蔵庫用の合計 50 基の太陽光発電装置と 6 台の太陽熱温水器を導入した太陽光発電パイロットプロジェクトを実施した。これらの太陽光発電装置等は現在も順調に利用されている。今回の現地踏査では太陽光発電装置を設置している村長の自宅、小規模な住宅及びクリニックの 3 箇所を訪問した。

村長の自宅は近代的な住宅であり、20W のパネル 3 枚設置し、照明、ステレオ、テレビの電源として利用していた。冷蔵庫は LPG をエネルギー源として利用していた。

小規模な住宅は 20W のパネル 1 枚を伝統的な住居の室内照明に利用していた。

クリニックでは太陽光発電の電力は手術用の照明、室内照明に利用しているが、ワクチン冷蔵庫は故障しており利用されていなかった。バッテリーボックスは室外に設置されているが非常に良く管理されていた。パネルの前面に木が茂っており一部日照を遮っているようであった。新築のクリニック建物はボツワナ電力公社がパイロットプロジェクトのあとに引いた連系線から電力を引き込んで利用していた。

村の街路灯は一部は現在も使われているが電灯が破損して利用されていないものも見られた。

太陽光発電パイロットプロジェクト実施後にボツワナ電力公社が近隣に予定されている鉱山開発に電力を供給するため送電線を引き系統からの電力も利用可能になっているが、系統からの電力を利用している 6 戸のみである。

### 6.3 未電化農村レフェベ村(Lephepe)現地調査

レフェベ村は首都ハボローネから車で約3時間に位置する無電化村である。1991年の国勢調査によると居住住宅数は108戸、人口513人の村である。水供給は村落からやや離れた場所にある地下水汲み上げ井戸（モノポンプにディーゼル発電機）から村落内の給水塔に送られ、そこから集落内に設置された水道蛇口（stand pipes）に供給されている。主要な公共施設としては小学校とヘルスセンターが設けられている。商業施設としては、食料品（飲料や野菜等）屋とレストラン兼バーがある。

太陽光発電装置導入の可能性を調査するため、同村において、一般世帯2軒、レストラン1軒、ヘルスセンターで4人に対して面接調査を実施した。調査は質問票に基づき鉱物水資源エネルギー省の計画統計官によってセツワナ語で行われた。

調査の結果、すべての調査対象者が太陽光発電装置に比較的高い関心を持っていることが判明した。4人のうち3名は太陽光発電装置という製品についてほぼ正しい理解を有しており、残りの1名に関しても当方の説明に対して是非使ってみたいと回答した。サンプル数はすくないものの、この村においてはかなりの世帯が太陽光発電装置の設置を希望し、かつ、必要なコストを負担できるように思われた。

クリニックでは50W程度の太陽光発電を電源とした照明システム（6灯）と無線機が設置されていたが、容量が十分でないため夜間の診療ではあまり役に立たないとの回答を得た。クリニックの諸設備、バッテリー等の太陽光発電設備の管理は行き届いているとの印象を得た。なお、太陽熱温水器も屋根に設置されていたがカルシウムのスケール付着のため現在は利用していないとのことであった。

各面接調査結果は次の通りである。

表 6-1 面接調査結果

|                      | 一般世帯 A                       | 一般世帯 B                           | レストラン                     | クリニック                          |
|----------------------|------------------------------|----------------------------------|---------------------------|--------------------------------|
| 回答者                  | 主婦                           | 村長                               | 主婦                        | 女医                             |
| 一般状況 (価格)            |                              |                                  |                           |                                |
| 100WのPV装置            | 不知                           | 不知                               | 不知                        | -----                          |
| 50Ahカーバッテリー          | 不知                           | 140 プラ                           | 95 プラ                     | -----                          |
| 換金穀物                 | 75 プラ/50kg ソルガム              | 75 プラ/50kg ソルガム<br>(地元で売却の場合)    | 70 プラ/50kg ソルガム           |                                |
| 牛1頭 (中形)             | 950 プラ                       | 平均700 プラ                         | -----                     |                                |
| ケロシン                 | 2 プラ/時間当たり                   | 10.90 プラ/10l                     | 8.75 プラ/5l                | 25 プラ/20l                      |
| まき                   | 自家収集                         | なし                               | 自家収集                      |                                |
| LPG                  | 7 プラ/3kg                     | 120 プラ/48kg                      | 60 プラ/19kg                | 140 プラ/48kg                    |
| 個人データ                |                              |                                  |                           |                                |
| 家族人数                 | 4                            | 7                                | 7                         |                                |
| うち大人                 | 2                            | 2                                | 2                         |                                |
| うち子供                 | 2                            | 5                                | 5                         |                                |
| うち就業者数               | 1                            | 1                                | 1                         |                                |
| 家長の職業                | 大工 (自営)                      | 村長                               | 一般小売店経営                   |                                |
| 農耕地面積                | 他の農家の手伝い                     | 5 エーカー                           | なし                        |                                |
| 主要換金作物               | ソルガム、メイズ                     | ソルガム、メイズ                         | なし                        |                                |
| 牛の飼育頭数               | 約40頭                         | 10頭                              | 不知                        |                                |
| 現金収入                 | 800 プラ/月                     | 2.8 プラ/月                         | 500 プラ/週                  |                                |
| 貯蓄残高/貯蓄先             | 不知                           | なし                               | 不知                        |                                |
| まきの消費量               | 中形スコッチカート<br>1台/月            | 四輪駆動車<br>1台分/2週間                 | 四輪駆動車<br>2台/週             | 四輪駆動車<br>2台/月                  |
| ケロシン消費量              | 1リットル/2週間                    | 10リットル/3週間                       | 5リットル/週                   | 20リットル/2月                      |
| miliemillの消費量        | 12.5kg/2週間                   | -----                            | 12.5kg/月                  |                                |
| 牛の年間売却頭数             | 2頭                           | 平均8頭                             | 年1回売却                     |                                |
| 最も高価な所持品             | ラジオ (800 プラ)                 | 四輪駆動車、<br>ガストープ                  | 家、車                       |                                |
| 3万プラを手にした場合の用途       | 家を建て、家具をそろえる。牛を買う。           | 家を建てる。牛を買う                       | 家を建て、家具をそろえる。             |                                |
| 特定データ                |                              |                                  |                           |                                |
| 現在の生活における3つの主要問題点    | 家を建てる資金の不足<br>食品、衣類の購入資金不足   | 電気がないこと。<br>電話がないこと<br>道路条件が悪いこと | 家まで水道が来ていないこと。<br>電気がないこと | 設備/家具の不足<br>制服がないこと<br>道路が悪いこと |
| その原因は何か              | 生活水準が低く収入の道が限られていること         | ポツワナ電力公社に申し込んでいるが時間が係ること         | 電力系統まで遠いこと                |                                |
| 電化した場合に使いたい家電製品      | テレビ                          | テレビ                              | テレビ、アイロン、ラジオ              | オートクレーブ<br>より多くの電灯             |
| PVを使っている家を知っているか     | 2箇所知っている                     | クリニック                            | 不知                        | クリニック                          |
| 電気を使っている家は満足していると思うか | YES                          | 不知                               | 不知                        |                                |
| PVを購入していない理由         | 家を建てるのが優先課題であるため             | 使い方等の十分な説明を待っている。                | 資金がないこと                   |                                |
| PVの価格を知っているか         | 不知                           | 不知                               | 不知                        |                                |
| 2灯PVを購入する場合の支払い可能金額  | 頭金: 1千~2千プラ<br>毎月支払い: 100 プラ | 1000 プラ/月                        | 100 プラ/月                  |                                |
| PVを買う予定              | なし                           | あり                               | あり                        |                                |

1 プラ=31.4 円 (1998年7月現在)

#### 6.4 農村工業開発センター(RIIC)見学調査

農村工業開発公社は農村部の生活水準の向上を目的に 1974 年に設立され、1984 年までは Friedrich Ebert Foundation からの資金援助で運営されていたが、その後は主に政府資金で運営されている政府関係機関である。

農村工業開発センター(RIIC)はその中核機関で、ハポローネから 80km のカニに立地している。同センターの主要な目的は農村部の生活向上のための技術開発、技術移転、職業訓練、現金収入を増加させるための起業の促進である。このため、各種農機具の開発、製造施設をはじめ、調理実習施設、染色教室、皮革製品製造研修施設、木工施設、鋳造等金属加工施設等の各種施設が広い敷地内に設置されている。

再生可能エネルギーの開発についても、太陽熱温水器、太陽熱調理器、太陽エネルギーを利用した脱塩装置、風力ポンプ、風力発電、バイオガス等の技術開発に取り組んでいる。そのなかでも特に太陽エネルギーの利用促進に重点的に取り組んでおり、全国農村太陽光発電電化プログラムを推進している。

RIIC の職員はカニに 209 人、地方の 2 つの事務所に 3 人おり、職種別には 15 人のエンジニア、約 50 人のテクニシャンを有している。

同センター内には研修者のための宿泊施設、レストランも設けられている。

## Questionnaire for the rural households

**CONFIDENTIAL**

### 1. Data on general situation

| Items                                  | Answers |
|--|---------|
| 1. Price of a 100W PV system           |         |
| 2. Price of a 50Ah car battery         |         |
| 3. Price of one bag of cash crop       |         |
| 4. Price of a cattle (medium size)     |         |
| 5. Unit price of kerosene (one litter) |         |
| 6. Unit price of firewood              |         |
| 7. Unit price of LPG                   |         |

### 2. Personal Data

| Items   | Answers                |
|---|------------------------|
| 1. Name of district   |                        |
| 2. Name of village  |                        |
| 3. Name   |                        |
| 4. Number of family members   | (adult)                |
|   | (student and children) |
| 5. Number of working members  |                        |
| 6. Profession of house head   |                        |
| 7. Area of farming field  | (acre)                 |
| 8. Main cash crop produced  |                        |
| 9. Number of cattle   |                        |
| 10. Annual income   |                        |
| 11. Amount of total savings   |                        |
| 12. Where do you save (Bank, Cooperative)                           |                        |
| 13. Consumption of firewood per week                                |                        |
| 14. Consumption of kerosene per week                                |                        |
| 15. Consumption of miliemill per week                               |                        |
| 16. Number of cattle sold yearly ?                                  |                        |
| 17. What is the most expensive property ?                           |                        |
| 18. For what do you want to spend if you have 30,000 Pura in hand ? |                        |

**3. Specific Data**

| Items   | Answers        |
|---|----------------|
| 1. Please tell us major 3 problems which you are encountering in your life ?                      | a)<br>b)<br>c) |
| 2. What is the most serious problem in your life ?  |                |
| 3. What is the main obstacle to solving the above problem ?                                       |                |
| 4. Electrified or Unelectrified ?   |                |
| 5. Distance from the nearest grid ?   |                |
| 6. What kind of electric appliances do you want to buy, if you can use electricity ?              |                |
| 7. Do you know anybody using PV system ?  |                |
| 8. How many households are using PV in your village ?   |                |
| 9. Do you think they are satisfied with PV system ?   |                |
| 10. The reason why you have not bought PV system.   |                |
| 11. Do you know the price of PV system ?<br>And how much ?  |                |
| 12. Do you think the price of PV is affordable ?  | Yes - No       |
| 13. How much monthly installment is acceptable for you, if you buy 2 lights PV system by credit ? |                |
| 14. Are you planning to have PV system in the future ?  | Yes - No       |
| [Comment on the respondent or the other specific information]                                     |                |





# 添 付 資 料



資料1. 署名した M/M

AIDE MEMOIRE  
FOR  
THE PROJECT FORMATION STUDY  
ON  
THE PHOTOVOLTAIC RURAL ELECTRIFICATION  
IN  
THE REPUBLIC OF BOTSWANA

Gaborone, 29 July 1998



The Project Formation Study Team for Photovoltaic (hereinafter referred to as "PV") Rural Electrification in the Republic of Botswana dispatched by the Japan International Cooperation Agency (hereinafter referred to as "the JICA Study Team") had a series of discussions on the above-mentioned Study in Gaborone with the officials of the Energy Affairs Division, Ministry of Minerals, Energy and Water Affairs (hereinafter referred to as "MMEWA-EAD"), other relevant officials of the Government of Botswana and Stakeholders from July 22 to 28, 1998. Discussions were conducted in a friendly and cordial atmosphere and both sides agreed to record the following points as summarized conclusions of the discussions;

## **1. Present Situation on PV Electrification**

### **1.1 Present Situation on Energy Sector**

58% of the total primary energy supply depends on fuelwood. It is followed by coal at 23.1%, and petroleum at 18.5% in 1994. Fuelwood is mainly consumed in the residential sector, especially in rural areas. The industry, commerce, transport and agriculture sub-sector consumed more than 85% of non-fuelwood energy.

Net electricity supply in 1996/1997 is 1,538 GWh, 53% of which are imported from Zimbabwe and South Africa. Generation capacity of Coal thermal power station and Diesel power plants is 152MW, and other 80MW depends on import. Electrification rate is remaining at low levels (24% urban, 3% rural) because of the high cost of the connection fee and the limited electricity grid. Botswana Power Corporation (BPC) continues to provide electric power through extension of electricity grid into rural areas. 45 villages out of 450 off-grid villages were electrified during National Development Plan 7 (1991/1992~1996/1997) and another 150 villages are expected to be electrified during National Development Plan 8 (1997/8-2002/03).

### **1.2 Policy and Progress on PV Electrification**

Solar energy is the only potential renewable energy in Botswana. In order to promote PV electrification, the Government of Botswana has already conducted some pilot projects and feasibility studies on PV electrification.

Botswana Technology Center (BTC) was involved in the Village A Reading Room Project utilizing PV systems in Kgatleng District, 1984. Ministry of Mineral Resources and Water Affairs implemented the Manyana Pilot Project in 1992. In Motshegaletau which is located 40km from Serowe, BPC and BTC are conducting a pilot project to assess the feasibility of PV power stations. In Khakhea which is located about 80km from Jwaneng, BPC is preparing to start a home PV system pilot project. On the other hand, BTC developed a Code of Practice for PV installation in 1992 which is currently being developed into the National Standard in collaboration with Botswana Bureau of Standards. BTC also continues to do research and development on PV systems. Rural Industries Innovation Center (RIIC) has started the implementation of the National PV Rural Electrification Program on behalf of the government. The program provides a 4 years loan at prime interest rate to people who want to install PV systems. To date, 120 PV systems have been installed.

Some rural and urban councils have installed PV systems in council houses, health posts, clinics, school reading rooms etc. Those PV systems are maintained by in-house artisans and technicians and some of the systems have technical problems because of lack of trained maintenance people. Ministry of Minerals, Energy and Water Affairs completed the study to assess new and

renewable sources of energy training in technical schools in Botswana October 1997.

## **2. Importance of PV Rural Electrification Master Plan**

The electrification rate of Botswana is currently low at 25% for the whole country, 24% for the urban population and only 3% for the rural population. One of the main reasons is that since Botswana has a lot of small, sparsely populated rural villages and low income rural population, much of the country cannot economically be provided with electricity from the grid. Therefore there is a strong advantage for the country to use renewable energy resources to provide power in rural areas where grid connection is uneconomic.

Botswana is endowed with abundant sunshine. Solar energy is the most viable renewable energy resource in the country while wind and hydro resource are limited. In recent years the PV technology has played an important role for rural electrification, especially for remote small load applications in the country. The NDP 8 states that one of the specific objectives for the Plan on renewable energy is to promote increased use of PV electrification in an orderly way with adequate coordination, institutional support, financing and technical standards. This policy is also supported by the recently completed Botswana Energy Master Plan, and the importance of PV rural electrification is in a resolute position of the energy policy of the country.

The Government of Botswana has implemented various activities for PV applications such as the Manyana Pilot Project, a feasibility study for the three villages, the initiation of the National PV Rural Electrification Program. But there is no coordinated and comprehensive nation wide development strategy of PV rural electrification including a geographical strategy, institutional relationships and responsibilities, and so on. A clear need has been identified to develop a PV Rural Electrification Master Plan which proposes and justifies the above-mentioned strategy.

## **3. Possibility of PV Rural Electrification Master Plan Study**

JICA Study Team explained the outline of the Development Study Program and discussed with EAD the possibility of cooperation under the Program. As the result of discussions both sides have realized that the following contents and framework of the Study is appropriate enough to meet the needs of Botswana for the promotion of PV rural electrification.

### **3.1 Objective of the Study**

The Objective of the study is to formulate a Master Plan on Photovoltaic Rural Electrification which is focusing to geographical PV deployment strategy, PV technology improvement, effective institutional structure and sustainable management system for further dissemination of PV systems in the rural area.

### **3.2 Counterpart Organization**

The counterpart organization of the JICA Study Team is Energy Affairs Division of Ministry of Minerals, Energy and Water Affairs (MMEWA-EAD). Upon considering the nature of the Study, MMEWA-EAD is responsible for coordinating the concerned organizations in order to implement the Study effectively and efficiently.

### **3.3 Steering Committee**

MMEWA-EAD organize a Steering Committee, which will be composed of the representatives

from Ministry of Finance and Development Planning (MFDP), RIIC, BTC, BPC, Department of Electrical and Mechanical Services (DEMS) and Ministry of Local Government, Land and Housing (MLGLH) for securing effective implementation of the Study.

### **3.4 Study Area**

The Study covers the whole country of the Republic of Botswana in terms of institutional aspect. However, PV Demonstration will be implemented in the selected villages.

### **3.5 Scope of the Study**

#### I. Preliminary Investigation Stage

In order to identify the present situation of rural electrification, the following investigation and preparation work is carried out.

- 1) Collection and review of the relevant data and information including previous study reports.
- 2) Review of the existing development framework in Botswana.
- 3) Review of rural electrification policy in Botswana and review of the roles of RIIC, BTC and BPC etc. in rural electrification.
- 4) Identification of the situation of unelectrified villages and public institutions.
- 5) Establishment of the management framework for PV Demonstration
- 6) Selection of the target villages and public institutions for PV Demonstration
- 7) Determination of the specification of PV systems and other equipment (solar pump could be considered)
- 8) Assessment on local energy demand and supply

#### II. PV Demonstration Stage

After the above investigation, solar home systems and other PV appliances are installed in the target villages and at target institutions respectively. In order to evaluate the potential of PV systems in terms of both suppliers and users, the following work and investigations are carried out.

- 1) Installation of PV systems and other equipment
- 2) Assessment of socio-economic situation of the rural households and institutions
- 3) Evaluation of management framework of PV Demonstration in terms of sustainability and effectiveness
- 4) Evaluation of present user's knowledge and maintenance skill on PV systems and recommendation of the appropriate training scheme
- 5) Evaluation of present institutional infrastructure related to the PV electrification and recommendation of the effective and practical system
- 6) Evaluation of the technical level of management and maintenance staff and recommendation of the effective training system
- 7) Evaluation of the incentive structure including the electricity tariff and tax exemption etc.
- 8) Demand forecast on PV electrification in the target area
- 9) Technology transfer and capacity building

### III. Master Plan Formulation Stage

Based on the results of the monitoring and evaluations on the application of PV systems in the selected villages and institutions, the potential of PV rural electrification will be assessed from a technical, economic, financial and institutional point of view. The PV Rural Electrification Master Plan will provide the framework within which PV Electrification will be implemented nation wide. The Master Plan will include;

- a) targets of the Plan,
- b) geographical PV deployment strategy,
- c) institutional framework and management system,
- d) implementing schedule and cost estimation,
- e) economic evaluation and
- f) policy recommendation to support the Plan.

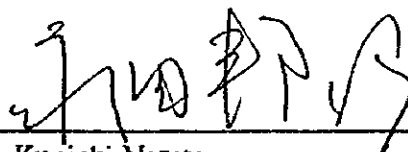
### **4. Procedures to be taken for Further Discussions**

The Government of Botswana was advised to submit the official request to the Government of Japan as soon as possible for further discussion on implementation of the Study, after which an agreement will be concluded if the request is approved by the Government of Japan.



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Ms. B.K. Molosiwa  
Director of Development Programmes  
for the Government of Botswana

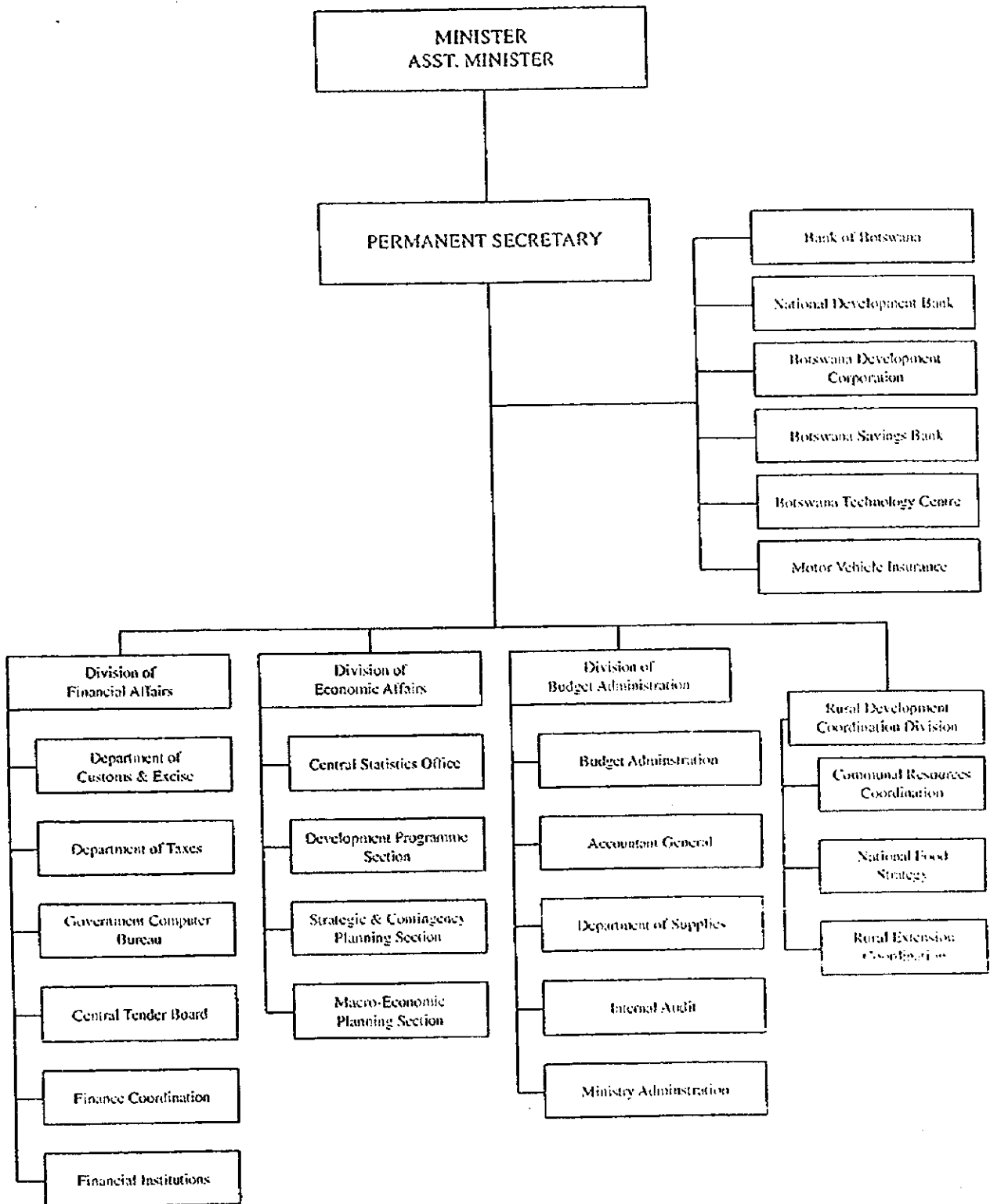


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Mr. Kuniaki Nagata  
Leader,  
Project Formation Study Team,  
JICA



資料 2. 財政開発計画省組織図



資料3. 全国農村太陽光発電電化プログラム 1998 年度予算申請書

The Permanent Secretary,  
Ministry of Minerals, Energy and Water Affairs  
Private Bag 00378  
Gaborone.

Attention. Ag. Director of Energy Affairs.  
Mr Fanile Mathangwane.

Reference. Admin. 369/98

3<sup>rd</sup> June, 1998

NPV. RURAL ELECTRIFICATION BUDGET – 1998/99

We take the pleasure to submit to you the National Photovoltaic Rural Electrification Programme budget for the financial year 1998/99. The budget has been developed to match the RIPC0 (B) year of July to June.

Because of the time lag between this budget and the previous one (May to April, 1997/98), a bridging budget to cater for the months of May and June 1998 is also submitted. Attached also is the implementation plan for the corresponding period.

We submit all the above for your consideration and approval.

Thank you.



P. P. Maribe

ACTING GENERAL MANAGER – RIIC

Cc. Managing Director – RIPC0 (B)  
NPV – Project Co-ordinator  
Accountant – RIIC.

Directors: Ms. T.C. Moremi (Chairperson), Mrs D.T. Tibone, Mr F. Motlathedi, Mr L. Mpotokwane, Mr T.M. Taukobong, Mr B.M. Disele, Mr A.B. Kgosiantsi, Mr J.B.S. Diphaha, Mr K. Sithole, Dr T.T. Mokoena, Mr A.W. Kgarebe, Mr D. Inger (Managing Director)

**RURAL INDUSTRIES INNOVATION CENTRE  
KANYE – BOTSWANA.**

**THE ORIGINAL BUDGET PROPOSAL FOR THE NATIONAL  
PHOTOVOLTAIC RURAL ELECTRIFICATION PROGRAMME -1997/8 TO  
2000/2001.**

| ITEM                                    | 1997/8           | 1998/9           | 1999/2000        | 2000/2001        | TOTAL            |
|---|------------------|------------------|------------------|------------------|------------------|
| Salary Co-ordinator                     | 49,644           | 51,384           | 53,196           | 55,068           | 209,292          |
| Salary Technician                       | 21,492           | 22,248           | 23,040           | 23,856           | 90,636           |
| Salary Bookkeeper                       | 8,976            | 9,300            | 9,636            | 9,984            | 37,896           |
| Contract Benefits                       | 11,450           | 53,360           | 13,860           | 76,420           | 155,090          |
| PV Systems                              | 594,150          | 653,560          | 718,900          | 790,790          | 2,757,400        |
| PV Guarantee/Maintenance/Training-5%    | 29,708           | 32,678           | 35,945           | 39,540           | 137,870          |
| Vehicle                                 | 96,246           |                  |                  |                  | 96,246           |
| Portacamp                               | 45,000           |                  |                  |                  | 45,000           |
| Computer and Software                   | 12,000           |                  |                  |                  | 12,000           |
| Furniture                               | 10,000           |                  |                  |                  | 10,000           |
| Tools and Equipment                     | 5,000            | 1,000            | 3,000            | 1,500            | 10,500           |
| insurance                               | 9,000            | 9,900            | 9,900            | 9,900            | 38,700           |
| Transport and Running Costs/Charge Out  | 70,000           | 77,000           | 84,700           | 93,170           | 324,870          |
| Travelling Expenses                     | 14,790           | 16,270           | 17,900           | 19,690           | 68,650           |
| Evaluations                             | 0                | 30,000           |                  | 70,000           | 100,000          |
| Stationary & Printing                   | 30,000           | 15,000           | 15,000           | 15,000           | 75,000           |
| Communication                           | 7,000            | 2,000            | 2,200            | 2,420            | 13,620           |
| Advertising/Promotion                   | 6,000            | 3,000            | 3,000            | 3,000            | 15,000           |
| Repairs & Maintenance(Office Equipment) | 2,000            | 2,500            | 3,000            | 4,000            | 11,500           |
| Subtotal                                | 1,022,456        | 1,009,200        | 993,277          | 1,214,338        | 4,239,270        |
| Contingencies                           | 51,123           | 50,460           | 49,664           | 60,717           | 211,964          |
| <b>Total</b>                            | <b>1,073,578</b> | <b>1,059,660</b> | <b>1,042,941</b> | <b>1,275,054</b> | <b>4,451,234</b> |

## BUDGET FOR THE FINANCIAL YEAR 1998/99

| BUDGET FOR JULY 1998 TO JUNE 1999           |                   |                         |                  |                   |                        |
|---|-------------------|-------------------------|------------------|-------------------|------------------------|
| NATIONAL PV RURAL ELECTRIFICATION PROGRAMME |                   |                         |                  |                   |                        |
| Item  | Budget<br>1998/99 | May/June<br>1998 Budget | Budget<br>1997/8 | Expend.<br>1997/8 | Var. Bud<br>Exp 1997/8 |
| Salary Coordinator                          | 63,578            | 9,384                   | 49,644           | 55,504            | (5,860)                |
| Salary Technician                           | 28,763            | 4,358                   | 21,492           | 24,883            | (3,391)                |
| Salary Bookkeeper                           | 22,206            | 3,238                   | 8,976            | 8,522             | 454                    |
| Contract Benefits                           | 26,260            | 3,900                   | 11,450           | 19,316            | (7,866)                |
| PV Systems                                  | 653,560           | 325,495                 | 594,150          | 435,661           | 158,489                |
| PV Guarantee/Maintenance/Training-5%        | 32,678            | 16,275                  | 29,708           | 1,687             | 28,021                 |
| Vehicle                                     | -                 | -                       | 96,246           | 101,248           | (5,002)                |
| Computer & Software Repairs                 | 3,020             | -                       | 12,000           | 21,914            | (9,914)                |
| Furniture & Office Equipment                | 30,000            | -                       | 10,000           | 5,277             | 4,723                  |
| Tools & Equipment                           | 2,000             | -                       | 5,000            | 6,876             | (1,876)                |
| Insurance                                   | 9,900             | -                       | 9,000            | 3,000             | 6,000                  |
| Transport Running Costs                     | 59,720            | 8,531                   | 58,480           | 24,557            | 33,923                 |
| Charge Out                                  | 17,280            | 2,880                   | 11,520           | 3,460             | 8,060                  |
| Travelling Expenses                         | 16,270            | 2,324                   | 14,790           | 11,151            | 3,639                  |
| Evaluations                                 | 30,000            | -                       | -                | -                 | -                      |
| Stationary & Printing                       | 15,000            | 2,143                   | 30,000           | 10,457            | 19,543                 |
| Communication                               | 4,800             | 700                     | 7,000            | 3,529             | 3,471                  |
| Advertising/Promotion                       | 3,000             | 1,500                   | 6,000            | 4,937             | 1,063                  |
| Repairs & Maintenance(Office Equip.)        | 5,000             | -                       | 2,000            | -                 | 2,000                  |
| <b>Subtotal</b>                             | <b>1,023,034</b>  | <b>380,728</b>          | <b>977,456</b>   | <b>741,979</b>    | <b>235,477</b>         |
| Contingencies-5%                            | 51,152            | -                       | 51,152           | -                 | 51,152                 |
|   | -                 | -                       | -                | -                 | -                      |
| <b>Total</b>                                | <b>1,074,186</b>  | <b>380,728</b>          | <b>1,028,608</b> | <b>741,979</b>    | <b>286,629</b>         |
| GoB Funds Left from 1997/8                  | 288,151           | -                       | -                | -                 | -                      |
| <b>Total GoB Funds Request</b>              | <b>1,166,763</b>  | <b>-</b>                | <b>-</b>         | <b>-</b>          | <b>-</b>               |

|   |              |
|---|--------------|
| The budget for the financial year 1998/9 is               | P1, 074, 186 |
| The budget for the bridging months, May and June, 1998 is | P 380, 728   |
| Total Budget  | P1, 454, 914 |
| Less amount left over from the previous year              | P 288, 151   |

**Grand Total GoB funds Requested 1998/99 P1, 166, 763**

As at 28<sup>th</sup> April, 1998 the balance of funds accruing from collections was P111,512.62.

## Notes on the Budget

1. Salaries are for the three staff members based on RIPCO(B) scales for the corresponding positions and contract benefits are for medical aid contributions payable monthly, car allowance at 15% of basic salary for the Co-ordinator's position payable monthly, and gratuities payable at the end of every two years. For budgetary purposes, the figures have been increased by 10% to cater for cost of living adjustment.

1.1 Monthly salary for the Coordinator is P4,692.00 per month and gross benefits are P891.48

1.2 Monthly salary for the Technician is P2, 179.00 per month and gross benefits are P653.70

1.3 Monthly salary for the Bookkeeper is P1, 644 per month with contract benefits of P411.00.

2. PV systems, is estimated at P653, 560 as presented in the original proposal.

2.1 To sustain the programme, local electricians and institutions will be identified through the extension network and will be trained on relevant PV technology aspects. Further, they will be encouraged to venture in building capacity to undertake maintenance and keep spares to sell to the PV systems users. Associated with this line item is a budget for 1 year guarantee, maintenance and training of end-users. It is estimated that this item will amount to 5% of the cost of installed PV Systems or P32,678.00

2.2 For the months of May and June, there is a budget amounting to P325, 495. This is constituted by outstanding payments to PV contractors as follows:

| Contractor    | Location                | Contract Value   |
|---------------|-------------------------|------------------|
| KEIMCE        | Mmashoro/Dimajwe/Serule | P 36, 766        |
| KEIMCE        | Hukuntsi/Lokgwabe       | P 50, 000        |
| ASA           | Palapye/Mahalapye       | P 38, 400        |
| Siemens       | Gantsi/Karakubisi       | P 69, 050        |
| SR Electrical | Rakops/Khumaga          | P131, 279        |
| Total         |                         | <u>P325, 495</u> |

3. Computer and Software Repairs: The budget for this line item is P3, 020. It is planned that because of the manufacturer's guarantee and back-up service, minor breakdowns will be done in-house or by the suppliers free of charge for the first 2 years. It is estimated that a major hard disk breakdown for a computer would cost about P1, 000.00 for each computer. Replacement of print cartridges is estimated at a total of six units for the year costing P170.00 each.

4. All capital items will remain government stores items. They are all necessary for the smooth running of the project.

4.1 There is a line item for tools estimated at P2, 000. The tools are for use by the technical support staff in inspections, analysing systems, trouble shooting, restoring where necessary and performing minor additional jobs as may be required by the clients. The tools include a battery load test kit, a solar battery and pair of compass and two calculators.

4.2 There is a line item for furniture and equipment estimated:

|  |                    |
|--|--------------------|
| - A small photocopier costing about        | P19, 500.00        |
| - Phone/fax machine estimated at           | P 8, 000.00        |
| - Tea & cold water facilities estimated at | P 2, 000.00        |
| - Shelving in the office estimated at      | P 500.00           |
| <b>Total budget</b>                        | <b>P30, 000.00</b> |

It is planned that the NPV office should operate as independent as possible to ensure smooth running of the programme.

5. Insurance: The total budget is P9, 900. Premiums are for the project vehicle, portacamp and other government stores.

6. Traveling and Transport Running Costs: A lot of traveling is anticipated during the planned period to rate of increase in group formation, number of applicants, number and location of installations.

6.1 Transport Running Costs: The budget for this is P59, 720. It is estimated that the project vehicle will travel 2 national round trips per month estimated at 2,074km each i.e. 4, 148 km per month at a running cost of P1.20/km. The running costs of the project vehicle include repairs, maintenance services and fuel. There is a budget of P8, 531 for the planned trips in May and June.

6.2 Charge out: the budget for this item is P17, 280. Additional transport estimated at about 1, 200km (4 trips per month each about 300km) per month will be supplemented by hiring RIIC transport at a rate of P1.20/km whenever necessary. There is a budget for P2, 880 for the planned trips in May and June.

6.3 Traveling Expenses: The budget for traveling expenses is P16, 270 as quoted in the original proposal and budget being 2 officers spending 2 weeks out of base at a rate of P62.00 per night out. The figure has been increased by 10% to cater for increase due to cost of living adjustment. In addition there is budget of P2, 324 to cover the planned trips in May and June.

7. Evaluation: The budget is P30, 000, as presented in the original proposal and budget. During the plan period, an internal evaluation of the project will be carried out during the month of February, 1999. The budget is to cater for the salaries, transport and traveling costs, enumerators, data processing and printing costs.
8. Stationary & Printing: The budget is P15, 000 as presented in the original budget and there is a budget of P2, 143 for the months of May and June. The line item covers all stationary and printing requisitions for poster & leaflets, minutes and reports, statements to loanees, generating customer information, tender documents, etc.
9. Communication: This item is budgeted at P4, 800 for the year and P700 for the months of May and June. It covers postage/mail, telephone and fax costs. The budget estimate is based an average expenditure of about P400 per month.
10. Advertising/promotion: This item is estimated at P3, 000 for the year as presented in the original budget and P1, 500 for the planned advertisements during the months of months of May and June. It covers activities related to advertising the programme in the media, meetings/workshops and national events such as shows, Trade fairs, open days, World Environment Day etc.
11. Repairs and Maintenance - Office Equipment: This is budget at P5, 000. This line item covers all other office equipment and furniture excluding computers.
12. The budget for line contingency is at 5% of the budgeted line items and will cover cost escalation.

| ID | Task Name                                   | Duration | Jul '98 | Aug '98 | Sep '98 | Oct '98 | Nov '98 | Dec '98 | Jan '99 | Feb '99 | Mar '99 | Apr '99 | May '99 | Jun '99 |
|----|---|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1  | Process applications                        | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 2  | Community mobilisation                      | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 3  | Process and award contracts/tenders         | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 4  | Oversee completed Installations             | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 5  | Endusers training                           | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 6  | Identification of supply/maintenance people | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 7  | Meetings, Reports and Minutes               | 262d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 8  | Evaluation                                  | 48d      |         |         |         |         |         |         |         |         |         |         |         |         |
| 9  | SECOND ANNUAL REPORT                        | 0d       |         |         |         |         |         |         |         |         |         |         |         |         |
| 10 | Focus on Installations                      | 243d     |         |         |         |         |         |         |         |         |         |         |         |         |
| 11 | 20 Installations by 31/7                    | 0d       |         | 31/07   |         |         |         |         |         |         |         |         |         |         |
| 12 | 20 Installations by 30/8                    | 0d       |         |         | 28/08   |         |         |         |         |         |         |         |         |         |
| 13 | 20 Installations by 30/9                    | 0d       |         |         |         | 30/09   |         |         |         |         |         |         |         |         |
| 14 | 20 Installations by 30/10                   | 0d       |         |         |         |         | 30/10   |         |         |         |         |         |         |         |
| 15 | 30 Installations by 30/11                   | 0d       |         |         |         |         |         | 27/11   |         |         |         |         |         |         |
| 16 | 30 Installations by 30/12                   | 0d       |         |         |         |         |         |         | 30/12   |         |         |         |         |         |
| 17 | 20 Installations by 30/1/99                 | 0d       |         |         |         |         |         |         |         | 29/01   |         |         |         |         |
| 18 | 20 Installations by 26/2                    | 0d       |         |         |         |         |         |         |         |         | 26/02   |         |         |         |
| 19 | 20 Installations by 31/3                    | 0d       |         |         |         |         |         |         |         |         |         | 31/03   |         |         |
| 20 | 20 Installations by 30/4                    | 0d       |         |         |         |         |         |         |         |         |         |         | 30/04   |         |
| 21 | 30 Installations by 30/5                    | 0d       |         |         |         |         |         |         |         |         |         |         |         | 28/05   |
| 22 | 260 Installations for 1998/9                | 0d       |         |         |         |         |         |         |         |         |         |         |         | 28/05   |
| 23 | INSPECTIONS                                 | 243d     |         |         |         |         |         |         |         |         |         |         |         |         |

Task  
 Progress  
 Milestone  
 Summary  
 Rolled Up Task  
 Rolled Up Milestone  
 Rolled Up Progress

Project: annualplan9899  
 Date: Wed 03/06/98



資料4. 全国農村太陽光発電電化プログラム申請書書式

APPLICATION FOR SUPPLY AND INSTALLATION OF PV SYSTEMS

APPLICANT'S NAME:  SEX

MARITAL STATUS:  DATE OF BIRTH

ID NO:  (PLEASE ATTACH A COPY OF YOUR OMANG/ID.)

FORMAL EDUCATION: NONE  PRIMARY  SECONDARY  TERTIARY

ADDRESS  PHONE

LOCATION OF PREMISES :

VILLAGE  WARD  PLOT NO.

TYPE OF BUILDING: HUT  HOUSE  OTHER  NO. OF ROOMS   
*(Please attach sketch of your building)*

OCCUPATION

| SOURCES OF INCOME | AMOUNT PER MONTH |
|-------------------|------------------|
| A. _____          | _____            |
| B. _____          | _____            |
| C. _____          | _____            |

| ESTIMATED LIVING EXPENSES : |       |
|-----------------------------|-------|
| A. FOOD                     | _____ |
| B. PARAFFIN                 | _____ |
| C. GAS                      | _____ |
| D. OTHERS                   | _____ |

OUTSTANDING LOANS :

| AMOUNT   | MONTHLY INSTALMENT | DATE DUE FOR FULL SETTLEMENT | SOURCE OF LOAN |
|----------|--------------------|------------------------------|----------------|
| 1. _____ | _____              | _____                        | _____          |
| 2. _____ | _____              | _____                        | _____          |
| 3. _____ | _____              | _____                        | _____          |

TOTAL HOUSEHOLD DISPOSABLE INCOME : P \_\_\_\_\_

AMOUNT COMMITTED TO SERVICING LOAN IF TAKEN : P \_\_\_\_\_

TYPE OF SUPPLY REQUIRED : DC  AC

NO. OF LIGHTING POINTS \_\_\_\_\_  
NO. OF SOCKET OUTLETS \_\_\_\_\_

TOTAL NO. OF  
HOURS OF USE PER DAY  
\_\_\_\_\_  
\_\_\_\_\_

OTHER APPLIANCES : A. TV \_\_\_\_\_  
B. SATELLITE DISH \_\_\_\_\_  
C. VCR \_\_\_\_\_  
D. RADIO/HIFI \_\_\_\_\_  
E. OTHERS (Specicy): \_\_\_\_\_

*Please note that it is not easy to power ordinary Fridges with PV. Please contact RIIC for advise.*

LIST OF ASSETS: CATTLE \_\_\_\_\_, GOATS \_\_\_\_\_, SHEEP \_\_\_\_\_, DONKEYS \_\_\_\_\_,  
FIELD \_\_\_\_\_, POULTRY \_\_\_\_\_, TRACTOR \_\_\_\_\_, PLOUGH \_\_\_\_\_,  
OTHERS (SPECIFY) \_\_\_\_\_

*I declare that the information provided herein is true and correct to the best of my knowledge and belief.*

APPLICANT'S SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

|                                   |                                   |                   |
|-----------------------------------|-----------------------------------|-------------------|
| <b>FOR OFFICE USE ONLY</b>        |                                   |                   |
| APPLICATION FEE P _____           | DATE : _____                      | RECEIPT NO. _____ |
| APPROVED <input type="checkbox"/> | REJECTED <input type="checkbox"/> | REASONS: _____    |
|                                   |                                   |                   |
|                                   |                                   |                   |
|                                   |                                   |                   |

**RURAL INDUSTRIES PROMOTIONS COMPANY  
(BOTSWANA)**

**RIIC TENDER NO./NPV/..98.002**

**NPV MOLALATAU GROUP**

**NATIONAL PV RURAL ELECTRIFICATION PROGRAMME**

**Compiled by**

**Ndindoga John Geche**

**NPV Coordinator**

**RIIC**

**P/Bag 11**

**Kanye - Botswana**

**Phone : 340 392, 341 010(W), 340 630(H)**

**Fax : 340 642, 341 511Ph/Fx**

**TENDER NOTICE**  
**RIIC TENDER NO./NPV/..98.002**

The Rural Industries Innovation Centre (RIIC) in Kanye invites tenders for the installation of 35 PV homelighting systems in Molalatau. Interested tenderers should pay a non refundable fee of P50 (Fifty pula only) on collection of tender documents. Tender documents can be collected from the office of the Coordinator - National PV Rural Electrification at RIIC in Kanye starting from 11<sup>th</sup> May, 1998.

Tender documents must be received no later than 4:30 pm – 22<sup>nd</sup> May, 1998. Telephone contact is 340 392/630. They may be delivered by hand or mailed to:

The NPV Coordinator  
P/Bag 11  
Kanye

The envelope must be clearly marked “MOLALATAU NPV GROUP”

Tender bids will be opened by the RIIC(B) Tender Committee at 10:00am 25<sup>TH</sup> May, 1998 in the RIIC Board Room.

*RIIC reserves the right not to accept the lowest or any bid*

**Additional Tender Information for Home lighting:**

| Item   | Estimated Maximum Rating(W) | Estimated Max. Duty Time(Hrs) |
|--|-----------------------------|-------------------------------|
| 1. Radio   | 60W                         | 5                             |
| 2. TV  | 81W                         | 6                             |
| 3. VCR   | 41W                         | 3                             |
| 4. Satellite Dish  | 40W                         | 6                             |
| 5. Fan   | 45W                         | 2                             |
| 6. Lights  | 15W                         | 4 in each room, 12 outside    |
| 7. <i>For General Dealers the duty time is less, while for liquor Restaurants is much more!!</i> |                             |                               |

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## 1.0 CONDITIONS AND INSTRUCTIONS TO PV CONTRACTORS

1.1 The PV Contractor shall fill in the Form annexed with all blanks filled in. Each quotation shall be accompanied by specifications and schedule of works. The Schedule of works shall be fully priced out to show the amount of each job and shall give the total for all the jobs therein.

1.2 No alterations shall be made to the Form.

1.3 The following shall be submitted with the quotation:

- a) Details of the proposed sub-contractors if any
- b) Details of similar works satisfactorily carried out within the last five years.

1.4 Site visit: This shall be optional. PV Contractors may if they so wish, visit all sites where installations are to be carried out. Whether or not the site has been visited, information provided shall remain binding.

1.5 An incomplete quotation is liable to disqualification.

1.6 All insertions made by in ink. It is the responsibility the Contractor to ensure that the figures are correct and shall check the schedule of works arithmetically before submission.

1.7 Sealed Quotations and all Documents therein as specified above must be returned in a plain envelope bearing the following inscription:

### *NPV QUOTATION PAPERS.*

Quotations shall be delivered to the Coordinator - National PV, Rural Industries Innovation Centre, P/Bag 11, Kanye to arrive by the date and time specified in the invitation. Quotations conveyed by telephone, telefax or cable shall not be considered.

1.8 The Coordinator - National PV shall notify the accepted and approved Quotation (if any) of such acceptance by letter within six(6) days during which the Quotation is to remain valid and the said quotation shall execute the formal Agreement.

1.9 No Contractor will be reimbursed for expenses incurred in the preparation of quotations.

## 2.0 SPECIFICATIONS

2.1 All components shall be those that conform to the Botswana PV Code of Practice.

2.2 All components shall be clearly specified. Warranties must be stated.

The following conditions will be enforced:

| Item            | Minimum Value  |
|-----------------|--|
| Module          | 50Wp, 3A charging current, 17V open circuit voltage, polycrystalline |
| Battery         | 12V/102Ah, Maintenance free, deep cycle, 80% allowable discharge     |
| Regulator       | 12V/5A, 9.6V load disconnect   |
| Inverter        | 150W, Square wave, surge protected                                   |
| Light           | 12V/9W for DC  |
| Pendant fitting | 220V/9W for AC   |

*Please use the attached form (Appendix E) as a guide for the specifications.*

2.3 The list of applicants is provided, as Appendix B. Each House/Business has been sketched (Appendix C); showing positions of lights, sockets etc. Sketches must be followed and used as a guide, a key to sketches is provided. PV Contractors must do proper system sizing. Bill of quantities for each house/business must be clearly stated. Components must be listed as provided in the format (Appendix D) in the Documents. Specifications for each component must be provided, use Appendix E as a guide. A submission without specifications of one or some components is liable to disqualification, therefore avoid unnecessary omissions.

2.4 Where a house has a thatched or tiled roof, modules must not be mounted on the roof. The modules must either be side mounted on the wall or pole mounted.

2.5 Wiring: Use conduit pipes; mini trunking must be avoided.

2.6 Lamp mounting: lamps mounted on rigid trusses using pipe conduits or else mount them on the walls. Under no circumstances should lamps be mounted on the ceiling boards.

2.7 Each contractor must perform a test for the lightning arrester and must show and demonstrate to the RIPCO(B) Inspectorate that he/she has done so. An internationally recognised regulation must be quoted and adhered to.

## 3.0 INSPECTION OF WORKS, CERTIFICATES, ETC.

Upon completion of works the PV Contractor and the Loanee shall be required to sign a Completion Certificate. Thereafter, a RIPCO(B) Inspectorate shall issue a Certificate of Inspection which shall state whether or not the system conforms to the Botswana PV Code of Practice; if the system does not conform, the Inspectorate shall note the defects and the contractor shall be required to rectify the defects at his/her own costs.

## **4.0 WORKING CONDITIONS**

4.1 The highest quality and standard of workmanship is expected of the Contractor. All works must be restricted to the requisitions listed in the documents and must conform to the Botswana PV Code of Practice.

4.2 A 6-month guarantee on workmanship is mandatory and it is required for all works.

## **5.0 SCHEDULE OF WORKS:**

The PV Contractor must specify the period of commencement and duration to complete this job.

## **6.0 SUMMARY**

6.1 The lowest bidder may not necessarily win.

6.2 The best combination of Quality of product, Duration of Completion of works, Costs and traceable previous works and References shall be highly considered.

6.3 A 6-month guarantee on workmanship by the contractor is mandatory.



## 7.0 TENDER FORM

TO:

The General Manager  
RIIC  
P/Bag 11  
Kanye

Gentlemen,

7.1 We/I have examined the Instructions to Tender, Specifications, and Schedule of the proposed works. We/I have acquired all requisite information relating thereto. We/I, the under-signed, hereby offer to supply and install the proposed works in conformity with the said Documents and sketches at the Rates and Prices inserted in the Schedule of Works herewith for the sum of P \_\_\_\_\_

IN WORDS:

-----  
-----

or such other sums as may be ascertained in accordance with the said documents.

7.2 We/I have inserted in the Schedule of Works all the required and relevant information and enclosed herewith all information requested in the instructions to tender and other Documents.

7.3 We undertake, if this is accepted, to make all preparations and commence the works within \_\_\_\_\_ days after the receipt of the order to proceed and to substantially complete the whole of the works within \_\_\_\_\_ calendar weeks from receipt of the order to proceed.

7.4 If this tender is accepted, we agree to provide a Surety or Performance bond for a sum equivalent to 10% of the Contract sum for the due performance of the Contract.

7.5 We agree to abide by this tender for the period of ---60--- days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period without any additional cost.

7.6 We undertake in the event of this Tender being accepted to execute an Agreement with RIICO(B). Unless and until such Agreement is executed, our Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

7.7 We understand that you are not bound to accept the lowest or any Tender you may receive.

7.8 Having noted the 6-month compulsory guarantee, Our warranty period for defective materials or poor workmanship is \_\_\_\_\_ months, from the date of Installation.

7.9 Dated this \_\_\_\_\_ day of \_\_\_\_\_ Month, 199\_\_ Year

Signature \_\_\_\_\_

Acting in the Capacity of \_\_\_\_\_ duly authorised to sign

tenders for and on behalf of \_\_\_\_\_

Full Name Of Company \_\_\_\_\_

Address \_\_\_\_\_

Witness \_\_\_\_\_

Address \_\_\_\_\_

## 8.0 APPENDIX A : CERTIFICATE OF SITE INSPECTION

8.1 We the undersigned do hereby certify that we visited and inspected the site/ read the information provided in the tender documents and that we are fully conversant with the site conditions pertaining to this Contract.

Signed at the site.

This \_\_\_\_\_ Day of \_\_\_\_\_, 199\_\_

Signature \_\_\_\_\_

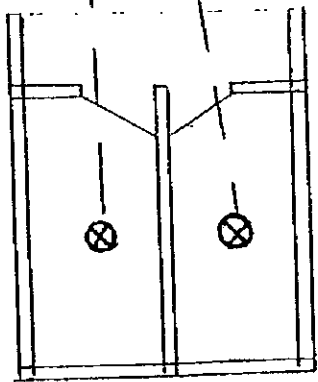
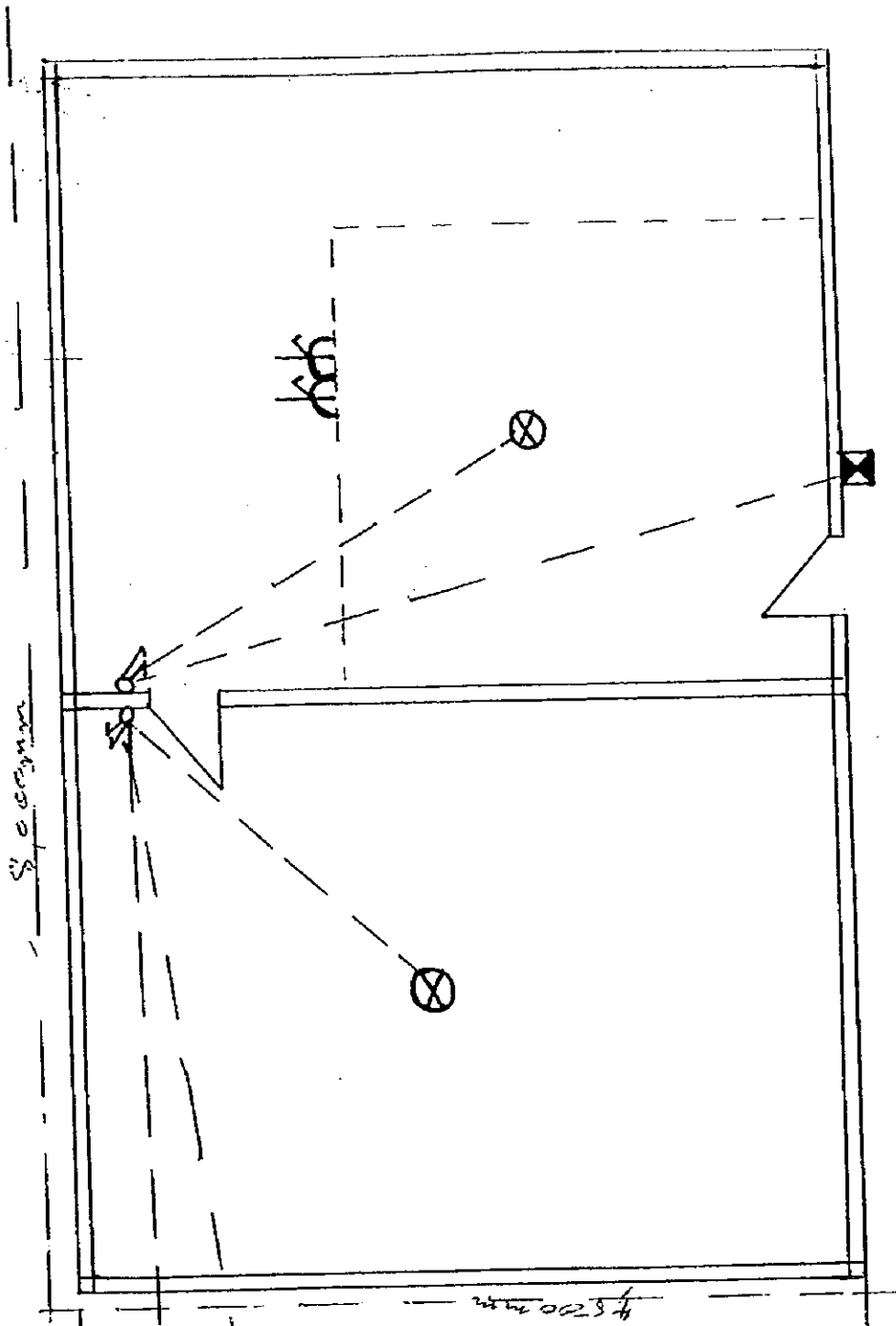
Company \_\_\_\_\_

Certified by

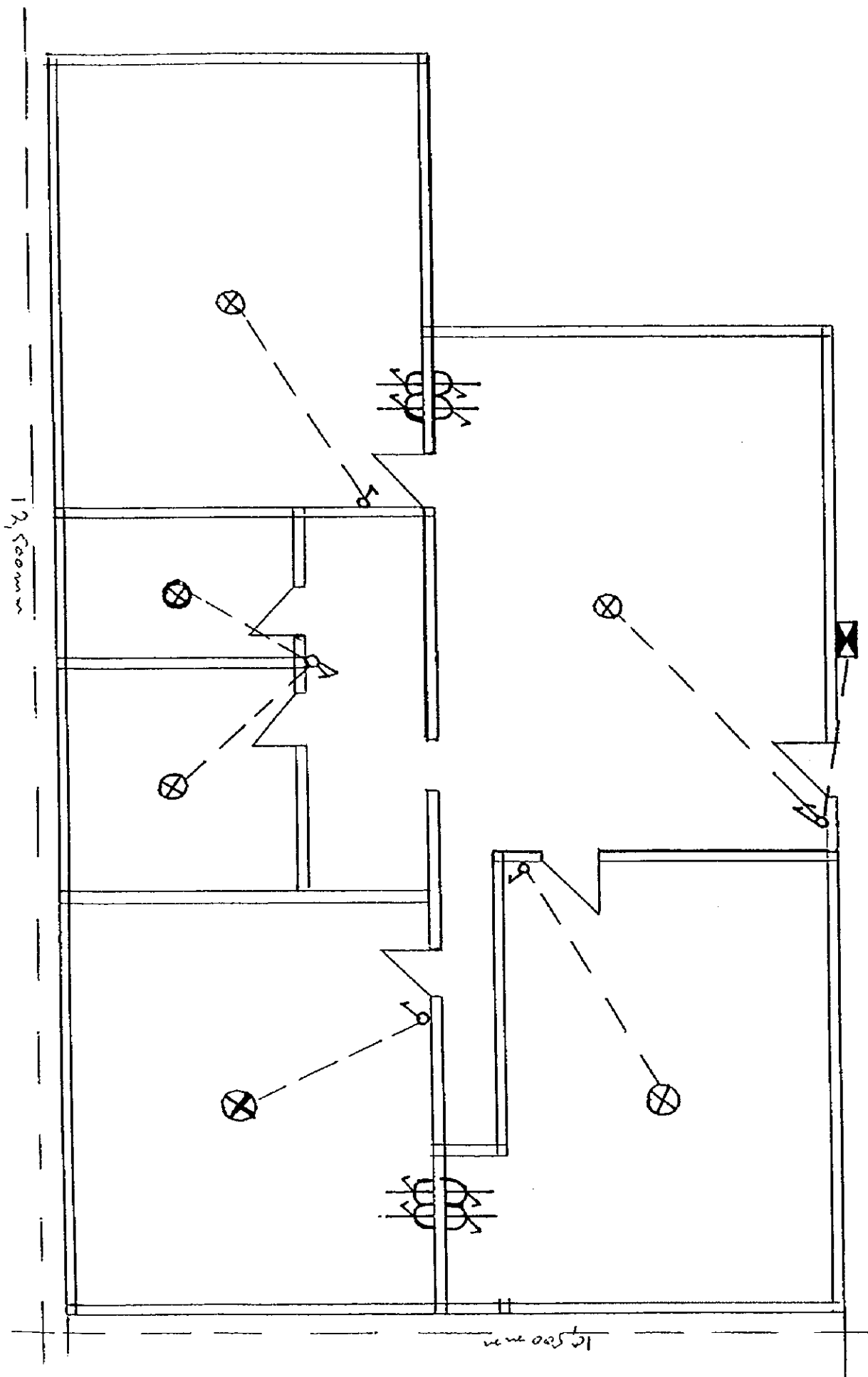
\_\_\_\_\_  
For and on behalf of  
Rural Industries promotions Company (Botswana)

## LIST OF CLIENTS

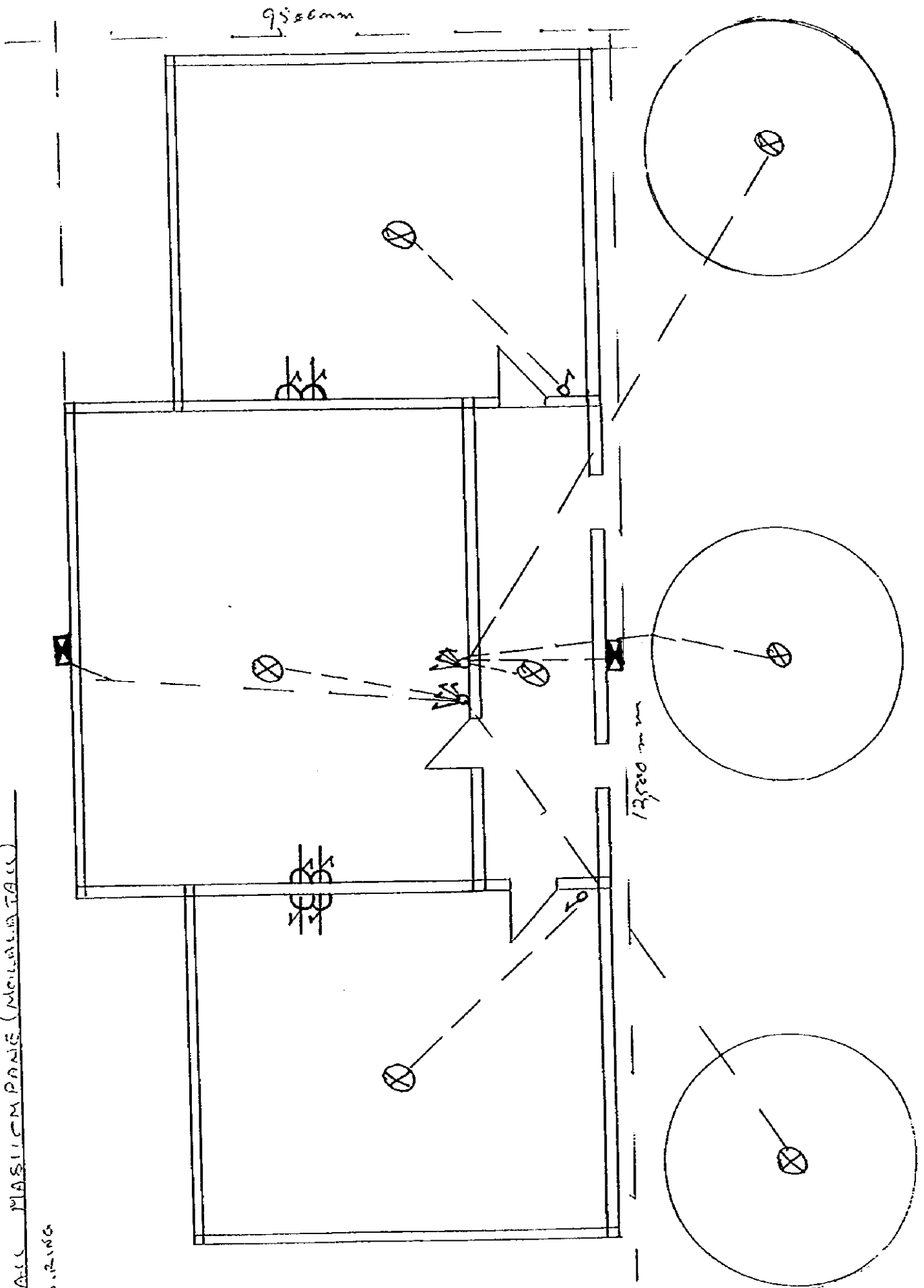
|                  | CLIENT                  | LIGHTS + APPLIANCES                   |
|------------------|-------------------------|---------------------------------------|
| 1                | Witness Maroba          | 5 + Radio (General Dealer)            |
| 2                | Witness Maroba          | 6 + Radio and Tv                      |
| 3                | Mojijima Phillimon      | 4 + Radio, TV and Fan                 |
| 4                | Selaelo Mabina          | 5 + Radio and TV                      |
| 5                | Martha Sheshika         | 3                                     |
| 6 <sub>A+B</sub> | Mohau GL Masilompane    | 16L (2 houses) + Radio and Tv         |
| 7                | Baboneng Masilompane    | 4 + Radio and Tv                      |
| 8                | Botshelo K. Masilompane | 9 + Radio, TV and Fan                 |
| 9                | Sejebodi Nkgodi         | 4 + Radio and Tv                      |
| 10               | Sethapa K. Mathiba      | 7 + Radio, TV and Fan                 |
| 11               | Abel Ratshee            | 7 + Radio, TV and Fan                 |
| 12               | Bruru Marakalala        | 3 + Radio and Tv                      |
| 13               | Phineas Mosedame        | 8 + Radio, TV and Fan                 |
| 14               | Gee Nteta               | 11 + Radio and Tv                     |
| 15               | Lesole Motsumi          | 5 + Radio and Tv                      |
| 16               | Mbati Matshaba          | 13 + Radio and Tv                     |
| 17               | Banabothe Masilo        | 10 + Radio and Tv                     |
| 18               | Molatatu Co-operative   | 7 + Radio and Tv                      |
| 19               | Mokgajana Mosedame      | 6 + Radio and Tv                      |
| 20               | Seshika Seshika         | 5 + Radio and Tv                      |
| 21               | Dikeledi Mathiba        | 6 + Radio and Tv                      |
| 22               | Mompoti Ratshee         | 6 + Radio                             |
| 23               | Maria Motsumi           | 3 + Radio and Tv                      |
| 24               | Mosipedi Malema         | 4 + Radio and Tv                      |
| 25               | Moses Moribame          | 10 + Radio and Tv                     |
| 26               | Ngako Rankole           | 8 + Radio, Tv and Fan                 |
| 27               | Nathaniel Moribame      | 9+ Radio and Tv                       |
| 28               | Martha Moribame         | 5 + Radio and Tv                      |
| 29               | Lydia Makwana           | 5 + Radio and Tv                      |
| 30               | Seitshelero Marumo      | 17 + Radio and Tv (House is AC wired) |
| 31               | Neni Mathathego         | 6 + Radio and Tv                      |
| 32               | Juliah Pheeha           | 14 + Radio and Tv                     |
| 33               | Thabologo Kadidiba      | 6 + Radio and Tv                      |
| 34               | Lekala Nteta            | 10 + Radio and Tv                     |
| 35               | Daniel Kwada            | 4 + Radio and Tv                      |

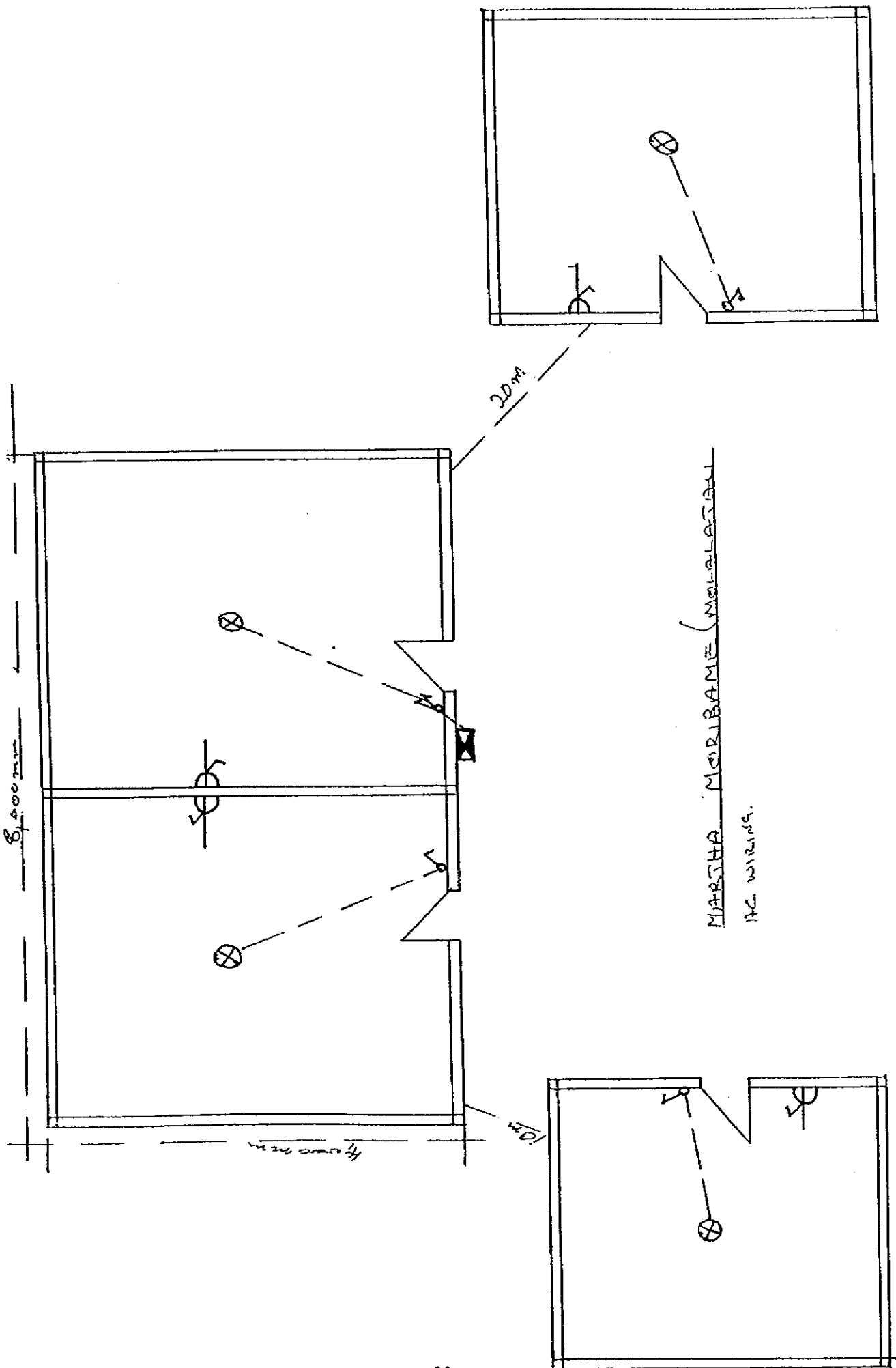


WITNESS MARCOBIA SANDERS DEATHER (MOLDAVIAN)  
 AC WIRING



NEWALL MASHIUM PANIE (MOLUWATAU)  
AC WIRING







# Code of Practice

## Photovoltaic Energy Installations in Botswana

BOTSWANA TECHNOLOGY CENTRE



MINISTRY OF MINERAL RESOURCES AND WATER AFFAIRS

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資料7. 再生可能エネルギー設備業者リスト (1994年5月 RETESA 報告書による)

**BOTSWANA**

=====

**INDUSCO ELECTRONICS**

Private Bag, 52

Lobatse, Botswana

Phone: 332642

Fax:

Telex:

Energy source : Solar PV electric

Manufactured :

Distributed : PV light systems, PV water pumps.

=====

**SCAN AFRICAN TRADING (PVT) LTD**

P.O. Box 40490

Gaborone, Botswana

Phone: 314638

Fax: 312938

Telex:

Energy source : Solar energy

Manufactured : Solar PV water pumps

Distributed :

=====

**SOLAHART BOTSWANA**

P.O. Box 880

Gaborone, Botswana

Phone: 313042

Fax: 359923

Telex:

Energy source : Solar energy

Manufactured :

Distributed : Solar water heater

=====

**SOLAR POWER (PVT) LTD, (KGALAGADY RESOURCES), (SUNKIST) (PVT) LTD**

P.O. Box 1282

Gaborone, Botswana

Phone: 312915

Fax: 314557

Telex: 2325 Solar BD

Energy source : Solar energy

Manufactured : Solar water heaters

Distributed : PV light systems.

=====

**SOLAR SYSTEMS AFRIQUE**

P.O. Box 2088

Gaborone, Botswana

Phone: 313788

Fax: 300316

Telex:

Energy source : Solar energy

Manufactured :

Distributed : Solar PV lighting.

=====

**SOLAR WEST (PYT) LTD**

P.O. Box 149

Gaborone, Botswana

Phone: 312956/313014

Fax:

Telex:

Energy source : Solar energy

Manufactured : Solar PV lighting. Telecommunications. Power supply. Solar PV water  
pumping.

Distributed : Water pumping

=====

**SUNMASTER (PVT) LTD.**

P.O. Box 40467

Gaborone, Botswana

Phone: 372825

Fax: 372825

Telex:

Energy source : Solar energy

Manufactured :

Distributed : Solar water heaters, PV lighting.

=====

**WATER AND SANITARY ENGINEERING**

Private Bag, 38

Lobatse, Botswana

Phone: 330220

Fax:

Telex:

Energy source : Solar PV electric

Manufactured :

Distributed : PV light systems, PV water pumps.

=====

**MAGNET ELECTRONIC PRODUCTS**

P.O. Box 66

Francistown, Botswana

Phone: 214843

Fax:

Telex:

Energy source : Solar PV electric

Manufactured :

Distributed : PV light systems.

資料 8. 家計消費支出関係資料 (1993/1994)

表 8-1 地域別所得分布

注：現金収入及びその他の類似収入の合計値

| pula per<br>month | Urban  |        |        |       | U/Villages |        |        |       | Rural  |        |        |       | All    |        |        |       |
|-------------------|--------|--------|--------|-------|------------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
|                   | Male   | Female | ALL    | cum.  | Male       | Female | ALL    | cum.  | Male   | Female | ALL    | cum.  | Male   | Female | ALL    | cum.  |
| <0                | 0.2    | 0.4    | 0.3    | 0.3   | 0.0        | 0.0    | 0.0    | 0.0   | 0.5    | 0.2    | 0.3    | 0.3   | 0.3    | 0.2    | 0.2    | 0.2   |
| 0                 | 0.7    | 0.9    | 0.7    | 1.0   | 0.2        | 0.0    | 0.1    | 0.1   | 0.2    | 0.6    | 0.4    | 0.7   | 0.4    | 0.5    | 0.4    | 0.7   |
| 0-50              | 1.0    | 1.7    | 1.3    | 2.3   | 1.7        | 2.0    | 1.9    | 2.0   | 1.8    | 1.9    | 1.8    | 2.6   | 1.5    | 1.9    | 1.7    | 2.4   |
| 50-100            | 1.0    | 1.7    | 1.3    | 3.6   | 2.9        | 2.9    | 2.9    | 4.9   | 6.9    | 4.3    | 5.7    | 8.2   | 4.0    | 3.3    | 3.7    | 6.1   |
| 100-200           | 2.6    | 9.5    | 5.0    | 8.6   | 5.9        | 9.7    | 8.0    | 12.9  | 12.4   | 15.2   | 13.7   | 21.9  | 7.6    | 12.3   | 9.8    | 15.9  |
| 200-300           | 5.5    | 9.3    | 6.9    | 15.5  | 6.5        | 15.2   | 11.3   | 24.2  | 15.1   | 13.0   | 14.1   | 36.1  | 10.1   | 12.8   | 11.3   | 27.2  |
| 300-400           | 4.9    | 14.3   | 8.3    | 23.8  | 9.3        | 12.3   | 10.9   | 35.1  | 11.0   | 10.9   | 10.9   | 47.0  | 8.5    | 12.1   | 10.1   | 37.3  |
| 400-500           | 8.2    | 10.4   | 9.0    | 32.7  | 10.9       | 9.9    | 10.3   | 45.5  | 9.0    | 12.7   | 10.8   | 57.8  | 9.1    | 11.4   | 10.1   | 47.4  |
| 500-750           | 15.1   | 14.1   | 14.8   | 47.5  | 18.5       | 17.4   | 17.9   | 63.4  | 13.2   | 15.6   | 14.4   | 72.1  | 14.9   | 15.8   | 15.3   | 62.7  |
| 750-1000          | 10.1   | 11.7   | 10.7   | 58.1  | 12.6       | 9.2    | 10.7   | 74.1  | 10.7   | 10.9   | 10.8   | 82.9  | 10.9   | 10.6   | 10.7   | 73.5  |
| 1000-1500         | 13.3   | 9.8    | 12.1   | 70.2  | 10.1       | 11.8   | 11.1   | 85.1  | 7.3    | 10.3   | 8.8    | 91.7  | 10.0   | 10.6   | 10.3   | 83.7  |
| 1500-2000         | 8.0    | 5.7    | 7.2    | 77.4  | 8.1        | 5.0    | 6.4    | 91.6  | 4.6    | 2.5    | 3.6    | 95.3  | 6.5    | 3.9    | 5.3    | 89.1  |
| 2000-3000         | 9.8    | 5.0    | 8.1    | 85.5  | 7.4        | 3.0    | 5.0    | 96.5  | 4.8    | 1.4    | 3.2    | 98.4  | 7.1    | 2.7    | 5.1    | 94.1  |
| 3000-4000         | 5.5    | 2.2    | 4.3    | 89.9  | 3.0        | 0.5    | 1.6    | 98.2  | 1.5    | 0.4    | 1.0    | 99.4  | 3.2    | 0.9    | 2.2    | 96.3  |
| 4000-5000         | 3.8    | 1.1    | 2.9    | 92.7  | 0.7        | 0.5    | 0.6    | 98.8  | 0.5    | 0.1    | 0.3    | 99.7  | 1.7    | 0.4    | 1.1    | 97.4  |
| 5000-7500         | 5.3    | 1.7    | 4.0    | 96.8  | 1.3        | 0.6    | 0.9    | 99.7  | 0.5    | 0.0    | 0.3    | 100.0 | 2.4    | 0.5    | 1.5    | 98.9  |
| 7500-10000        | 2.4    | 0.3    | 1.6    | 98.4  | 0.0        | 0.0    | 0.0    | 99.7  | 0.0    | 0.0    | 0.0    | 100.0 | 0.9    | 0.1    | 0.5    | 99.4  |
| > 10000           | 2.4    | 0.2    | 1.6    | 100.0 | 0.7        | 0.0    | 0.3    | 100.0 | 0.0    | 0.0    | 0.0    | 100.0 | 1.0    | 0.0    | 0.6    | 100.0 |
| all               | 100.0  | 100.0  | 100.0  |       | 100.0      | 100.0  | 100.0  |       | 100.0  | 100.0  | 100.0  |       | 100.0  | 100.0  | 100.0  |       |
| total number      | 56297  | 31122  | 87419  |       | 30271      | 36947  | 67218  |       | 71601  | 65372  | 136973 |       | 158169 | 133441 | 291610 |       |
| mean              | 2129.5 | 951.5  | 1710.1 |       | 1093.3     | 698.8  | 876.4  |       | 714.3  | 561.2  | 641.2  |       | 1290.5 | 690.3  | 1015.9 |       |
| L10               | 289.0  | 170.1  | 220.2  |       | 185.7      | 148.2  | 161.9  |       | 102.7  | 126.8  | 119.4  |       | 147.7  | 136.0  | 139.6  |       |
| L25               | 510.5  | 308.1  | 410.1  |       | 379.9      | 269.0  | 303.9  |       | 213.9  | 214.8  | 214.9  |       | 317.7  | 342.1  | 279.4  |       |
| median            | 1012.4 | 513.0  | 808.6  |       | 642.1      | 482.6  | 545.0  |       | 412.7  | 421.3  | 416.5  |       | 625.5  | 454.7  | 531.1  |       |
| L75               | 2414.4 | 1017.5 | 1806.1 |       | 1298.4     | 886.1  | 1012.1 |       | 857.3  | 752.3  | 808.0  |       | 1394.3 | 845.7  | 1030.7 |       |
| L90               | 5001.4 | 2046.3 | 4029.3 |       | 2403.4     | 1431.1 | 1819.9 |       | 1625.5 | 1152.1 | 1406.7 |       | 2916.0 | 1393.4 | 2166.8 |       |

Definitions:

L10: 10% of households have incomes below L10

L25: 25% of households have incomes below L25

median: 50% of households have incomes below (and above) the median

L75: 75% of households have incomes below L75

L90: 90% of households have incomes below L90

表 8-2 農村部の月間消費支出 1/2

|                           |                 | Value of total monthly consumption (P) |       |        |         |         |         |         |         |        |        |
|---------------------------|-----------------|--|-------|--------|---------|---------|---------|---------|---------|--------|--------|
|                           |                 | < 25                                   | 25-50 | 50-100 | 100-200 | 200-300 | 300-400 | 400-500 | 500-750 | > 750  | All    |
| Percentage households     |                 | 0.45                                   | 1.54  | 4.96   | 16.44   | 15.03   | 12.19   | 11.23   | 16.00   | 22.16  | 100.00 |
| Exp.                      | Cereals         | 0.43                                   | 2.92  | 4.54   | 13.80   | 23.24   | 34.84   | 47.82   | 56.37   | 81.01  | 42.62  |
|                           | Meat            | 0.00                                   | 1.65  | 1.51   | 2.01    | 4.58    | 8.72    | 10.75   | 19.38   | 34.76  | 14.19  |
|                           | Milk            | 0.00                                   | 1.34  | 1.18   | 2.95    | 5.08    | 7.69    | 7.95    | 10.54   | 34.10  | 12.40  |
|                           | Fruit           | 0.00                                   | 0.72  | 0.12   | 0.17    | 0.55    | 0.87    | 1.17    | 1.90    | 5.76   | 1.95   |
|                           | Vegetables      | 0.00                                   | 0.31  | 0.89   | 0.80    | 2.45    | 4.19    | 7.68    | 7.06    | 13.48  | 6.04   |
|                           | Other Food      | 1.59                                   | 4.01  | 7.02   | 12.89   | 22.37   | 29.05   | 40.20   | 39.52   | 77.38  | 37.43  |
|                           | Total Food      | 2.02                                   | 10.97 | 15.27  | 32.63   | 58.28   | 85.37   | 115.56  | 134.76  | 246.49 | 114.63 |
|                           | Drink & Tobacco | 1.55                                   | 2.50  | 7.40   | 12.73   | 14.04   | 24.50   | 30.35   | 54.21   | 225.49 | 69.66  |
|                           | Firewood        | 0.00                                   | 0.00  | 0.00   | 0.01    | 0.16    | 0.21    | 1.12    | 0.23    | 0.59   | 0.34   |
|                           | Other Goods     | 1.33                                   | 7.56  | 12.90  | 18.37   | 32.63   | 73.40   | 91.33   | 149.75  | 699.90 | 206.96 |
|                           | Gifts given     | Cereals                                | 0.00  | 1.13   | 2.11    | 1.82    | 0.74    | 0.99    | 1.00    | 1.62   | 6.73   |
| Meat                      |                 | 0.00                                   | 0.16  | 6.97   | 2.34    | 1.24    | 5.36    | 4.20    | 3.06    | 2.57   | 3.10   |
| Milk                      |                 | 0.07                                   | 0.00  | 0.38   | 0.16    | 0.48    | 0.42    | 0.29    | 0.45    | 0.67   | 0.42   |
| Fruit                     |                 | 0.07                                   | 0.01  | 0.26   | 0.21    | 0.98    | 1.37    | 1.29    | 3.33    | 0.74   | 1.21   |
| Vegetables                |                 | 0.00                                   | 0.00  | 0.00   | 0.04    | 0.00    | 0.29    | 0.25    | 0.30    | 0.49   | 0.23   |
| Other Food                |                 | 9.67                                   | 8.72  | 6.21   | 1.95    | 1.76    | 3.76    | 2.37    | 4.04    | 6.06   | 3.78   |
| Total Food                |                 | 9.80                                   | 10.02 | 15.94  | 6.51    | 5.19    | 12.20   | 9.39    | 12.81   | 17.26  | 11.26  |
| Drink & Tobacco           |                 | 0.08                                   | 0.09  | 0.21   | 0.18    | 0.24    | 0.23    | 0.19    | 0.75    | 0.91   | 0.45   |
| Firewood                  |                 | 0.00                                   | 0.00  | 0.02   | 0.00    | 0.00    | 0.09    | 0.23    | 0.00    | 0.13   | 0.07   |
| Other Goods               |                 | 0.67                                   | 0.00  | 5.07   | 2.34    | 1.11    | 0.26    | 0.60    | 0.27    | 3.35   | 1.69   |
| Unspecified Goods Given   |                 | 0.00                                   | 0.00  | 0.50   | 1.70    | 1.42    | 0.00    | 0.00    | 0.00    | 0.03   | 0.52   |
| Opc.                      | Cereals         | 0.00                                   | 1.28  | 4.73   | 6.86    | 12.21   | 18.99   | 24.80   | 40.31   | 45.47  | 24.85  |
|                           | Meat            | 0.00                                   | 0.30  | 5.70   | 5.51    | 8.94    | 20.04   | 16.66   | 35.40   | 27.74  | 18.66  |
|                           | Milk            | 0.00                                   | 0.96  | 3.78   | 5.01    | 9.14    | 12.82   | 11.15   | 18.75   | 27.55  | 14.32  |
|                           | Fruit           | 0.00                                   | 0.17  | 2.25   | 1.08    | 10.35   | 7.56    | 8.59    | 11.78   | 9.20   | 7.66   |
|                           | Vegetables      | 0.00                                   | 0.00  | 0.89   | 1.36    | 4.20    | 3.52    | 6.85    | 7.61    | 10.03  | 5.54   |
|                           | Other Food      | 0.00                                   | 0.00  | 1.26   | 0.76    | 0.34    | 0.94    | 2.88    | 4.99    | 10.47  | 3.80   |
|                           | Total Food      | 0.00                                   | 2.72  | 18.61  | 20.58   | 45.18   | 63.87   | 70.92   | 118.84  | 130.46 | 74.81  |
|                           | Drink & Tobacco | 0.00                                   | 0.00  | 0.00   | 0.00    | 0.22    | 0.40    | 0.00    | 0.00    | 0.08   | 0.10   |
|                           | Firewood        | 2.66                                   | 9.92  | 18.54  | 30.36   | 38.57   | 34.90   | 55.90   | 43.99   | 41.07  | 38.54  |
|                           | Other Goods     | 0.00                                   | 0.16  | 1.49   | 2.69    | 1.98    | 5.75    | 2.84    | 8.98    | 21.15  | 7.96   |
|                           | Wages           | Cereals                                | 0.00  | 0.57   | 1.88    | 0.51    | 0.97    | 2.28    | 0.96    | 1.22   | 0.05   |
| Meat                      |                 | 0.00                                   | 0.00  | 0.02   | 0.13    | 0.05    | 0.00    | 0.00    | 0.00    | 0.00   | 0.03   |
| Milk                      |                 | 0.00                                   | 0.00  | 0.09   | 0.05    | 0.15    | 0.48    | 0.00    | 0.30    | 0.00   | 0.14   |
| Fruit                     |                 | 0.00                                   | 0.00  | 0.77   | 0.34    | 0.02    | 0.03    | 0.00    | 0.00    | 0.00   | 0.10   |
| Vegetables                |                 | 0.00                                   | 0.00  | 0.05   | 0.00    | 0.00    | 0.04    | 0.00    | 0.00    | 0.00   | 0.01   |
| Other Food                |                 | 0.00                                   | 1.30  | 4.22   | 3.04    | 1.84    | 0.71    | 0.37    | 3.85    | 0.01   | 1.75   |
| Total Food                |                 | 0.00                                   | 1.87  | 7.03   | 4.08    | 3.03    | 3.54    | 1.33    | 5.37    | 0.05   | 2.96   |
| Drink & Tobacco           |                 | 0.00                                   | 0.00  | 0.02   | 0.03    | 0.12    | 0.00    | 0.00    | 0.00    | 0.00   | 0.03   |
| Firewood                  |                 | 0.00                                   | 0.00  | 0.00   | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00   | 0.00   |
| Other Goods               |                 | 0.00                                   | 0.00  | 0.07   | 0.23    | 0.78    | 2.75    | 0.00    | 1.27    | 3.12   | 1.39   |
| Unspecified Wages In Kind |                 | 0.00                                   | 0.00  | 0.00   | 0.33    | 0.49    | 0.00    | 0.00    | 0.00    | 0.01   | 0.13   |
| Gifts Rec                 | Cereal          | 0.00                                   | 2.39  | 3.95   | 4.78    | 5.33    | 3.26    | 3.80    | 5.21    | 6.79   | 4.98   |
|                           | Meat            | 0.47                                   | 2.61  | 1.26   | 2.54    | 2.76    | 2.50    | 2.07    | 2.68    | 4.28   | 2.85   |
|                           | Milk            | 2.44                                   | 0.08  | 0.79   | 0.44    | 1.15    | 1.15    | 1.25    | 1.41    | 0.86   | 0.99   |
|                           | Fruit           | 0.61                                   | 0.79  | 0.16   | 0.20    | 0.69    | 0.46    | 0.65    | 0.90    | 1.09   | 0.67   |
|                           | Vegetables      | 0.00                                   | 0.23  | 0.17   | 0.29    | 0.72    | 0.56    | 0.46    | 0.43    | 0.76   | 0.53   |
|                           | Other Food      | 1.96                                   | 3.78  | 4.20   | 5.82    | 4.18    | 6.23    | 3.85    | 6.13    | 5.34   | 5.22   |

表 8-2 農村部の月間消費支出 2/2

|                                    | Value of total monthly consumption (P) |       |         |         |         |         |         |         |         | All    |
|------------------------------------|--|-------|---------|---------|---------|---------|---------|---------|---------|--------|
|                                    | < 25                                   | 25-50 | 50-100  | 100-200 | 200-300 | 300-400 | 400-500 | 500-750 | > 750   |        |
| Percentage households              | 0.45                                   | 1.54  | 4.96    | 16.44   | 15.03   | 12.19   | 11.23   | 16.00   | 22.16   | 100.00 |
| Total Food                         | 5.48                                   | 9.88  | 10.34   | 14.07   | 14.82   | 14.15   | 12.08   | 16.76   | 19.12   | 15.24  |
| Drink & Tobacco                    | 0.17                                   | 1.99  | 0.34    | 0.61    | 0.59    | 0.87    | 1.12    | 1.65    | 3.98    | 1.61   |
| Firewood                           | 0.00                                   | 0.10  | 0.00    | 0.22    | 0.53    | 0.02    | 0.12    | 0.07    | 0.34    | 0.22   |
| Other Goods                        | 1.66                                   | 0.66  | 1.37    | 2.89    | 2.46    | 2.15    | 6.10    | 11.64   | 7.82    | 5.47   |
| Unspecified Goods Received         | 0.00                                   | 3.70  | 0.80    | 4.08    | 6.16    | 12.49   | 18.02   | 22.31   | 38.36   | 17.31  |
| Aid                                |  |       |         |         |         |         |         |         |         |        |
| Cereals                            | 2.16                                   | 1.26  | 2.79    | 2.55    | 4.13    | 0.95    | 1.30    | 1.67    | 0.92    | 1.94   |
| Other Food                         | 0.73                                   | 0.66  | 1.13    | 1.63    | 2.53    | 0.83    | 1.63    | 0.67    | 0.95    | 1.32   |
| Total Food                         | 2.89                                   | 1.92  | 3.92    | 4.18    | 6.66    | 1.78    | 2.93    | 2.34    | 1.86    | 3.26   |
| Aid Other                          | 0.00                                   | 0.58  | 0.19    | 0.44    | 0.54    | 0.09    | 0.12    | 0.06    | 0.06    | 0.22   |
| School Meals                       | 0.00                                   | 0.00  | 3.06    | 18.35   | 42.36   | 38.01   | 53.32   | 57.96   | 64.62   | 43.75  |
| Value of total consumption         |  |       |         |         |         |         |         |         |         |        |
| Cereal                             | 2.59                                   | 7.28  | 15.79   | 26.69   | 45.15   | 59.34   | 77.68   | 103.14  | 127.50  | 72.79  |
| Meat                               | 0.47                                   | 4.41  | 1.52    | 7.84    | 15.09   | 25.89   | 25.28   | 54.38   | 64.21   | 32.63  |
| Milk                               | 2.38                                   | 2.38  | 5.46    | 8.30    | 15.04   | 21.72   | 20.06   | 30.54   | 61.84   | 27.44  |
| Fruit                              | 0.55                                   | 1.68  | 3.04    | 1.59    | 10.63   | 7.55    | 9.11    | 11.25   | 15.30   | 9.17   |
| Vegetables                         | 0.00                                   | 0.55  | 2.00    | 2.41    | 7.37    | 8.02    | 14.73   | 14.80   | 23.79   | 11.88  |
| Other Food                         | -5.39                                  | 1.03  | 14.69   | 40.53   | 71.86   | 72.01   | 99.89   | 109.08  | 152.70  | 89.47  |
| Total Food                         | 0.60                                   | 17.33 | 42.49   | 87.37   | 165.14  | 194.53  | 246.75  | 323.20  | 445.34  | 243.39 |
| Drink & Tobacco                    | 1.63                                   | 4.41  | 7.55    | 13.18   | 14.73   | 25.53   | 31.29   | 55.11   | 228.63  | 70.95  |
| Firewood                           | 2.66                                   | 10.02 | 18.52   | 30.58   | 39.25   | 35.04   | 56.91   | 44.29   | 41.86   | 39.04  |
| Other Goods                        | 2.31                                   | 8.96  | 10.95   | 22.29   | 37.29   | 83.88   | 99.79   | 171.41  | 728.70  | 220.31 |
| Unspecified Goods Received         | 0.00                                   | 3.70  | 0.30    | 2.71    | 5.23    | 12.49   | 18.02   | 22.31   | 38.34   | 16.92  |
| Origin of all cereals consumed (%) |  |       |         |         |         |         |         |         |         |        |
| Purchased                          | 16.67                                  | 40.12 | 28.78   | 51.72   | 51.49   | 58.72   | 61.56   | 54.65   | 63.53   | 58.55  |
| Own produce                        | 0.00                                   | 17.64 | 29.96   | 25.72   | 27.05   | 32.01   | 31.93   | 39.08   | 35.67   | 34.13  |
| Wages in kind                      | 0.00                                   | 7.77  | 11.94   | 1.93    | 2.16    | 3.85    | 1.23    | 1.18    | 0.04    | 1.27   |
| Net gifts received                 | 0.00                                   | 17.21 | 11.67   | 11.10   | 10.16   | 3.82    | 3.61    | 3.47    | 0.04    | 3.38   |
| Aid                                | 83.33                                  | 17.26 | 17.67   | 9.54    | 9.15    | 1.61    | 1.67    | 1.61    | 0.72    | 2.66   |
| Origin of all meat consumed (%)    |  |       |         |         |         |         |         |         |         |        |
| Purchased                          | 0.00                                   | 37.52 | 99.47   | 25.63   | 30.36   | 33.68   | 42.54   | 35.63   | 54.13   | 43.50  |
| Own produce                        | 0.00                                   | 6.75  | 374.82  | 70.25   | 59.23   | 77.39   | 65.88   | 65.08   | 43.20   | 57.19  |
| Wages in kind                      | 0.00                                   | 0.00  | 1.23    | 1.63    | 0.35    | 0.00    | 0.00    | 0.00    | 0.00    | 0.09   |
| Net gifts received                 | 100.00                                 | 55.73 | -375.53 | 2.49    | 10.06   | -11.07  | -8.43   | -0.71   | 2.67    | -0.78  |
| Aid                                | 0.00                                   | 0.00  | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00   |
| Total value of:                    |  |       |         |         |         |         |         |         |         |        |
| Purchases                          | 4.90                                   | 21.03 | 35.57   | 63.73   | 105.11  | 183.46  | 238.36  | 338.94  | 1172.47 | 391.59 |
| Own produce                        | 2.66                                   | 12.80 | 38.65   | 53.63   | 85.96   | 104.93  | 129.67  | 171.81  | 192.74  | 121.42 |
| Wages in kind                      | 0.00                                   | 1.87  | 7.12    | 4.67    | 4.42    | 6.30    | 1.33    | 6.64    | 3.19    | 4.50   |
| Net gifts received                 | -3.24                                  | 6.22  | -8.70   | 11.13   | 16.60   | 16.90   | 27.04   | 38.59   | 47.93   | 25.87  |
| Aid                                | 2.89                                   | 2.50  | 7.17    | 22.97   | 49.55   | 39.89   | 56.37   | 60.35   | 66.54   | 47.22  |
| Total consumption                  | 7.20                                   | 44.42 | 79.81   | 156.14  | 261.64  | 351.47  | 452.77  | 616.33  | 1482.88 | 590.60 |
| Origin of total consumption (%)    |  |       |         |         |         |         |         |         |         |        |
| Purchased                          | 68.05                                  | 47.34 | 44.57   | 40.82   | 40.17   | 52.20   | 52.65   | 54.99   | 79.07   | 66.30  |
| Own produce                        | 36.88                                  | 28.81 | 48.43   | 34.35   | 32.85   | 29.85   | 28.64   | 27.88   | 13.00   | 20.56  |
| Wages in kind                      | 0.00                                   | 4.21  | 8.92    | 2.99    | 1.69    | 1.79    | 0.29    | 1.08    | 0.22    | 0.76   |
| Net gifts received                 | -45.03                                 | 14.01 | -10.90  | 7.13    | 6.34    | 4.81    | 5.97    | 6.26    | 3.23    | 4.38   |
| Aid                                | 40.10                                  | 5.63  | 8.99    | 14.71   | 18.94   | 11.35   | 12.45   | 9.79    | 4.49    | 8.00   |



表 8-3 農村部の家財所有状況

Percentage ownership of household items by disposable cash income and by strata (Rural)

|                | =< 50  | 50-<br>100 | 100-<br>^200 | 200-<br>^300 | 300-<br>^400 | 400-<br>^500 | 500-<br>^750 | 750-<br>^1000 | > 1000 | All     |
|----------------|--------|------------|--------------|--------------|--------------|--------------|--------------|---------------|--------|---------|
| Total          | 29,087 | 17,376     | 23,462       | 13,374       | 11,770       | 5,630        | 11,939       | 7,115         | 17,219 | 136,973 |
| Bicycle        | 18.4   | 12.0       | 16.7         | 22.6         | 15.4         | 31.1         | 21.9         | 15.9          | 12.5   | 17.4    |
| Donkey cart    | 30.4   | 27.1       | 25.9         | 22.0         | 23.6         | 23.7         | 21.8         | 9.9           | 11.4   | 23.3    |
| Sledge         | 6.4    | 6.9        | 8.8          | 9.8          | 9.2          | 3.1          | 8.0          | 3.8           | 6.5    | 7.3     |
| Canoe          | 1.9    | 0.7        | 0.4          | 1.2          | 3.7          | 1.7          | 1.7          | 2.2           | 1.8    | 1.6     |
| Motorcycle     | 0.0    | 0.0        | 0.0          | 0.9          | 0.0          | 0.0          | 1.4          | 0.0           | 1.5    | 0.4     |
| Van, bakkie    | 1.1    | 0.9        | 3.2          | 3.6          | 4.5          | 2.1          | 5.4          | 3.9           | 24.1   | 5.4     |
| Car            | 1.3    | 1.2        | 1.2          | 0.0          | 4.7          | 3.6          | 0.0          | 0.0           | 15.9   | 3.2     |
| Truck          | 0.0    | 0.0        | 0.0          | 0.0          | 0.7          | 0.0          | 0.0          | 0.0           | 4.3    | 0.6     |
| Tractor        | 0.8    | 1.6        | 0.0          | 0.6          | 4.8          | 0.0          | 5.1          | 1.7           | 3.2    | 1.8     |
| Fish-net       | 0.3    | 0.0        | 1.2          | 0.0          | 3.5          | 0.0          | 0.0          | 0.0           | 1.1    | 0.7     |
| Grind. machine | 1.6    | 0.7        | 0.0          | 1.8          | 0.0          | 2.1          | 0.0          | 0.0           | 0.0    | 0.7     |
| Radio          | 48.6   | 62.0       | 63.2         | 62.5         | 74.5         | 73.1         | 78.8         | 74.8          | 83.0   | 65.7    |
| Stereo, hi-fi  | 2.6    | 0.0        | 1.6          | 0.6          | 5.7          | 5.4          | 11.5         | 12.6          | 22.9   | 6.1     |
| Sewing machine | 9.4    | 12.8       | 6.7          | 5.1          | 6.0          | 22.0         | 22.3         | 6.5           | 24.3   | 12.0    |
| Television     | 0.4    | 0.0        | 0.0          | 0.0          | 3.4          | 5.0          | 3.6          | 4.4           | 19.7   | 3.6     |
| VCR            | 0.0    | 0.0        | 0.0          | 0.0          | 0.7          | 0.0          | 0.0          | 3.8           | 5.5    | 0.9     |
| Fridge         | 0.6    | 0.0        | 0.7          | 0.6          | 1.4          | 7.2          | 7.4          | 6.7           | 32.7   | 5.8     |
| Wash. machine  | 0.0    | 0.0        | 0.0          | 0.0          | 0.0          | 0.0          | 2.4          | 0.0           | 1.0    | 0.3     |
| Air cond.      | 0.5    | 0.0        | 0.0          | 0.0          | 1.0          | 0.0          | 0.0          | 3.8           | 1.2    | 0.6     |
| Cooker/stove   | 2.5    | 4.7        | 7.6          | 9.0          | 15.9         | 29.2         | 36.4         | 46.4          | 64.3   | 19.5    |
| P/computer     | 0.0    | 0.0        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0           | 0.2    | 0.0     |
| Telephone      | 0.0    | 0.0        | 0.0          | 0.0          | 0.4          | 0.0          | 0.0          | 0.0           | 2.5    | 0.3     |

資料 9. エネルギー消費支出

表 9-1 エネルギー価格 (1994年 7月)

| Item description              | Urban  | U/villages | Rural | National |
|-------------------------------|--------|------------|-------|----------|
| <b>Fuel and Power</b>         |        |            |       |          |
| Electricity, 100kwh per month | 33.70  | 33.70      | 33.70 | 33.70    |
| Electricity, 500kwh per month | 140.50 |            |       | 140.50   |
| Paraffin per litre            | 0.83   | 0.84       | 0.85  | 0.84     |
| Gas, 19kgs (ex-deposit)       | 44.54  | 46.12      | 45.21 | 45.35    |
| Coal, 5kgs                    | 9.33   |            |       | 9.33     |

表 9-2 地域別エネルギー消費支出 (都市部)

| Code    | Item                          | total monthly expenditure |         |         |         |         |         |          |           |           |           |        | All    |
|---------|-------------------------------|---------------------------|---------|---------|---------|---------|---------|----------|-----------|-----------|-----------|--------|--------|
|         |                               | <= 100                    | 100-200 | 200-300 | 300-400 | 400-500 | 500-750 | 750-1000 | 1000-1500 | 1500-2000 | 2000-3000 | > 3000 |        |
| 430     | Water charges                 | 0.00                      | 2.60    | 1.62    | 1.45    | 1.92    | 6.30    | 8.51     | 26.88     | 19.54     | 53.91     | 90.16  | 19.69  |
| 431     | Other related charges         | 0.00                      | 0.00    | 0.00    | 0.00    | 0.00    | 0.48    | 0.18     | 0.03      | 0.03      | 0.34      | 0.15   | 0.12   |
| 440     | Electricity                   | 0.00                      | 0.00    | 0.47    | 1.88    | 0.78    | 2.56    | 5.77     | 23.19     | 19.37     | 56.71     | 124.44 | 22.05  |
| 441     | Gas                           | 0.10                      | 1.91    | 2.10    | 1.92    | 7.69    | 4.33    | 7.57     | 9.37      | 13.70     | 14.22     | 12.71  | 6.60   |
| 442     | Paraffin                      | 0.81                      | 1.96    | 2.42    | 3.10    | 2.14    | 2.64    | 2.91     | 2.34      | 2.25      | 1.56      | 0.75   | 2.14   |
| 443     | Menthylated spirit            | 0.00                      | 0.00    | 0.11    | 0.02    | 0.00    | 0.22    | 0.03     | 0.07      | 0.10      | 0.01      | 0.00   | 0.06   |
| 444     | Charcoal                      | 0.00                      | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.04      | 0.00      | 0.17   | 0.02   |
| 445     | Firewood                      | 0.31                      | 0.60    | 0.46    | 0.79    | 0.94    | 2.86    | 1.17     | 1.42      | 0.79      | 0.89      | 1.03   | 1.12   |
| 446     | Cow dung                      | 0.00                      | 0.00    | 0.00    | 0.01    | 0.00    | 0.00    | 0.00     | 0.00      | 0.00      | 0.00      | 0.00   | 0.00   |
| 447     | Coal                          | 0.00                      | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00     | 0.00      | 0.04      | 0.03      | 0.00   | 0.00   |
| 449     | Other fuel for power/lighting | 0.00                      | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00     | 0.04      | 0.02      | 0.00      | 0.28   | 0.04   |
| 430-449 | Total utility & fuel          | 1.21                      | 7.07    | 7.18    | 9.17    | 13.48   | 19.39   | 26.14    | 63.34     | 55.87     | 127.68    | 229.68 | 51.85  |
| 400-449 | Total housing cost            | 15.81                     | 42.50   | 55.05   | 66.78   | 79.14   | 108.30  | 130.14   | 207.83    | 269.83    | 440.92    | 976.73 | 223.96 |

表9-3 地域別エネルギー消費支出（都市周辺農村部）

| Code    | Item                          | total monthly expenditure |       |       |       |       |       |       |        |        |        |        | All   |
|---------|-------------------------------|---------------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
|         |                               | =< 100                    | 100-  | 200-  | 300-  | 400-  | 500-  | 750-  | 1000-  | 1500-  | 2000-  | 3000-  |       |
| 430     | Water charges                 | 1.12                      | 1.41  | 4.10  | 2.95  | 3.47  | 3.85  | 7.83  | 8.27   | 12.00  | 14.38  | 16.81  | 4.66  |
| 431     | Other related charges         | 0.00                      | 0.00  | 0.55  | 0.00  | 0.00  | 3.15  | 0.00  | 6.89   | 0.00   | 0.00   | 0.77   | 0.97  |
| 440     | Electricity                   | 0.00                      | 0.33  | 0.01  | 0.17  | 4.49  | 1.02  | 7.91  | 17.49  | 22.48  | 22.91  | 73.33  | 6.52  |
| 441     | Gas                           | 0.00                      | 0.19  | 1.79  | 2.09  | 3.00  | 6.87  | 7.50  | 14.94  | 6.92   | 16.99  | 26.41  | 4.95  |
| 442     | Paraffin                      | 0.59                      | 1.49  | 2.25  | 1.83  | 3.08  | 3.05  | 3.42  | 3.51   | 1.45   | 7.19   | 1.66   | 2.27  |
| 443     | Menthylated spirit            | 0.00                      | 0.00  | 0.01  | 0.00  | 0.00  | 0.06  | 0.03  | 0.05   | 0.00   | 0.00   | 0.00   | 0.01  |
| 444     | Charcoal                      | 0.00                      | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  |
| 445     | Firewood                      | 0.22                      | 2.35  | 1.00  | 0.92  | 3.55  | 2.33  | 1.74  | 5.30   | 1.80   | 2.19   | 2.45   | 1.91  |
| 446     | Cow dung                      | 0.00                      | 0.00  | 0.00  | 0.02  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  |
| 447     | Coal                          | 0.00                      | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  |
| 449     | Other fuel for power/lighting | 0.00                      | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00   | 0.00   | 0.00   | 0.00  |
| 430-449 | Total utility & fuel          | 1.93                      | 5.77  | 9.71  | 7.98  | 17.58 | 20.34 | 28.43 | 56.46  | 44.65  | 63.67  | 121.43 | 21.30 |
| 400-449 | Total housing cost            | 2.53                      | 15.59 | 34.86 | 43.57 | 54.09 | 68.10 | 96.58 | 177.34 | 256.15 | 240.78 | 756.17 | 88.51 |

表9-4 地域別エネルギー消費支出（農村部）

| Code    | Item                          | total monthly expenditure |      |       |       |       |       |        |       |        |       |        | All   |
|---------|-------------------------------|---------------------------|------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|
|         |                               | =< 100                    | 100- | 200-  | 300-  | 400-  | 500-  | 750-   | 1000- | 1500-  | 2000- | 3000-  |       |
| 430     | Water charges                 | 0.01                      | 0.56 | 0.19  | 0.29  | 1.30  | 1.89  | 6.72   | 0.95  | 0.63   | 9.20  | 43.39  | 1.36  |
| 431     | Other related charges         | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  |
| 440     | Electricity                   | 0.00                      | 0.03 | 0.00  | 0.57  | 0.00  | 0.76  | 3.04   | 5.36  | 1.90   | 1.57  | 66.57  | 1.24  |
| 441     | Gas                           | 0.00                      | 0.00 | 1.05  | 2.80  | 5.76  | 1.10  | 8.10   | 11.01 | 24.85  | 15.12 | 4.64   | 2.49  |
| 442     | Paraffin                      | 0.20                      | 1.16 | 1.87  | 1.84  | 1.02  | 2.25  | 1.86   | 2.52  | 2.23   | 1.05  | 0.29   | 1.17  |
| 443     | Menthylated spirit            | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.08   | 0.05  | 0.00   | 0.00  | 0.00   | 0.01  |
| 444     | Charcoal                      | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  |
| 445     | Firewood                      | 0.00                      | 0.33 | 0.85  | 0.39  | 0.00  | 0.75  | 1.63   | 0.00  | 0.00   | 0.00  | 0.00   | 0.34  |
| 446     | Cow dung                      | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  |
| 447     | Coal                          | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  | 0.00   | 0.00  |
| 449     | Other fuel for power/lighting | 0.00                      | 0.00 | 0.00  | 0.00  | 0.00  | 0.00  | 0.19   | 0.00  | 0.00   | 0.00  | 0.00   | 0.01  |
| 430-449 | Total utility & fuel          | 0.21                      | 2.08 | 3.96  | 5.89  | 8.09  | 6.75  | 21.63  | 19.89 | 29.61  | 26.95 | 114.88 | 6.62  |
| 400-449 | Total housing cost            | 1.26                      | 8.04 | 11.22 | 24.82 | 42.51 | 32.95 | 136.61 | 99.25 | 187.59 | 96.72 | 823.85 | 35.47 |

表9-5 照明用エネルギー源 (1993年4月)

| Main source of fuel for lighting (no. of hholds 1993/4) |             |       |          |       |         |       |       |       |        |       |
|---|-------------|-------|----------|-------|---------|-------|-------|-------|--------|-------|
|   | Electricity | %     | Paraffin | %     | Candles | %     | Other | %     | All    | %     |
| Urban   | 23990       | 27.44 | 50912    | 58.24 | 430     | 0.49  | 12087 | 13.83 | 87419  | 100.0 |
| Urban village   | 7032        | 10.46 | 53703    | 79.89 | 684     | 1.02  | 5799  | 8.63  | 67218  | 100.0 |
| Rural   | 2607        | 1.90  | 103770   | 75.76 | 15428   | 11.26 | 15168 | 11.07 | 136973 | 100.0 |
| All   | 33630       | 11.53 | 208384   | 71.46 | 16542   | 5.67  | 33054 | 11.33 | 291610 | 100.0 |
| <b>Main source of income</b>                            |             |       |          |       |         |       |       |       |        |       |
| Business profit (Crops + Livestock)                     | 215         | 2.45  | 7048     | 30.24 | 633     | 7.20  | 888   | 10.11 | 8784   | 100.0 |
| Business profit (Own made goods)                        | 95          | 1.90  | 3958     | 78.99 | 204     | 4.08  | 753   | 15.03 | 5011   | 100.0 |
| Business profit (Retail + other)                        | 1191        | 9.21  | 9926     | 76.76 | 223     | 1.72  | 1592  | 12.31 | 12932  | 100.0 |
| Cash earnings   | 29768       | 20.10 | 96966    | 65.48 | 2871    | 1.94  | 18484 | 12.48 | 148089 | 100.0 |
| Cash remittances  | 390         | 1.37  | 23638    | 83.32 | 799     | 2.82  | 3544  | 12.49 | 28371  | 100.0 |
| Unearned cash income                                    | 528         | 66.13 | 271      | 33.87 | 0       | 0.00  | 0     | 0.00  | 799    | 100.0 |
| Income in-kind  | 1443        | 1.65  | 66577    | 75.98 | 11811   | 13.48 | 7793  | 8.89  | 87625  | 100.0 |
| <b>Dependency</b>                                       |             |       |          |       |         |       |       |       |        |       |
| Dependency rate < 3                                     | 32899       | 12.80 | 181786   | 70.71 | 12875   | 5.01  | 29520 | 11.48 | 257080 | 100.0 |
| Dependency rate >= 3                                    | 731         | 2.12  | 26598    | 77.03 | 3667    | 10.62 | 3534  | 10.23 | 34530  | 100.0 |
| <b>Economic resources</b>                               |             |       |          |       |         |       |       |       |        |       |
| Very low economic resources                             | 90          | 0.14  | 45348    | 69.24 | 9780    | 14.93 | 10275 | 15.69 | 65494  | 100.0 |
| Low economic resources                                  | 1362        | 1.70  | 67348    | 84.10 | 3840    | 4.79  | 7534  | 9.41  | 80085  | 100.0 |
| Better off  | 32177       | 22.03 | 95688    | 65.53 | 2921    | 2.00  | 15244 | 10.44 | 146031 | 100.0 |

表9-6 調理用エネルギー源 (1993年4月)

| Main source of fuel for cooking ( no. of hholds 1993/4) |             |       |       |       |          |       |        |       |       |      |        |       |
|---|-------------|-------|-------|-------|----------|-------|--------|-------|-------|------|--------|-------|
|   | Electricity | %     | Gas   | %     | Paraffin | %     | Wood   | %     | Other | %    | All    | %     |
| Urban   | 10039       | 11.48 | 43730 | 50.02 | 19275    | 22.05 | 14334  | 16.40 | 42    | 0.05 | 87419  | 100.0 |
| Urban village   | 553         | 0.82  | 22541 | 33.53 | 5020     | 7.47  | 38800  | 57.72 | 303   | 0.45 | 67218  | 100.0 |
| Rural   | 42          | 0.03  | 17216 | 12.57 | 2283     | 1.67  | 117432 | 85.73 | 0     | 0.00 | 136973 | 100.0 |
| All   | 10634       | 3.65  | 83487 | 28.63 | 26577    | 9.11  | 170567 | 58.49 | 345   | 0.12 | 291610 | 100.0 |
| <b>Main source of income</b>                            |             |       |       |       |          |       |        |       |       |      |        |       |
| Business profit (Crop/Lstock)                           | 31          | 0.36  | 289   | 3.29  | 120      | 1.37  | 8343   | 94.98 | 0     | 0.00 | 8784   | 100.0 |
| Business profit (Own goods)                             | 0           | 0.00  | 321   | 6.40  | 353      | 7.05  | 4337   | 86.55 | 0     | 0.00 | 5011   | 100.0 |
| Business profit (Retail + etc)                          | 293         | 2.27  | 4654  | 35.99 | 870      | 6.73  | 7024   | 54.32 | 90    | 0.70 | 12932  | 100.0 |
| Cash earnings   | 9114        | 6.15  | 69585 | 46.99 | 20723    | 13.99 | 48413  | 32.69 | 255   | 0.17 | 148089 | 100.0 |
| Cash remittances  | 76          | 0.27  | 4160  | 14.66 | 2469     | 8.70  | 21665  | 76.36 | 0     | 0.00 | 28371  | 100.0 |
| Unearned cash income                                    | 215         | 26.91 | 404   | 50.58 | 0        | 0.00  | 180    | 22.51 | 0     | 0.00 | 799    | 100.0 |
| Income in-kind  | 905         | 1.03  | 4073  | 4.65  | 2042     | 2.33  | 80605  | 91.99 | 0     | 0.00 | 87625  | 100.0 |
| <b>Dependency</b>                                       |             |       |       |       |          |       |        |       |       |      |        |       |
| Dependency rate < 3                                     | 10602       | 4.12  | 80025 | 31.13 | 25340    | 9.86  | 140767 | 54.76 | 345   | 0.13 | 257080 | 100.0 |
| Dependency rate >= 3                                    | 31          | 0.09  | 3462  | 10.03 | 1237     | 3.58  | 29800  | 86.30 | 0     | 0.00 | 34530  | 100.0 |
| <b>Economic resources</b>                               |             |       |       |       |          |       |        |       |       |      |        |       |
| Very low economic resources                             | 0           | 0.00  | 4442  | 6.78  | 4207     | 6.42  | 56755  | 86.66 | 90    | 0.14 | 65494  | 100.0 |
| Low economic resources                                  | 293         | 0.37  | 12538 | 15.66 | 9157     | 11.43 | 58097  | 72.54 | 0     | 0.00 | 80085  | 100.0 |
| Better off  | 10341       | 7.08  | 66506 | 45.54 | 13214    | 9.05  | 55715  | 38.15 | 255   | 0.17 | 146031 | 100.0 |

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