

Social sustainability

►Indicator 3: Households with Access to Electricity

At attainment of independence in 1980, the government had to adopt a new policy that provided electricity to the black majority who was previously denied access by a colonial government. The effect of this policy was a massive extension of the grid to cover a lot of high-density residential areas, rural service station, small towns and some rural areas. To date the provision of electricity to these remote areas has had the following noticeable results:

- ❖ improvement of quality of life through improved services provision
- ❖ employment generation through a number of projects
- ❖ improved economic and social status through income generation from agricultural activities in resettled areas
- ❖ reversal of environmental degradation due to fuel switching and reforestation initiatives.

Renewable energy systems especially solar home systems, have also been deployed in a lot of rural services centre like hospitals and schools. Table below shows the trend in number of installed Global Environment Facility PV projects in Zimbabwe. As can be noted from the table, just between 1993 and 1997, more than 8500 institutions and homes out of a total of over 2,5 million [DoE,1997, Alternative Energy Strategy] had been electrified under just one project. Other parallel projects also contributed to this rural electrification drive, thereby increasing the contribution of renewables to the electrification of the country.

Table 3: Trends in number of installed GEF PV systems (45-watt equivalent)

End User	1993	1994	1995	1996	1997
Households	7	404	917	842	1400
Clinics	0	300	400	1000	781
Schools	1	20	115	200	600
Small Business	0	67	200	523	470
Others	0	8	72	200	15
Total	8	799	1704	2765	3266

Source: Zimbabwe-UNDP GEF Solar Project , 1997 Annual Report.

On realising the apparent lack of resources to implement the rural electrification, the government then tasked the national utility to share the cost of grid extension with the potential beneficiaries. This then created a situation where only those who could pay for the grid extension could have access to electricity. However the recently introduced rural electrification programme seeks to extend the grid to most rural service centres to enable people to create wealth for their sustenance.

Calculation of the vector:

1. % of population with access to electricity in 1990 = 24% [ZESA Annual Report, 1992]
2. Percentage of population with access to electricity in 1998 = 36% [2000 ZESA Annual Report].
3. 1990 vector = $1 - 0.24 = 0.76$
4. 1998 vector = $1 - 0.36 = 0.64$

Discussion:

Compared to most developing countries, especially African countries, the country has a significantly high population with access to electricity. It is more than clear that as the population of the country continues to grow, more and more people especially in rural areas will be without electricity. Therefore, there is a need to both extend the grid at a faster rate and increase the use of efficient appliances. The decentralised approach that is based on renewable energy resources will be beneficial to both society and the environment. Despite of renewable energy resources being abundantly available, especially solar, less than 1% of households in the country use electricity derived from renewable energy. The currently introduced EREP will see a significant number of households in rural areas accessing electricity thereby rapidly increasing the percentage of the population with access to electricity that in turns reduces the vector close to zero. The EREP has been very successful so far with over 100 electrification projects being completed every month. So far about 733 projects have been completed [Zimpapers – The Sunday Mail 21-04-2002, Electrification Review].

►Indicator 4: Investment in Clean Energy

While the government has always been very positive about the deployment of renewables, the allocation of resources to this cause has been another thing. Despite of this situation, the country has been receiving international assistance to promote use clean energy. To date, several projects have been implemented in the country. Below is a table showing some of the international assistance the country has received to promote clean energy. These projects were spread over a number of years so it remains important to spread the investment over the duration of the project for the purpose of calculating the indicators.

Table 4: International assistance to deploy renewable energy the country has received

Donor	Area of Support	Project cost
UNESCO	Schools and Colleges training program in RE Solar Heating for Tobacco Curing	ZIM\$ ¹ 900 000
GTZ	Solar Water Pumping (Masvingo province) (1992-1994)	DM 9 million
UNDP-GEF	Solar PV program (1994-1998)	US\$ 7 million
CIDA	Rusitu mini-hydro (ENDA) (1994-1996)	C \$ 5 million
Australian Aid	Promotion of Solar water heaters, plant oils (1996-1999)	ZIM\$ 5 million
JICA	Installation of Clusters of PV systems (1997-1999)	US\$ 10 million
UNDP-GEF -PDF	Removal of Barriers to Energy Efficiency in Zimbabwe's Industry (1998-2000)	US\$ 250000
Italian Gov.	Lighting of rural schools and clinics (yet to start)	ZIM\$ 400 million
DANIDA	Rural Afforestation Phase II	DKr 18 million
FAO/FARMESA	Solar crop dryers, biogas for agricultural production (1997-8)	US\$20K
E7	Mini hydro in Manyuchi (1996-) (dropped)	US\$ 1.8 million

[ZERO, 2000, *Renewable energy in Zimbabwe*]

¹ 1US\$ = 55 ZIM\$

Calculation of the vector:

While every effort was made to collect all the relevant information on this indicator, it was not possible to have the information due to several reasons. In some cases the project would have closed and those who would have worked on the project would have moved and in some cases, the project life span could not be determined. Despite of these and other problems, some useful information was collected and in some cases estimates were used to determine the indicator.

Taking the year 1994 and 1998,

Total investment in clean energy in 1994 = 3.77 million US\$
and in 1998 = 4.86 million US\$

Country's total energy-related investment in 1994 = 471 million US\$
and in 1998 = 902 million US\$.
[NOCZIM Reports and ZESA Annual Reports 94 & 98]

Clean energy investment in 1994 divided by total energy investment in 1994 = 0.008.

Clean energy investment in 1998 divided by total energy investment in 1998 = 0.0054.

Vector = $(0.95 - 0.008) / (0.95 - 0.0054) = 0.997$

Discussion:

From the indicator, it can be realised that compared to total energy investment in the country, investment in clean energy remain just insignificant. The value of investment in clean energy has however increased between 1994 and 1998. Despite of the fact that informed estimates were used in the calculation above, the indicator reflects a correct picture of the situation. With more information expected to come in from different sources, the next report will have more accurate information.