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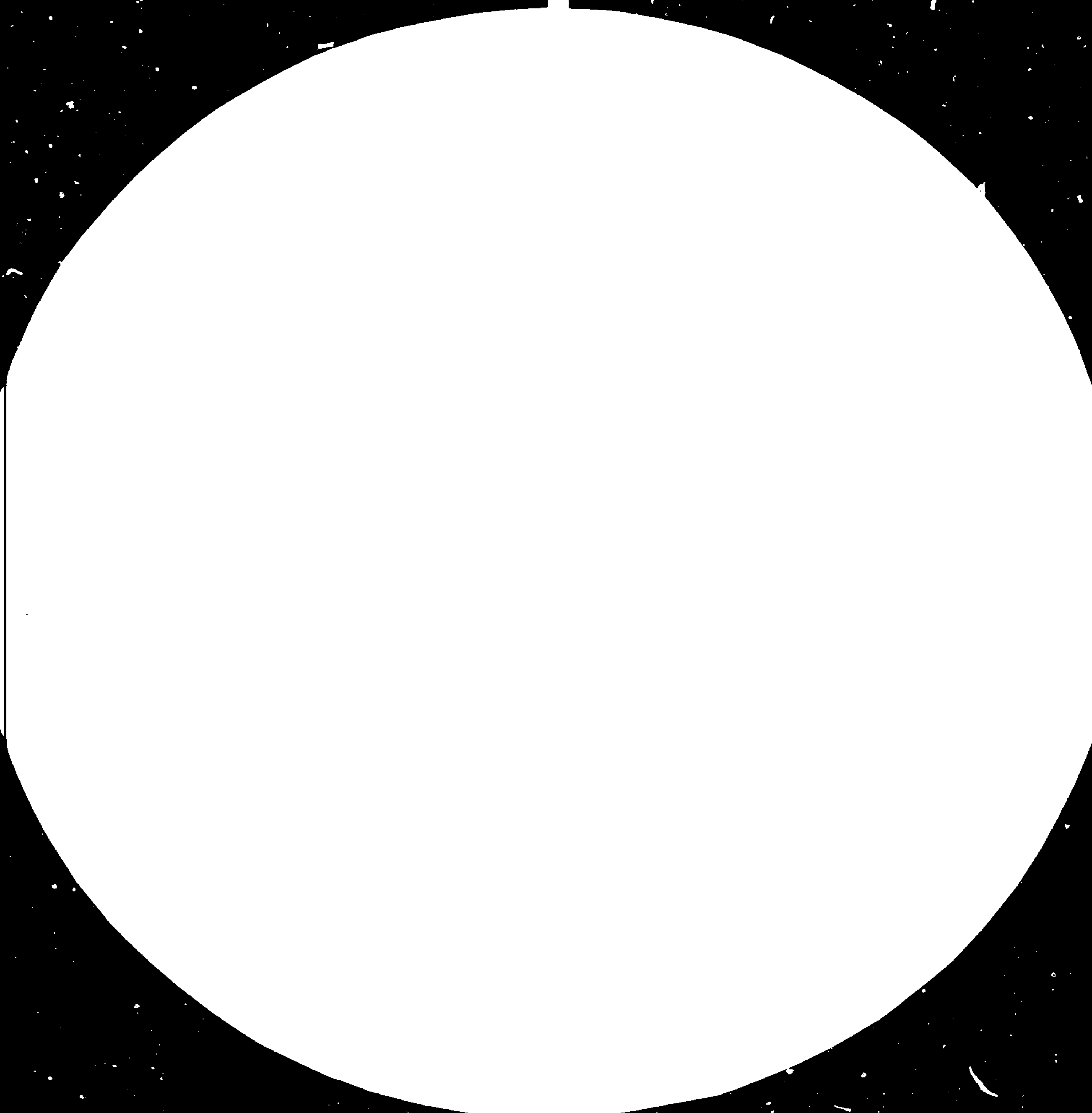

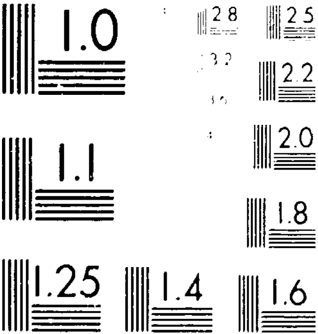
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Second Seminar-Workshop/Study Tour in the
Development and Application of Technology for
Mini-Hydro Power Generation (MHG)

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MINI-HYDRO ELECTRIC PLANTS IN KENYA*

by

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1. INTRODUCTION

Locally generated Hydro electricity in 1978 constituted 13% of the conventional energy consumption in Kenya while oil Imports composed of 83%. Encouraging local generation of hydro electricity (as well as other renewable energies) is a top national priority.

Kenya does not boast of large rivers from which major hydropower schemes can be developed. The river Tana is the only major river and its fluctuating flow together with demand by other water uses like /make irrigation/ the capacity is limited. There are small rivers which can make their valuable contribution in the way of small generating plants. at the moment these are cirtually non-existent.

2. PRESENT SCHEMES

The total power generation in Kenya (1978 figures) is approximately 300 MW.

The present small hydro electricity plants below 2000 kw are:-

STATION	RIVER	CAPACITY (KW)	TURBINE
Wanji	Maragua	2NO X 1000	Francis
Ndula	Thika	2NO X 880	Francis
Macaldarmines	Migori	2NO X 1000	Kaplan

The contribution of these small generation plants to the national current generation is below 2%.

These plants were installed over 20 years ago by companies requiring power in these areas but were later handed over to the National distribution agent.

3. POTENTIAL

There are numerous rivers such as Yala, and Migori in the Western Kenya, Chania and Mathioya in the Central area of the country which have reasonable flow rates and they flow down through hilly country where they have cataracts and small falls which can be utilised for small hydro -electric schemes.

The Kenya Government recently entered into an aid programme with the Government. of Finland to develop these plants on small rivers in some areas of the country.

The country has vast distances with few consumers in between rural markets and service centres (eg. hospitals) and small scale generation plants would serve these centres. Thermo generation is used in a number of these centres to serve just the essential load but to stimulate rural industrial and economic growth without a heavy demand on foreign reserves, hydro generation plants would be the ideal.

4. SUPPORTING RESOURCES

(a) MANPOWER There is no technical manpower specialised in mini-hydro generation plants but there is local personnel with basic electrical and mechanical engineering knowledge who can be easily trained to undertake the planning, construction and subsequent maintenance of the plants. On the initial schemes some expatriate personnel would be required for the training of local manpower. Local electrical engineering contractors would be able to undertake medium voltage distribution schemes.

(b) EQIPMENT

The turbines and generation plant would initially have to be imported as there is no industry turning out these items in Kenya. There is heavy mechanical Engineering industry able to manufacture large pipework and axialliary metal work.

5. CONCLUSION

Currently there are very few small scale hydro generation plants in Kenya but the Country would greatly benefit from mini hydro generation plants. The Government is already committed to developing the schemes. The writer is involved in provision of power to rural hospitals and administrative centres. In areas where the national 'Grid' power supply is not available use can be made of small hydro-plants and power surplus to the hospital's and administrative centre's requirement would be made available to local markets etc. for supply to the rural community. This is one of the contexts in which the writter will benefit and later contribute to the Kenya power generation policy.