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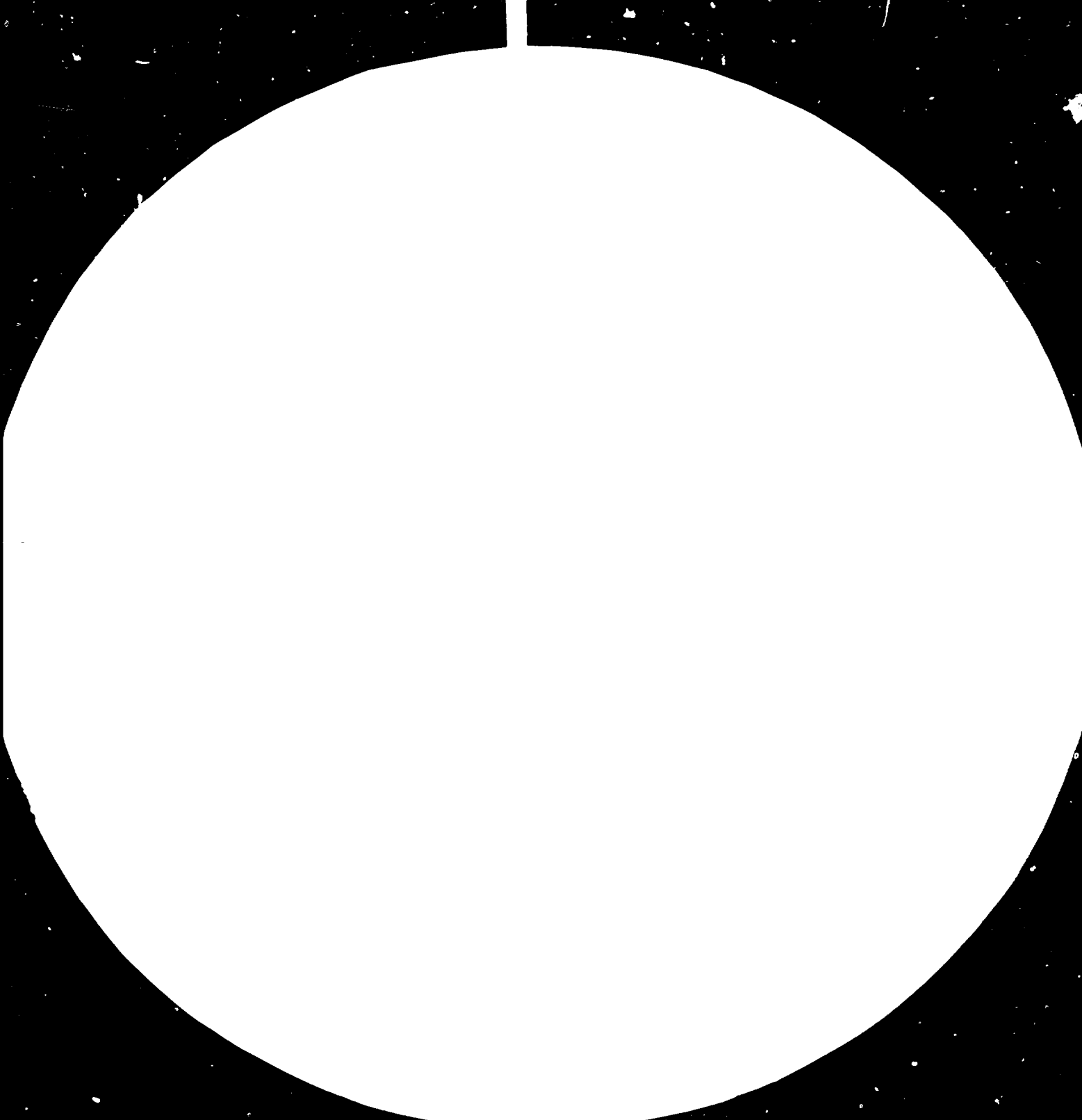

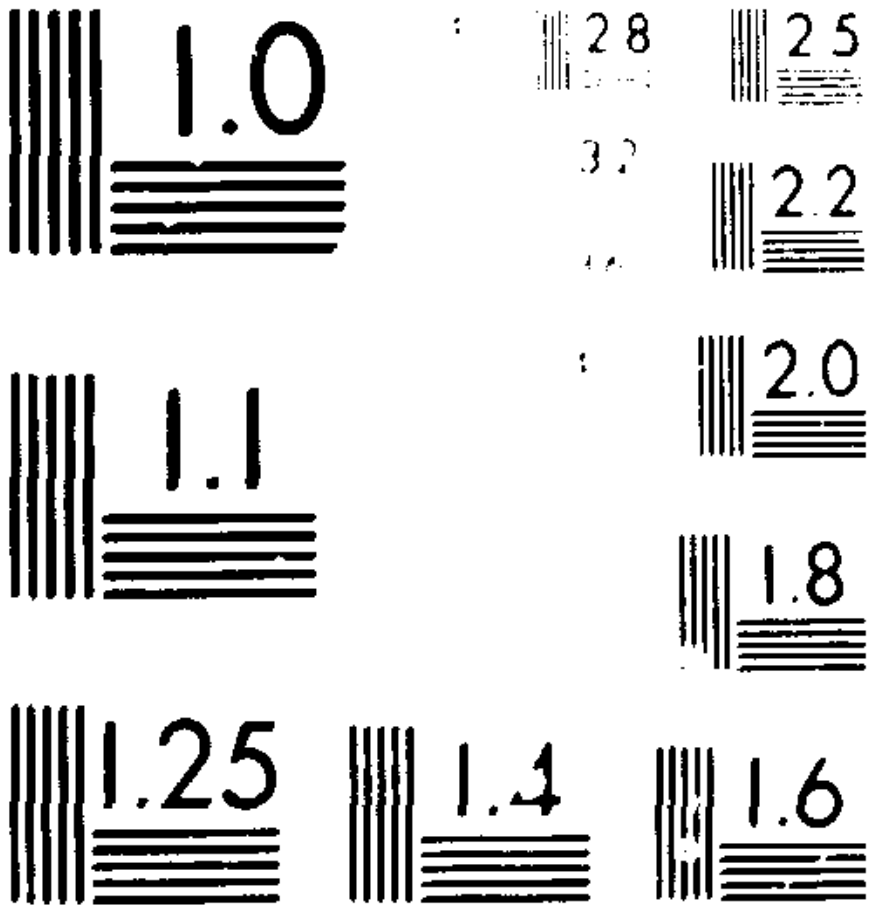

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Joint UNIDO/ESCAP Senior Expert Group Meeting on the Creation of a Regional Network System and the Assessment of Priority Needs on Research, Development and Training in the Field of Small/Mini Hydro Power Generation

Hangzhou, People's Republic of China, 12-17 July 1982

THAILAND PROPOSAL

for the Management of the Regional Centre in Small/Mini Hydro Power Generation

Hangzhou, People's Republic of China*

by

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** The National Energy Administration, Thailand.

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1. Why go for mini-hydro ?

During the cheap oil era, the development of mini-hydro was considered worldwide, in comparison with other energy sources, as uneconomic. However in the current situation, this view has been significantly changed. Although most of the case, the economy of mini hydro can not yet compete with that at major hydro or big thermal scheme, but it has already surpassed that of diesel-powered. In some cases, where the remoteness and rugged terrain hindered the reach of the national grid, the mini hydro has proved itself to be the best justification. Therefore it began to gain profile in energy scenarios of every countries of the world including the rich countries whose energy resources have already been well developed. For the developing countries, especially the oil imported countries, the incorporated indirect benefits offered by mini hydro heighten it significance. These benefits, among others, are improving the economic and social situation in the rural area, lessening the dependency on oil in power generation by utilizing the indegenous renewable resources, accelerating the rural electricfication through reducing the high investment cost of extending the power line from the main grid. Therefore, in these countries mini hydro is considered as one of the most effective mean to relieve them from heavy deficit, energy wise and financial wise, as well as upgrade the living condition of the people in the rural area.

2. Problems in Mini Hydro Development

2.1 As economic justification is one of the fundamental concept for every energy resources development, the mini hydro, therefore, has to prove its economic viable against other alternative sources. Although in most of the case, the economy of mini hydro can be more attractive than that of diesel-powered, however it will be very hard to compete with that of major hydro or big thermal scheme. In order to be accreditted, the development and the operation cost of mini hydro should be reduced to the minimum while the utilization of energy produced must be intensified.

2.2 In the development aspect, the areas which need modification, among others, are the machineries improvement and the civil work design. They must be as less sophisicated as possible but offers high performance at least cost. The standard design and production may be one of the solution.

2.3 Another area which needs improvement is the better use of energy. As the cost of energy generation varies inversely with the amount utilized, hence, it will better of, should all generated energy be utilized completely. In practice, such realization will be hard for the isolated project, therefore, it will be more economic in connecting the mini hydro project to the main grid, in order that all the surplus energy can be fully utilized.

2.4 As for the operation aspect, the low-cost operation can be achieved by mean of local management on the generation of the mini-hydro. Since the kind of management, perhaps in form of co-operative, is a small organization and requires small expenditive to run.

In reality, such renovations have not been accomplished. There exists many obstacles which need further investigation for solution finding and will be a herculean task to solve them by each individual country, the co-operation among the countries which are interested in this field, will help accelerating the success of mini hydro development

3. Need for regional Network System On SHG/MHG

To enhance the above mentioned co-operation, the establishment of Regional Network System on SHG/MHG is needed. This Network should be under the auspices of United Nation Organization. The justification on such establishment is, this kind of co-operation needs a focal point to co-ordinate the activities, provide facilities and services. This can be handled efficiently only by the hand of internationally recognized organization with experience and adequate financial support. Therefore, the United Nation Organization, is proposed.

4. Concept, scope, areas of activities and modalities of the Regional Network System on SHG/MHG.

4.1 The concept of this Regional Network System is to promote small scale mini hydro power development and application within and among member developing countries. The strategy to achieve the fore mentioned goal will be as follows:-

4.1.1 Find solution to propagate, extract and transfer knowledge in SHG-MHG, within as well as outside the region, from more advance country to the lesser one.

4.1.2 Improve capability at national level in term of resource assessment, data base personnel, institution, planning, project formulation and implementation.

4.1.3 Reduce or eradicate problems and/or obstacles that retard and hamper SHG-MHG progress.

4.1.4 Use know-how, experience, material, equipments available within the region as much as possible where it could meet with local requirements.

4.1.5 Try to create equal apportunity for all members, more advance and less advance alike, to access to the benefit of SHG-MHG development.

4.1.6 Increase more technical co-operation among developing countries in the field of SHG-MHG

4.1.7 Stimulate better awareness and response from all concerning countries in the region

4.1.8 Create maximum involvement and participation from the countries to the Network

4.1.9 Set up the goal of task to be achieved by the Network in due time.

4.2 The scope of work of the Network System on MHG-SHG should cover all the activities concerning in the development of MHG-SHG but the priority goal to be achieved may emphasize in the following areas:-

4.2.1 To remove or reduce common problem and obstacle

4.2.2 To bring better impact to the development of MHG-SHG

4.2.3 To give a better balance in the development activities

4.3 To enhance the targets set by scope of work, the activities of the Network shall cover the following areas

4.3.1 Research and Development activities in SHG-MHG including laboratory and joint research.

4.3.2 Organizing training programs, semina workshop on SHG-MHG technology.

4.3.3 Expert and advisory service in data base, resource assessment design, planning, project formulation establishment or strengthening institution project operation and management.

4.3.4 Project Investigation, technical and economic assessment.

4.3.5 Repository of and exchange data and informations publication and distribution of technical matters news and progress on SHG-MHG.

4.4 Modalities of Network

To operate the Network efficiently the following modalities are needed.

4.4.1 Creation of a permanent office as a centre for managing the Network. This Centre will be non-governmental organization, staff will be on rotating basis and selected within region.

4.4.2 Setting up of a focal point at national level to liaise and co-ordinate with the Centre.

4.4.3 Setting up a Board to advise and guide the Centre on policy, strategy and follow up its activities.

4.4.4 Setting up of a full time Secretariat Staff and expert group to carry out tasks laid down by the Board.

4.4.5 Acquirement of funding for the activities of Centre from United Nation Organization and member countries.

5. List of actual needs for R & D in the field of MHG-SHG at the national level

The actual needs for R & D in the field of MHG-SHG at the national level are listed according the order of priority as follows:-

5.1 Low head turbine

5.2 Electronic load Controller of low cost, modular design suitable for local assembly.

5.3 Technology in the construction of onsite low cost water conveyance

5.4 Low cost mechanical governor

5.5 Hydrological Model

Some of the reason behind these needs are as follows:-

(i) Many of member countries in the region already has existing irrigation projects and favourable potential resources, the low head turbines could be used in these circumstance with reasonable low development cost

(ii) The cost of mechanical and electro-hydrolic governor is quite expensive that it is not suitable to be used in small hydro project which is available in remote rural area. Therefore, should the cheap electronic load controller be developed, it will help accelerating the development of MHG-SHG potential.

(iii) In the project of run off the river type with long headrace, the cost of headrace becomes a important portion of the project cost. Should the technique of using low cost, at site local material fabrication for headrace pipe or channel be developed, it will reduce the cost and bring a better economy to the project.

6. List of actual needs for training in the field of MHG-SHG at National level

The training in the following field is needs.

6.1 Study tour for senior officials (at least 10 years of experience) to visit projects, laboratory, factories and institution involving in SHG-MHG both in developed and developing countries. These senior official shall include planner, designers civil and electro-mechanical, socio-economists and management.

The period of tour is 3-4 weeks. The number of participants from each country is limited to 2-3. The tentative countries to be visited are China, Nepal, Pakistan, U.S.A., Japan, Indonesia, Peru, Columbia, Thailand, Phillipines, France, Germany, Sweden.

6.2 Training course for junior officials (with 3-5 years of experience) in the field of resouces assessment, data collection, investigation, planning, feasibility, design construction, operation, management, utilization, socio-economic impact with the addition of sites visit. This training course should be divided into 3 groups as follows:-

6.2.1 Project formulation, planning, technical & economic assessment.

6.2.2 Design, construction and operation

6.2.3 Electro-mechanic aspect of project

The period should be 2 months.

6.3 Training course for technician in the field of construction, erection and operation in the form of on job training arranged in member countries by using local and outside experts.

The period of training will be 3-4 weeks.

The order of priority will be 6.2, 6.1 and 6.3

7. <u>Suggestion on the Management and operation of the Regional Center for Research, Development and Training in the field of MHG-SHG in Hangzhou</u>

In this context the following is proposed:-

7.1 The Center should be non-government control

7.2 The center shall be supervised by advisory board with possibly consists of 9 members as follows:-

7.2.1	2	members from West Asia area
7.2.2	1	" " East Asia area
7.2.3	2	" " South Asia area
7.2.4	2	" " South east Asia area
7.2.5	1	" " Pacific area
7.2.6	1	Secretary/Director of Center

7.3 The member of the board shall be selected by member countries in the region with 3 years term of service. The member of the board will select one of the member to become the President of the board.

7.4 The Secretary or Director of the Center shall be nominated by UN and to be approved by the Board.

7.5 Management staff of the Center shall be rotating and be selected within the region.

7.6 Member of the Network and Center shall be countries in the region with small scale-micro hydro potentials.

7.7 Plenary meeting of member countries shall be held every 3 years to approve policy, plan, program and selection of board member.

7.8 Meeting of the Board will be convened once or twice a year. The member of board will be paid for expense but not honorarium.

7.9 Besides an assigned focal point in each member country who represents that country, the other non-commercial institutes are allow to register as associate member but have no right to vote in the Plenary Meeting.

7.10 Within the Center, the technical committee of permanent or Ad-hoc nature shall be set up as needed.

7.11 The Center shall depend on the financial support as follows:-

7.11.1 From UNIDO to cover the management activities of the center and its program

7.11.2 From member countries to cover the part of the Center program and as a counter part in their country program

7.11.3 From other UN agencies to support on complementary program with the Center

7.11.4 From other donor countries and devcloped countries

7.12 It is proposed that the management and operation Center shall be under the auspices of UNIDO and coordination of the UNIDO and Center (Network) to the other UN agencies can be foreseen as follows:-

7.12.1 With ESCAP for the coordination of SHG-MHG program of the region

7.12.2 With other UN agencies (WHO, UNCTAD and etc.) for the cooperation in certain activities related to SHG-MHG

7.12.3 With other UN regional office in exchange of information and complimentary of program and activities