

Institution Building for Devolution: Paper 3

Energy

M. Vamadevan



International Centre for Ethnic Studies

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**Project on
Institution Building: Administrative
Arrangements for Implementing Devolution**



International Centre for Ethnic Studies

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ENERGY

Executive Summary

Energy as an essential intermediary input has a close association with economic growth and development. Due to various technical, organizational and social reasons, the energy sector has been in the ambit of the state and had been highly centralized. Attempts to decentralize activities have not yielded any substantial results. Energy supply consists of fuel wood (57%), Petroleum Products (32%), Hydro Electricity (11%). The first one is available locally mostly on a non-commercial basis and the second one is wholly imported. Energy is mainly consumed by transport (20%), households, commercial institutions and others (59%) and industry (21%). Institutionally, fuel woods, except in a limited way, comes under the purview of the private sector. The other two are essentially handled by the public sector organization, such as the CEB, LECO, CPC and ECF. As far as planning is concerned, fuel wood, since it is largely non-commercial does not fall into the planning process. Petroleum is mostly a trading activity where crude oil is imported and its refined products are retailed through private outlets. But in the Electricity sector, the planning process is strictly adhered to. A Least Cost Generation Plan, Transmission Plan, and Distribution Plan are being prepared by the CEB on a long-term basis. Demand Management activities are being planned by the ECF.

Attempts have been made in the past to decentralize energy activities but without much success. One area where difficulties are faced was with respect to RE schemes. Technical and economical non-feasibility, cost recovery and poor financial returns on investment and high cost of maintenance have been identified as major problems. Also

technical issues such as low voltage, inadequate capacity, and high losses have been identified as problems. Under the PCC, set up in 1987 development, conservation and management of sites and facilities for the generation and promotion of electrical energy have been listed as devolved subjects. But the PCC in undertaking these activities have faced a number of constraints. There are, improper institutional arrangements, rigid centralized activity, technical issues and non-availability of resources and funds.

The Energy sector is currently undergoing a restructuring process. Entity level changes have implications for devolution in the context of the devolution package. Under the proposed package, energy is broadly classified as a devolved subject. Under the re-structuring exercise responsibilities of the CEB will be unbundled paving a way for decentralization. There is much scope for devolution in the areas of generation, distribution and DSM activities.

Based on analyses main recommendations made are as follows:

1. Firm policy commitment.
2. Specified institutional arrangement.
3. Identification of interventions in the area of generation and distribution.
4. Expansion of DSM activities.
5. Information and database should be developed so that programmes and projects could be identified.
6. Institutional capacity and technical capacity have to be installed and developed.

7. An integrated approach in respect of the RE schemes is essential.
8. The private Sector should be encouraged to participate in energy development activities.

Energy, particularly power to reach entire households and to pave way for generating industrial activities in the region and thereby to accelerate the economic growth and development, the RCC could play an effective role by undertaking activities relating to Power through the provisions of the devolution package.

Abbreviations

CEB	-	Ceylon Electricity Board
CPC	-	Ceylon Petroleum Corporation
DSM	-	Demand Side Management
ECF	-	Energy Conservation Fund
LECO	-	Lanka Electricity Company (Ltd.)
LPG	-	Liquified Petroleum Gas
PCC	-	Provincial Councils.
RE	-	Rural Electrification
RCC	-	Regional Councils

1. Introduction

Energy, as an essential intermediary input, has a close association with economic growth and development. Provision of this input has been under the ambit of the State for various technical, organizational and social reasons and this has also been a highly centralized activity which is a major characteristic of this sector. Attempts, which were undertaken in the past to de-centralize the provision of the service at regional level, have not made a significant impact. The objective of this paper is to examine as to how the activities of this sector can be decentralized or devolved to the proposed regional councils in line with the devolution proposals. Details of the issues to be addressed in the paper are given in Annexe 1. In undertaking these tasks, this paper gives an overview of this sector and traces past experiences in the de-centralization process and attempts to make an assessment of the experiences in this regard gained after setting up of the provincial councils. In the last section of the paper, viable options are examined and a number of recommendations have been made.

2. Background

The major forms of primary energy used in Sri Lanka for the year 1996 are; Fuel wood and Agriculture Waste (57%), Petroleum products (32%), Hydro Electricity (11%) (Sri Lanka Energy Balance, ECF 1996) The first one is available locally mostly on a non-commercial basis while the second one is wholly imported; Electricity is generated mainly through hydro sources, which although locally available are made operational after huge capital investment. Thermal electricity is fully dependent on imported oil and gas. In addition there

are non-conventional types of sources of energy such as Solar, Wind, Biogas etc., which of course are very insignificant.

Fuel wood and Agriculture waste which accounts for more than three fourths of total energy consumption is mainly used by the domestic sector followed by Industry and marginally by other sectors - Agriculture and Commercial sectors. Bagasse, the agricultural waste which is the residue of sugarcane processing is used mostly in the same industry. Petroleum products consisting of L.P. Gas, Diesel, Gasoline, Kerosene and fuel oil are used by Domestic, Industry and Transport sectors. Total energy consumption by different sectors are as follows: Transport (20%), Households, Commercial and Others (59%) and Industries (21%). (Sri Lanka Energy Balance, ECF 1996). Of the Energy, electricity is used mainly by the Domestic (34.6%), and Industrial (44.4%) and Commercial and other sectors (21%).

3. Current Situation

3.1 Institutional Structure

The Institutional structure that covers the energy sector is shown in Annex 2. Fuel wood comes under the purview of the Forest Department. Petroleum products and Electricity come under different agencies, which are supervised by the Ministry of Irrigation Power and Energy. The Ceylon Petroleum Corporation (CPC) functions as a monopoly to import crude oil and refine it into various by-products and for their distribution. A private company handles the importation and distribution of L.P.Gas. Ceylon Electricity Board (CEB) is the sole agency for the generation and transmission of Electricity. Distribution, except for a specified area, which is covered by the Government owned Lanka Electrical Company, (LECO) is also handled by the CEB. Energy

conservation is handled the by Energy Conservation Fund (ECF). This fund was established in 1985 with an objective of financing, promoting and initiating activities and projects relating to the improvement of all aspects of demand management and conservation programmes in Sri Lanka.

Ministry of Science, Technology and Human Resources is mandated to cover the primary research activities relating to the energy sector.

3.2 Planning Process

3.2.1 Bio mass

As far as non-commercial sources of energy are concerned there is no specific structure, which has a bearing on the planning process except with respect to the forestry sector. Fuel wood and agriculture residues are available relatively at a cheaper cost except in urban areas. For the domestic sector, particularly in the lower income groups, in rural and estate sectors mainly the members of the households do the collection of fuel wood. Since around 80% of non-commercial energy is supplied by forestry sources, there has been no legislative framework evolved to cover production or distribution. The forestry sector, which supplies fuel wood comes, for administrative purposes, under the Forest Department, which has indirect implications for the supply of fuel wood, for example reforestation, conservation of forest etc. Commercial fuel wood is supplied mostly by the private sector and to a certain extent, regulated by the Forest Department in terms of its production (felling of trees) and supply. Supplies are mainly to urban households and industries.

3.2.2 Petroleum Products

Petroleum products are mostly trade related. The CPC imports crude oil and refines it into various by-products and distributes them throughout the country through private retail outlets. Since crude oil is imported pipelines are laid to bring them from the oil berths to the refinery. From the refinery, products are sent to the main centres, mostly through trains, and thereafter to retail outlets by bowsters. L.P., Gas, whose consumers are concentrated mostly in Colombo and other major urban centres, and the private company distributes them through private outlets.

The refinery capacity had been sufficient to meet the demand but with the destruction of oil tanks in 1995, this had become a problem. After the restoration/rehabilitation of the oil tanks, it is felt that the present capacity may not be sufficient to meet growing demand. Options such as expansion of the refinery capacity, imports of refined petroleum products, tying up with any multinational, or promoting a private sector refinery are available and have to be examined and a decision has to be taken. Correct pricing of petroleum products is also a major concern. The price gap particularly between petrol and diesel is also a major issue. Petrol is mainly used for private cars while diesel is used for lorries and buses. For fiscal purposes, petrol has been heavily taxed and for social reason, diesel and kerosene have been cross-subsidized.

3.2.3 Electricity

The CEB generates power from hydro sources and from thermal stations, which account for 73% and 27% of the total installed capacity respectively. The power generated, is transmitted to various provincial centres and from there it is distributed to final users. Generation and transmission are somewhat centralized, while distribution is handled by the

provincial zonal offices. There are generating centres both hydro and thermal all over the country but they are fed into a Grid and dispatching is done at a central place called system control.

L.E.C.O. a government owned company handles the distribution of power to a specific area, after purchasing power from the CEB at a specific price. With respect to generation of power, the private sector is being encouraged to participate either on Build Own and Operate or Build Operate and Transfer (BOO/BOT) basis. Few plants on these bases have commenced generation.

The ECP has undertaken a number of activities since its establishment. Some of them are:

1. Conservation programme of energy conservation
2. Popularization of improvement cook stove programme
3. Energy auditing and industrial conservation
4. Establishment of a project for promotion of alternative use such as solar, wind, biogas and mini hydro.
5. Promotion of efficient lighting in household
6. Improvements of tea processing technology
7. Establishment of rural energy planning cells in provincial councils.

During the power crises, experienced in 1996, certain industries were allowed to set up their own generation sets for their own consumption and the CEB was willing to purchase excess power, if any, at an agreed price.

As far as the planning process is concerned it is the power sector that should receive attention. The overall supply of fuel wood had been always exceeding overall demand except in some locations where deficit exists. Further there is a shift of demand from fuel wood to other sources of energy such as petrol and electricity, and reducing demand for fuel wood. However since petroleum products are wholly imported the shift may cause some balance of payment problems. It is observed that some planned efforts to promote use of fuel wood would yield benefits to the national economy. The promotion of Dendro thermal would put into use marginal scrubland. However its commercial viability is yet to be established. The use of stoves would result in efficient use of fuel wood reducing the loss of energy. Apart from these, there are no major planning issue sin the biomass sector.

As far as power planning is concerned the CEB formulates a Least Cost Generation Plan covering a period of 10-year updated annually. This generation Plan contains all available technical options and these options are evaluated and recommended for addition to the existing capacity taking into account cost, size and other technical considerations. Depending upon availability of funds, mainly, foreign aid, projects are accommodated in the Budget. In terms of recently published Power Policy Directives, all thermal land mini hydro projects are opened to the private sector while hydro projects are reserved for the public sector since they are multipurpose, big in size and complex ones.

With respect to Transmission and Distribution, CEB prepares plans covering 10 year periods and projects therein are identified as consistent with the generation plan and accommodated in the Budget, again, mainly with foreign aid. The Rural Electrification (RE) scheme which forms a key element in the Distribution Plan was specially formulated with ADB assistance and two such schemes have already been

implemented while the third one is being implemented and the fourth one is in the pipe line.

4. Past Experience

It would be interesting and pertinent to get an idea about the approaches contemplated before the formation of Provincial Councils (PCC) to expand energy activities in the rural areas. An article by a Power Planner on Integrated Rural Energy Programme in Sri Lanka. --Approach and Institutions. (B.P.Sepalage 1992) summarizes the position. He had concentrated mainly on Biomass fuels, Petroleum, Rural Electrification (RE) and Development and Utilization of New and Renewable Sources of Energy. With respect to the first two, he did not observe any major problems. However, RE Schemes, were faced with major problems. He had identified the following.

1. Technically and economically it is not feasible to extend electric lines to all households typically dispersed in Sri Lankan villages. Thus, even in electrified villages only about 30% of the households have any reasonable access to electricity.
2. Inability to pay capital and recurrent costs.
3. Poor financial returns on investment and high cost of maintenance. Recognizing the growing awareness of the potential new and renewable sources of energy in the rural context, he had collaborated its development and utilization. His main concerns were with policy initiatives, and planning approaches where he stresses an integrated approach encompassing all relevant sectors with a high degree of participation.

With respect to distribution of power at the provincial levels, the medium voltage distribution plan (1995-2005) list the following major problems.

Problems	Provincial Level
1. Low Voltage. Inadequate capacity and high losses. Reliability for industrial loads. Overloading and inadequate capacity	Western North (Gampaha)
2. Voltage problems and poor reliability Overloading and inadequate capacity	North Western
3. Firm Capacity overloading. Low voltage Inadequate network (Industrial Development)	South
4. Low Voltage Reliability Overloading	Central
5. Voltage Problem. Capacity problem	Sabaragamuwa
6. Severe Voltage Problems. Overloading Voltage drops	East
7. Low Voltage. Inadequate network. Overloading Bottlenecks	North Central Province
8. Low Voltage. Sufficient network Capacity	Uva

It is evident from the above that all the problems referred to are of a technical nature arising from weak transmission and distribution lines.

5. Status under Devolution

We shall briefly look at the current status after the setting up of provincial Council in 1987. Under the present constitution the provisions relating to Energy in the 13th amendment are as follows:

Provincial List (List 01)

Development, conservation and management of sites and facilities in the province for the generation and promotion of electrical energy (other than hydro - electric power and power generated to feed the national grid).

Reserve List (List 02)

Minerals and Mines

Regulation and development of oil fields and mineral oil resources, Petroleum products, other liquids and substance declared by law as dangerously inflammable. All subjects and functions not specified in list 01 and 02 including.

Concurrent List (List 03)

Social Forestry

Extension of electrification within the province and the promotion and regulation of the use of electricity within the province.

In order to assess the experience of the Provincial Councils in the Energy sector, an attempt was made to collect responses from all Provincial Councils through a questionnaire. Only five out of the eight PCC responded to our query. The following aspects were focussed:

- Institutional arrangement.
- Major activities undertaken.
- Problems and constraints faced.
- Possible options and suggestions.

Responses received from PCC are shown in Annex 3. It appears that no PCC has setup any specific institutional arrangement to deal with this subject but have relied on existing institutional arrangement. PCC claim that if more funds were available more activities could have been undertaken.

Generally the energy area is conceived to be a central subject, although there are specific provisions in the constitution for the development of electrical power at the provincial level. However no institutional arrangements have been evolved to undertake these functions. This was mainly due to the fact that power sector operates under a vertically integrated government owned monopoly entity. Similarly Petroleum is under a monopoly, viz. CPC and the LPG is under the private Shell Company. From the provisions it may be surmised that the intention of the promulgators of the constitution was to encourage the PC to involve itself in power generation other than hydro and big thermal plants. This means that a PC can undertake captive thermal power plants, and other non-conventional sources such as wind, solar etc. Thermal power generated through Gas turbine or diesel can be undertaken only for a certain use and not for feeding to the national Grid.

6. Constraints

Why the PCC have not involved themselves in the generation of power? What are the constraints? Answers to these questions can be found by examining the following aspects.

- Institutional arrangement
- Centralization of activity
- Technical aspects
- Resources and Funding

No Proper Institutional arrangement at the Provincial Level

Under provincial administration, no proper institutional arrangement has been in place to carry out the functions relating to Energy. A number of reasons can be adduced to this state of affairs. Lack of initiative on the part of PCC could be the main reason. The Constitution provides only the framework and it thereafter becomes the responsibility of the relevant PCC to formulate policies, programmes, and projects, and create necessary institutional arrangements.

Over centralization and rigidity

As noted earlier, the entities involved in the energy sector are state monopoly, such as the CEB, CPC. The structure is vertically integrated. Although in the area of power generation the private sector is increasingly involved they have to confine themselves within the framework of CEB, because of technical and managerial reasons. This is of course a common feature in all sectors where the private sector is involved.

Technical Constraints

Technically some power projects need certain facilities, which may not be available in most provinces. For example setting up of thermal plants needs to be located closer to the refinery for easy supply of fuel. If it is coal, it should be closer to the harbour. The PCC do not have access to the technical capability to undertake energy projects, specially based on

non-conventional sources such as wind and solar. These sources are not developed as commercially viable ventures.

Resources and Fund Constraint

Resources such as water are not available in most PCC for undertaking projects such as mini - hydro ones. So, in the case in terms of Wind and Solar projects. Financial Resources available to PCC are rather limited and they have to be utilized fully on the devolved subjects. PCC are not in a position to generate their own funds or resort to resources such as foreign aid or obtain a loan.

7. Future policy options

Energy Sector, particularly power sub sector, presently, is undergoing a restructuring process. This is a worldwide phenomenon and is being attempted at three levels viz. National, sectoral and entity. Some of the major elements of this process are as follows:

1. National Level

- Regulatory mechanism
- Economic regulations

2. Sectoral Level

- Separation of Regulatory and operational functions
- Competition
- Ownership
- Rural Electrification

3. Entity Level

- Corporatization
- Commercialization

Although all these may have implications for the devolution exercise, changes that are envisaged at the sectoral and entity level are pertinent. The devolution package attempts to transfer political power hitherto enjoyed by the center to the provinces. At this stage it is in order to examine the provisions that have been made in the draft devolution proposals. Unlike the 13th amendment, the present proposals contain only the Reserved List and the Regional list. The relevant areas are as follows:

Reserved List

- Atomic Energy
- Maintenance and Management of the National Grid
- Minerals and Mines (regulation and development of oil fields and mineral resources, petroleum and petroleum products).

Regional List

1. Energy

It is evident that the above provisions are clearer and would enable Regional Councils (RCC) to initiate action. A broad area covering energy without any restriction has been assigned to the RC. The restructuring exercise and the devolution package have to be examined together as these two could facilitate each other in achieving their objectives.

With the restructuring exercises the power sector is expected to undergo radical changes. Unbundling of the structure of the CEB and the formation of a number of generation and distribution companies may create a conducive environment for Regional entities to actively participate in the sector. Since these proposed companies are expected to operate on a commercial basis with greater autonomy there will be possibilities for participation of regional entities not only in the area of generation but also in the area of distribution. In the field of generation, areas identified are non-conventional sources such as Solar, Wind, BioGas and Dendro Thermal. With the distribution companies, rural electrification schemes could be expanded but government support is necessary as these RE schemes are financially not viable. It has to be noted that although 50% of the households in the country as a whole have access to electricity, in rural areas this percentage is about 25% and in the estate sector it is about 10%. Extending the coverage will need financial support from the Government and cannot be completely left in the hands of the private sector. Another area where RCC can participate effectively is in the demand side management (DSM) activities, which come under the purview of the ECF. This Fund has plans to expand its activities at the district level. Through these DSM methods, a significant amount of energy can be saved. With the rising income in the rural sector and expansion of electricity, quite a number of households have access to the use of electrical appliances. A proper use of these will result in a significant amount of saving. Industries are not that many in the provincial level. However the few industries in operation which use electricity as motive power could save energy through appropriate technology.

8. Recommendations

At this stage it is relevant to mention that a report of the Committee appointed by the Hon. Minister of Irrigation, Power and Energy to formulate the Energy Policy for Sri Lanka which was published in 1997 has not made any specific policy recommendations as to how the sector can be handled at the provincial level. (Energy Policy for Sri Lanka, 1997)

However the foregoing analysis reveals that there is scope for expansion of energy sector activities at the regional level in the context of clear provision in the devolution package. In order to make it more effective the following specific recommendations are made.

- (i) The policy commitment of the Regional Council for the development of the energy sector should be clearly spelt out in the policy statement.
- (ii) Institutional arrangement with clear responsibility must be set up
- (iii) Areas for interventions have to be identified. In the power generation, non-conventional sources such as solar, wind, biogas, mini-hydro and dendro thermal are some of the possible areas. In the area of distribution extension of rural electrification scheme can be expanded along with the proposed restructuring of the Ceylon Electricity Board.
- (iv) Demand side management activities can be expanded.
- (v) Information and appropriate database have to be developed. Programmes and projects can be formulated on the basis of the database.

- (vi) Action must be initiated to install and develop institutional capacity and technical capability.
- (vii) An integrated approach in respect of RE schemes incorporating various aspects such as provision of lighting to the households, setting up of industries and income generating activities should be adopted.
- (viii) Action must be initiated to involve the private sector. The necessary environment and incentives should be provided.

9. Conclusion

Energy sector, because of its technical nature, is highly centralized and operates in a monopolistic environment leaving little room for decentralization. Attempts, made before the setting up of Provincial Councils, to decentralize have not brought any significant results. Even during the operation of the Provincial Council after 1987, functions have not been fully devolved or decentralized. With the devolution package and restructuring of the power sector which are being contemplated, there are opportunities for regional institutions to take up more functions in this area with the necessary funds and the technical capability and commitment much progress can be achieved in selected areas of the energy sector. This process is very essential as electricity is a key factor in improving the standard of living of the poor households, through lighting and setting up of income generating activities. The provision of power also accelerates the process of dispersing of industries which are concentrated in one or two districts whereby regional development can be spearheaded.

ANNEX I

TERMS OF REFERENCES (TOR) FOR THE SECTOR CONSULTANT

Sector Title: Power and Energy

1. The Consultant shall review the present structures and process of:

1. *Planning*
2. *Organizations, Delegation, Co-ordination*
3. *Information, Data System*
4. *Staffing (Cadre), Training & Education*
5. *Generation, Transmission and Distribution*
6. *Research on alternative Sources of Energy*
7. *Control Systems of Monitoring Review & Evaluation*
8. *Institutional Developments, including Credit, Banking Farmer/Client Organizations, NGO etc., appropriate to the sector*
9. *Environmental consideration*

2. Review of sectoral development issues under devolution in respect of sectoral development Strategies and appropriate institutional arrangements, and make recommendation as indicated below:

1. *New forms of Review & Information Content.*
2. *Suggest new relationships with devolved agencies required by the Central Ministries and Departments.*
3. *Suggest new and improved organizational structure and process*
4. *Indicate the new horizontal relationship of devolved institutions of other Institutions in the Region*

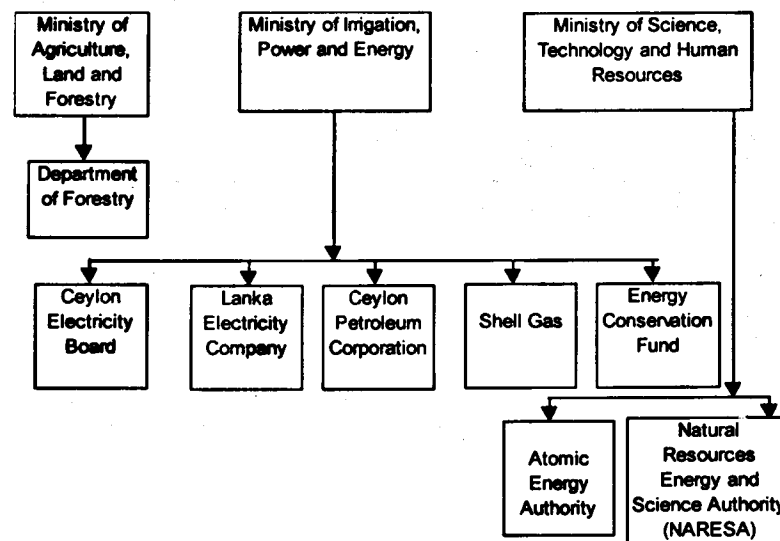
5. Suggest the co-ordinating mechanisms appropriate at each level or point including the apex centres in the region and how their relationships should be structured.
 6. Suggest the comprehensive Human Resources Development Programme in the sector and cadres at each level.
 7. Training needs analysis and consultancy and research areas identification within the sector.
 8. Support available or new mechanisms to make there be available from the private sector NGO sector and banking sector.
 9. Report strategy/strategies for improvement of productivity in devolved Institutions concerned with the sector.
 10. Suggest particularly modes of administration and development in the sector.
 11. Develop key project ideas for donor support in the Region for the sector. (Pre-feasibility studies type of report is expected)
1. *It is of utmost importance that the Consultant shall pay adequate attention to the transformation process of the devolved agencies from bureaucratic organizations to agencies serving different clienteles, Mission orientations, Output orientation, Entrepreneurial orientation, Community Orientation and Market orientation would be appropriate approaches to the bureaucratization process.*
 2. *Recommendation, amongst others, should obligatorily include:*

- (i) *Organizational improvements*
- (ii) *System improvement*
- (iii) *Improvements of database*
- (iv) *Mechanisms to ensure accuracy and timeliness of data, report etc.*
- (v) *Modernizations*
- (vi) *System orientation and introduction and sustenance of analytical technologies and modern tools of management.*

The paper will consist the following sections:

1. Review Background
 - 1.1 Current status
This will include all aspects indicating in part I in the TOR viz.
 - 1.2 Issues
Identify. major issues relevant to the study.
2. Issues and constraints arising from devolution
3. Institutional arrangements at the regional level
 Definition-Agencies, responsibilities and functions
 - Structures and process required
 - Operations and issues and procedures
4. Relations, linkages and co-ordination between centre and regions.
5. Recommendations.

Annex II Institutional Framework of the Energy Sector



Annex 3: Implementation of Provisions of Energy in the 13th Amendment of Constitution by Provincial Councils

	Province/ Status	Sabaragamuwa	North-East	North West	Western	Central	Southern
1.	Institutional Arrangement	No Specific Institution Chief Minister to look after	No specific Institution. A provincial Ministry covers subject	No specific Institutions	No specific Institution A provincial Ministry to cover the subject	No Specific Institution A Provincial Ministry Covers the subject	
2.	Major Activities Undertaken	3 Mini communit hydro projects	3 wind mills Solar Energy Awareness Programme On Appropriate Technology Revival of Abandoned wind mills	Minor Electricity Extension	No major activities undertaken	1. Involved in Feasibility studies for Installation of Mini Hydros. 2. Installation of the Gas units wareness Programmes and Training programmes 3. Poplarization of The improved cook Stove program ¹² . 4. Experiments on wind and Solar Pilot Energy Projects	

Annex 3: Implementation of Provisions of Energy in the 13th Amendment of Constitution by Provincial Councils

	Province/ Status	Sabaragamuwa	North-East	North West	Western	Central	Southern
3.	Problems and Constraints Faced	Non existence of technically competent Agency. No Investors. Implementational delay	Meagre Funds	Lack of funds	Lack of Funds	1. Delay in the implementation of the rural Electrification scheme 2. Funds limited. 3. Unskilled workers 4. Unawareness of energy efficient technologies among the people 5. No voluntary organizations involvement 6. No substantial from the people for alternative energy.	
4.	Possible options and suggestions		Promotion of Appropriate technology	Special fund allocation	More Fund allocation	1. Institutional strengthening. 2. Provision of sufficient Funds. 3. Assistance from the training institutes for Improvement of energy activities. 4. Awareness programmes for voluntary officers and organizations 5. Providing of technology and equipment for the promotion of alternative energy.	

Annex IV
Status of Electification 1996 - 2005

Range	District (1996)	District (2005)
> 90%	Colombr	Colombo, Gampaha, Kalutara, Galle, Matara, Kurunegala, (Jaffna)
70 - 90%	Gampaha, (Jaffna)	Kandy, Nuwara-Eliya
50 - 70%	Kandy, Galle, Batticaloa, Nuwara-Eliya	Ratnapura, Badulla, Ampara, Hambantota, Puttalam, Batticaloa, Trincomalee, Kegalle
30 - 50%	Puttalam, Matara, Anuradhapura, Kalutara, Ratnapura, Kegalle, Badulla	Monaragala, Polonnaurwa, Anuradhapura, Matale, Vavuniya, Mullaitivu, Mannar, Killinochci
< 30%	Monaragala, Polonnaruwa, Mannar, Vavuniya, Mullaitivu, Trincomalee, Killinochi, Ampara, Hambantota, Matale, Kurunegala	Nil

References

1. Ceylon Electricity board (1996) Medium Voltage Distribution Development Plan 1995-2005
2. Energy Balance (1996) Energy Conservation Fund.
3. Energy Policy for Sri Lanka (19997) Ministry of Irrigation, Power and Energy.
4. Sepalage, B. P. (1992): integrated Rural Energy Programme in Sri Lanka: Approach and Institutions. In Energy for Rural development, Bhagavan M. R. and Karekesi. S. Zed Books.

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