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Steering Committee of the Energy Efficiency 2000 Project
Eighth session, 28-30 May 1997

**EVALUATION REPORT
Conclusions and Recommendations**

Note by the external evaluators ^{1/}

Introduction

1. During its seventh session the Steering Committee requested the Bureau to appoint an expert to evaluate the project and make recommendations for incorporation into the draft project plan for the third phase. The evaluation of the project has been carried out by Hagler Bailly Consulting Ltd. with preliminary interviews of Steering Committee members beginning in October 1996. These initial interviews led to the formulation of a detailed questionnaire circulated to all delegations of the Steering Committee. Interviews were carried out by telephone and in person with current and past members of the Bureau (Chairman and Vice Chairmen) and selected delegations of the Steering Committee.

2. An analysis of the replies from the questionnaire, information and guidance from the interviews were used to prepare the present report on Conclusions and Recommendations. The questionnaire replies have been analyzed statistically to show what Project activities were considered to be most important, which activities have been extensively covered, most important impacts of the Project and a rank ordering of proposals for the 1997-2000 period. The statistical analysis is contained the Evaluation Report Compilation of Replies to the Questionnaire (ENERGY/WP.4/R.6). Opinions expressed in this report are those of the authors and respondents to the evaluation survey and do not necessarily reflect positions of the UNECE secretariat or UNECE member states.

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Executive Summary

3. In its first six years the EE 2000 Project has filled an important niche not addressed by other institutions. It has leveraged its modest resources to achieve results that are far greater than the resources would indicate. The high level participation that the EE 2000 Project continues to receive in the ECE Transition Economies (ECETEs) is a testimony to the positive impacts already achieved and to the expectations held out for the next phase. Most of the ECETEs are beginning to experience growth, and the advent of private sector activity. Phase 3 of EE 2000 will be focused on facilitating private sector delivery of energy efficiency best practices and technologies to markets in the ECETEs. Based on the 21 responses received from 18 participating countries, and on meetings and interviews, the Consultants have prepared this summary report and a companion report that is a Compilation of Survey Responses.

4. The Consultants' summary recommendations are:

a. Reduce the high market entry costs and risks for private sector energy efficiency entrepreneurs. Recognizing that the risks and returns of energy efficiency business activities for ECETEs and ECETE private companies are still not sufficient to result in the needed levels of investment, EE 2000 should:

i) Encourage ESCO Activities. Mixed public-private sector ESCOs may be appropriate in start-up situations. EE 2000 should also develop an ESCO Reference Checklist for ECETE partners that will assist them to verify the credentials, past experience, technical competence and financial soundness of would-be ESCOs expressing interest in operating in the ECETE country. It is essential that the ECETEs prevent unqualified and/or unscrupulous operators from entering this field, lest private sector credibility receive a major setback.

ii) Demonstration Zone Implementing Agreements. As a further aid to reduce risks for all parties, model implementing agreements should be developed for new demonstration zones.

iii) Energy Efficiency Investor Guides. To help reduce market entry and transaction costs for ECETEs companies wishing to learn about making energy efficiency investments in ECETEs, the example of the Guide to Investors in Energy Efficiency Project in the Russian Federation (United Nations 1997) should be drawn on and emulated in a selected number of ECETE countries where there is sufficient domestic and outside support for the task. The Internet Web Site initiatives described below could be linked to this work.

b. The SACHA Programme for energy efficiency standards and labelling should be expanded to provide greater coverage.

c. Update EE 2000 Information Dissemination and Training Techniques. In view of the fact that access to the Internet World Wide Web (WWW) is now widespread throughout the ECE States, WWW sites should be created in all the major ECETE languages. These "virtual energy centres" would provide periodically updated information of use to all UNECE Member Countries. The WWW approach will improve the cost-effectiveness of EE 2000 information delivery, and it will have the capability of being updated to reflect the rapidly changing opportunities and conditions. EE 2000 traditional use of printed media should not be abandoned, but it should receive less emphasis in favor of more efficient and more cost-effective methods.

d. Professional Training. The successful training initiatives in the areas of project feasibility study preparation and financial engineering should be continued. The Internet should also be used to supplement the traditional EE 2000 training programmes, by permitting more people to be reached at a lower cost.

e. Joint Implementation (JI). The mechanisms of Joint Implementation offer the potential of attracting private sector financing from ECE member States to the ECETEs' energy efficiency and other environmental mitigation projects. Recognizing that the Demonstration Zone process should not be burdened with additional complicating factors in the near term, EE 2000 should examine the advantages and disadvantages of using mature Demonstration Zones to test the validity of a medium-term effort to lay a broad groundwork for JI in ECETEs.

A. Background

5. Since 1991 the Energy Efficiency 2000 Project has played an evolving and singular role in encouraging trade, co-operation and deployment in the field of energy efficient and environmentally sound technologies. The ECE Transition Economies (ECETEs) started the 1990s in conditions of high inflation, economic and demographic depression, social dislocation, institutional malaise, absence of domestic capital and lack of market economy skills. While the severity of these factors varied from country to country, all of the ECE Transition Economies shared high energy intensities, a structural insensitivity to energy costs, outdated technology and the absence of delivery mechanisms for energy efficiency investments and the technologies to go with them. Many of the Transition Economies also shared a wish to protect vulnerable domestic manufacturing capabilities, and thus to resist large scale technology imports.

6. The market drivers for energy efficiency activity began to emerge during the second phase of the EE 2000 Project, with the movement of domestic energy prices towards world levels.

7. At the start of the EE 2000 Project, the operating mode of the UNECE was characterized by the search for non-politicized areas of co-operation between East and West. The situation today has evolved in that the UNECE's goals include the acceleration of convergence between the ECE Market Economies (Autumns) and the ECETEs that are working to institutionalize democracy, re-start their economies and compete successfully in the global economy.

8. EE 2000 occupies a niche among the lending and technical assistance activities of the international financing institutions, bilateral technical assistance programmes and the European Commission's Phare and Tacis programmes. From a small resource base, EE 2000 uses the unique UNECE forum to promote a set of activities that complement the nationally focused work of the other institutions. EE 2000, like the ECETEs themselves, must make a small amount of resources go a long way, and in this lies part of its appeal.

9. The task of this evaluation was to collect the views of Member States, National Participating Institutions and other participants as to how effective the Project has been, and how it can be most effective in leveraging its resources for the next three years.

B. The Survey Process

10. In consultation with the Secretariat, we designed a 12 page questionnaire embodying the evaluation methodology. The questionnaire devoted relatively more space to the needs of the ECETEs, however, as a result of telephone conversations and meetings with the Bureau it was also possible to obtain substantive feedback from the Autumns. Questionnaires were sent to 55 individuals. We received 21 responses from 18 countries, of which 6 were from Autumns and 15 from ECETEs. A detailed compilation of the answers has been prepared as a separate document (ENERGY/WP4/R.6).

C. Summary of Conclusions from the Survey Responses

Near Term Objectives

11. The survey revealed the following conclusions about objectives:

- a) The six ECEME's responding to the survey placed a high priority on trade and co-operation in energy efficient technologies, but this ranking was not shared by the ECETE's, who gave high priority to laying foundations for decentralized, grassroots approaches to energy efficiency.
- b) Both groups shared the view that high priority should be given to the environmental emission reduction impact of energy efficiency activities.
- c) The role of EE 2000 in linking ECETE's with non-EU market economies was stressed by a number of respondents, while at the same time EE 2000 plays a role in promoting the convergence of energy practices between EU Members States and those ECETE's that are destined for eventual EU membership.
- d) Consider whether the AIJ system could bring additional funding to projects in those countries that have ratified the Framework Convention on Climate Change.

Strategic Approach

12. Five elements make up the EE 2000 project:

- a) exchange of information
- b) achieve practical and tangible results in energy efficiency demonstration zones
- c) share and disseminate lessons and results from demonstration zones
- d) build capacity in the scope of market establishment (e.g., training, institutional reform guidelines, financing mechanisms)
- e) remove market barriers (e.g. capital investment source, norms, standards and labelling)

13. Both ECETE's and ECEME's ranked information exchange as having had the highest priority during the first six years of the programme. Printed media, conferences and workshops were the main mechanisms for information dissemination in Phases 1 and 2. In 1997, professionals throughout the ECETE's have access to the World Wide Web via Internet, and are accustomed to making use of it. Web sites offer flexible and very cost-effective means of making information available as well as providing delivery mechanisms for interactive training. For the ECETE's the second highest priority was the one most closely connected to the first, namely, sharing and dissemination of results.

D. Work Plan

14. The importance and the effectiveness of each of the six functional areas of the EE 2000 project was ranked by all respondents. For ECEME's the most important elements were the pilot and demonstration projects, information exchange and business contact networking. For the ECETE's, information exchange, business contacts and technology information were the three most important areas.

E. Activity Priorities for the 1997-2000 Period

15. The ECETEs are characterized by high technical skills and a good understanding of the technical solutions to energy efficiency problems. However, with market economies only beginning to emerge in most of the ECETE's, the market-based delivery mechanisms for energy efficiency are mostly lacking. Thus, while requirements to satisfy technical feasible criteria are well understood, the elements of business planning, financial and economic feasibility, and negotiating with project sponsors, investors and lenders are not widespread. In our view, this explains the top priority given by the ECETE's to "financial engineering mechanisms" as the highest training priority focus for Phase 3. Activities that ranked next in priority to financial engineering were trade promotion, demonstration zones, and laws and regulations to covering energy efficiency.

F. Impacts of the Energy Efficiency 2000 Project.

16. This question was covered both in the form of a matrix and with a request for narrative statements. It was directed at the ECETE's rather than the ECEME's. Therefore, although the matrix contained in the Compilation of Responses does not distinguish between ECETE's and ECEME's, it should be assumed that the answers reflect the former.

a) EE 2000 has had major impacts on legislation and national institutions (Albania, Belarus, Bulgaria, Hungary, Lithuania, Poland, Russian Federation and Ukraine).

b) EE 2000-inspired demonstration zones in Belarus, Bulgaria, Latvia, Romania, Russian Federation, Slovenia and Ukraine received high marks from respondents, particularly where UNECE has been a catalyst for bilateral (British, German, Norwegian and United States), multilateral (UNDP/GEF) and private initiatives, such as in Nikolaev, Ukraine).

c) In the Russia Federation, EE 2000 co-operation resulted in the preparation of a practical Guide for Investors in Energy Efficiency Projects in the Russian Federation (United Nations 1997).

G. Demonstration Zones

17. The Demonstration Zone concept is based on the assumption that it is at the local level where needs are best understood and where decisions critical to the viability of projects will be taken. It is also clear that the "demonstration" taking place is not of technologies, because only technologies that have been fully proven in commercial operation will be considered, but rather a demonstration of how energy efficiency projects are identified, analyzed, packaged, funded and launched in embryonic market economies. In the ECETE's most investment is high risk. Energy efficiency is perceived of as a high risk/low return area of investment, and demonstration zones are a means of lowering risk. Where the risks of experimentation at a national level are too great, local demonstration zones become the best method of testing institutional mechanisms to reduce risk and extrapolating success stories to other regions and the national level at a later date. In addition, with environmental problems being typically local in nature, the demonstration zone lends itself very well to combined solutions to reducing energy waste and environmental emissions.

18. The experience to date yields the following key recommendations for the next phase:

- a) Demonstration zone identification and authorization needs to be accelerated.
- b) Problems and solutions in demonstration zones must be "typical" for the country and not "unique".
- c) Monitoring and dissemination of results must be more effective. The possible role of independent, private sector experts should be examined.
- d) There must be a commitment at the level of national policy on energy efficiency to link the experiences of the demonstration zones with the formation of national policy, legislation and standards.
- e) While successful energy efficiency demonstration zones may have beneficial secondary effects (e.g. increased employment), the basic demonstration zone goals face enough challenges without loading non-energy requirements on them.
- f) Joint Implementation may, in the future, develop to the point where it could provide important financial and policy support to energy efficiency demonstration zones, but attempts should not be made in the near future to impose JI on demonstration zones. However, where FCCC signatory countries are already collaborating in a demonstration zone, the case-specific opportunities for JI may be examined for that situation.

g) Demonstration zones must show results within one year of implementation and the ECETEs should establish procedures by which the positive lessons learned can be "scaled up" to the national level. Where appropriate, national demonstration zone associations can facilitate exchanges of experience and zone approval, as is the case in Russia with ROSDEM.

H. Private Sector Involvement

19. Up until 1997, the EE 2000 project focused on institutional capacity building as a key condition for the establishment of market economy-based energy efficiency activities. Domestic and foreign investors have thus far perceived energy efficiency projects in private and semi-state enterprises in ECETEs to be high risk/low return. At the same time, public authorities have given high priority to projects in the state sector, particularly in the heat and buildings sectors, where subsidies paid by local governments have been increasing as input fuel prices increase.

20. ECETEs have minimal budgetary resources to devote to energy efficiency and are also characterized by extreme shortages of domestic private capital. The next phase of EE 2000 will have to increase the emphasis placed on facilitating the entry of domestic and foreign private project sponsors and investors. This means reducing transaction costs and project preparation times, while refining risk mitigation measures such that commercial banks will accept lending risks and private investors will consider equity investments. It also suggests that the authorities will need to become informed and intelligent customers for private sector services so as to prevent unqualified and/or unscrupulous operators from damaging a new market.

I. Information Sharing and Dissemination

21. In the ECETEs information dissemination is often associated with the problem of managing information overload. In the ECETEs there has been an intense demand for information which has made this a key component of the EE 2000 programme. During the first years of the Project, information exchange was largely unidirectional, i.e. dissemination of information from ECETEs countries to ECETE countries on energy efficient technologies and policies. This information flow has now acquired another two dimensions :

a) Between the ECETEs, in order to share practical experiences acquired in demonstration zones and from those countries that are farthest along in creating market environments for energy efficiency; and

b) From ECETEs to ECETEs, in order to inform western market actors on how to enter the nascent energy efficiency markets in the ECETEs.

22. A corollary to this issue is the selection of efficient media for information dissemination. Up to now, the principal media were printed materials and distribution through mailings and as part of targeted conferences. In the rapidly changing conditions of the ECETEs we suggest that printed media now risk obsolescence, and that the use of new media, such as the Internet and World Wide Web (WWW), seems appropriate.

- a) Professionals throughout the ECETEs make use of the Internet, often motivated in the mid-1990s by the inadequacies of domestic communication infrastructures. The European Commission (Tacis, Phare and Thermie - for energy efficiency technology dissemination) makes extensive use of WWW sites, as do governmental agencies in most of the ECETEs. IEA programmes such as GREENTIE and CADDET use the Web, and in 1997 it is increasingly being used for interactive training programmes, e.g. by Thermie. Information on Web sites can be updated for a fraction of the cost of printed media, and the nature of Internet search technology is such that users are bound to find the sites of greatest use and interest.
- b) Training should continue to part of EE 2000, but should focus on practical problems of financing EE investment and not on technical issues. Effective use of the Internet could reduce costs and increase coverage, although classical face-to-face training should still be continued.
- c) Printed materials will continue to be needed, particularly for manuals and synthesis documents. Nevertheless, if EE 2000 succeeds in establishing one or more WWW sites, an on-going evaluation should be made as to whether a particular publication is more suited to printed media or to distribution via WWW.
- d) Sub-regional co-operation initiatives. Opportunities to carry EE 2000 objectives forward via sub-regional activities should be pursued. An example is the Southeast European Co-operative Initiative (SECI) now getting underway.

J. Funding

23. The EE 2000 Project depends on the staff resources of the UNECE Secretariat and on bilateral contributions to its Trust Fund. However, the EE 2000 project has shown the capability to raise funding from other programmes with a powerful leverage effect. The goal here is to expand the results achieved at the micro level to the national scale. There are two possible directions for growth which could also be combined :

- a) to secure additional funding for the EE 2000 project
- b) to improve the leverage effect from funding agencies (e.g. by avoiding duplication and improving co-ordination)

24. Respondents to the Survey had the following suggestions:

- a) co-ordination with other international organizations in order to demonstrate complementarity and value added, e.g. other UN operational divisions (environment, training); UNDP and the Global Environment Facility (GEF); UNFCCC secretariat (UN Framework Convention on Climate Change); OECD/IEA (GREENTIE / CADDET); European Commission; Energy Charter Treaty and Protocols.
- b) Use of "implementing agreements" to secure funding from a set of ECETEs for specific projects. This mechanism, used by the IEA since 1976, is a means of obtaining binding commitments on a task-sharing basis, thus avoiding the administrative burdens of centralized, multilateral projects. This could increase the levels of ECETEs national contributions by providing specific opportunities that fit with the varied priorities of Governments.

c) ECETE use of existing energy saving funds (for demonstration zones) and improved allocation of existing funds. Many of the ECETEs have set up or are in the process of establishing energy efficiency funds to meet the shortage of capital available for such projects. Often these are capitalised in whole or in part by outside technical assistance agencies and official lenders. In accordance with the lending criteria of the funds, they could be encouraged to look to demonstration zones for viable projects.

K. Consultants' Recommendations for Phase 3 Core Activities

25. After completing the survey and analysis the consultants make the following recommendations:

a) Reduce the high market entry costs and risks for private sector energy efficiency entrepreneurs. Recognizing that the risks and returns of energy efficiency business activities for ECEME and ECETE private companies are still not sufficient to result in the needed levels of investment, EE 2000 should:

i) Encourage ESCO Activities. Mixed public-private sector ESCOs may be appropriate in start-up situations. Since all participants in this new market need the assurance that partners are sound, well-backed and have integrity, EE 2000 should develop an ESCO Reference Checklist for ECETE partners that will assist them to verify the credentials, past experience, technical competence and financial soundness of would-be ESCOs expressing interest in operating in the ECETE country. It is essential that the ECETEs prevent unqualified and/or unscrupulous operators from entering this field, lest private sector credibility receive a major setback.

ii) Demonstration Zone Implementing Agreements. As a further aid to reduce risks for all parties, model implementing agreements should be developed for new demonstration zones. These may build on the IEA's twenty years of experience in using multi-party implementing agreements for task-sharing projects.

iii) Energy Efficiency Investor Guides. To help reduce market entry and transaction costs for ECEME companies wishing to learn about making energy efficiency investments in ECETEs, the example of the Russia Guide (1996) should be drawn on and emulated in a selected number of ECETE countries where there is sufficient domestic and outside support for the task. The Internet Web Site initiatives described below could be linked to this work.

b) The SACHA Programme for energy efficiency standards and labelling should be expanded to provide greater coverage.

c) Update EE 2000 Information Dissemination and Training Techniques. Printed media are becoming less useful given the rapid changing conditions in the ECETEs. In addition, the "search engines" in use throughout the world, including in the ECETEs make sure that persons interested in specific topics will find the needed information wherever it exists in the world. In view of the fact that access to the Internet World Wide Web (WWW) is now widespread throughout the ECE States, WWW sites should be created in all the major ECETE languages. These would provide periodically updated information of use to all UNECE Member Countries. The WWW approach will improve the cost-effectiveness of EE 2000 information delivery, and it will have the capability of being

updated to reflect the rapidly changing opportunities and conditions. EE 2000 traditional use of printed media should not be abandoned, but it should receive less emphasis in favor of more efficient and more cost-effective methods.

d) Professional Training. The successful training initiatives in the areas of project feasibility study preparation and financial engineering should be continued. The Internet should also be used to supplement the traditional EE 2000 training programmes, by permitting more people to be reached at a lower cost.

e) Joint Implementation (JI). The mechanisms of Joint Implementation offer the potential of attracting private sector financing from ECEME member States to the ECETE's energy efficiency and other environmental mitigation projects. Recognizing that the Demonstration Zone process should not be burdened with additional complicating factors in the near term, EE 2000 should examine the advantages and disadvantages of using mature Demonstration Zones to test the validity of a medium-term effort to lay a broad groundwork for Joint Implementation in ECETEs.