



MINISTRY OF NATURE AND THE ENVIRONMENT

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4/456.

May 27, 1999

Subject: Stove improvements and air pollution reduction in Ulaanbaatar

Dear Mr. Mohamed T. El-Ashry

Concerning the reduction of air pollution in Ulaanbaatar the Ministry of Nature and the Environment requests the GEF-PDF A support for preparing a mid-size GEF project document.

I hope that you will find it useful and support the proposal.

Please find attached project proposal for block A PDF Funding.

Thank you for your cooperation and support.

With best regards,

Dr, Ts. Adyasuren
GEF National Focal point,
Advisor to the Ministry

Mohamed T. El-Ashry
Chairperson of GEF

Proposal for Block A PDF Funding

PART I - ELIGIBILITY

1. **Project Name:** Stove improvements and air pollution reduction in Ulaanbaatar
2. **GEF Implementing Agency:** World Bank
3. **Country in which the project is to be implemented:** Mongolia
4. **Country Eligibility:** Mongolia adopted the UNFCCC on 30 September 1993
5. **GEF focal area(s), and/or cross-cutting issues:** Climate Change, Biological Diversity
6. **Operational program:** Removing barriers to energy conservation and energy efficiency, Forest ecosystems
7. **Project linkage to national priorities, action plans and programs:** As a consequence of the very poor air quality in urban areas during the long winters, the improvement of urban household stoves was identified as a high priority action in the 1995 National Environmental Action Plan. Improved stoves with much lower emissions now exist, as well as means to improve the existing stoves, and the project will help to promote and facilitate their adoption. The Ministry of Nature and Environment's program on energy efficiency regards the problem of inefficient urban stoves as a major and starting from late 1997 (with the support of the British Embassy), presented 600 improved stoves to urban families in order to monitor their acceptance and field performance.
8. **GEF national operational focal point and date of Country endorsement:** Dr Ts. Aduyasuren, Advisor to the Minister, MNE. Ulaanbaatar, May 27, 1999.
9. **Project rationale and objectives:** Mongolia has one of the highest GHG emissions per capita and GHG emissions per \$GDP in the world, primarily due to the major need for heating and the rather inefficient power-heating stations. However the tens of thousands of inefficient heating-and-cooking coal-fired stoves used by the poorest sections of society produce not only significant quantities of carbon dioxide but also of the far more powerful GHG, carbon monoxide. Air pollution is an obvious and serious problem in Ulaanbaatar (UB) and other urban areas in Mongolia. During the bitterly cold winter smoke sits on the towns and is the major cause of the respiratory conditions and diseases that account for half of the child deaths and a major part of child and adult morbidity. The primary source of the air pollution is the tens of thousands of stoves in the poorer *ger* (traditional tents) districts. There are about 65,000 *gers* in UB accounting for about 300,000 of the city's 700,000 population. In UB the *ger* districts are located above and largely upwind of the city with the result that their smoke settles over the city affecting the entire population.

Mongolians use four types of fuel: coal, fuelwood, dung and, in the most affluent households, LPG. While the collection of fuelwood and dung has environmental consequences (degradation and attrition of woody vegetation, and interruption of mineral cycling respectively) the resources are not perceived as limiting in many areas and so there is little incentive to adopt a more efficient

stove. In urban settings, however, the coal stove predominates. Coal is abundant in Mongolia and is unlikely to be superseded to any significant extent in the foreseeable future.

Improved stoves and inserts for existing stoves have attracted the attention of Government of Mongolia (GoM) since they use much less coal for the same amount of heat, can stay alight through the night and thus use much less wood.

In request from the GoM, a technical assistance is provided by the World Bank (ESMAP program) in order to improve the marketed coal stoves, design "inserts" able to improve the existing stoves without switching for a new one, test innovative delivery mechanisms for the new products and know-how, and carry out necessary surveys to collect data for the design of a pluri-annual program. Two missions have already been held, the last one in May 1999.

In addition to the on-going ESMAP support, the GoM has decided to request the benefit of a GEF-PDF A support, in order for the Ministry of Nature and Environment (MNE) to have the means to prepare a mid-size GEF project document.

10. Expected outcomes:

Wide adoption of the improved stove would (i) decrease indoor and outdoor air pollution by reducing smoke, dust, and other emissions from coal fueled household heating stoves, and (ii) alleviate the poverty by saving on household fuel costs in the ger families through the improvement of space heating technology and practices. The accomplishment of GEF program would

- improve the health and living conditions of the poorest section of the urban communities (especially women and children), as well as the wider urban communities;
- provide real cash savings after the first year;
- reduce significantly emissions of greenhouse gases;
- reduce pressure on nearby forests, some of which are within national parks and other protected areas;
- provide urban employment;
- provide opportunities for NGO participation development;
- provide opportunities for environmental education and awareness building;
- provide authorities with knowledge and reference to extend the benefit to other urban communities in Mongolia.

11. Planned activities to achieve outcomes:

Assuming that the comprehensive survey of acceptance reveals no fundamental problems, it is expected that over a three-year period at least 55,000 stoves will be improved in the *ger* households. The projects steps would include:

- Promote the commercialization of improved stoves (improved G2) through repeated public awareness campaigns, including TV spots, radio, weekly free demonstrations and training in the gers districts, etc. These activities will be held in collaboration with the Municipality of UB, the ger district officers, concerned Ministries and the local NGOs, whose all can make an important contribution to the project;
- promote innovative delivery mechanisms for the new commercialized products (improved stoves and inserts), including "package offers" and credit facilities;
- Convince households to improve their existing stoves on the spot, without replacing them, by the use of standardized stove-inserts, by means of which all existing stoves can be improved immediately. This approach is likely to have the strongest impact, with high social and environment returns. These inserts,

basically an improved combustion chamber to be placed inside the existing stoves, should be produced locally and become available on the market. Their promotion within the gers can be carried out by NGOs and trained private teams (the Energy Service Companies, ESCOM), on a commercial basis.

- Convince home-stove-producers that it is in their best interest to make an improved stove model when they have decided to replace their old one. This requires implementation of a wide information dissemination program (using TV, NGOs, etc.) including free weekly training sessions within the ger districts.
- Promote best practices to improve the existing stoves without using commercialized inserts (for those who can not afford such inserts). This will be done through free weekly training sessions within the ger districts, and through the collaboration of concerned NGOs, Municipality services, etc.
- Convince retailers in the black markets to produce and commercialize only improved stoves, based on official efficiency criteria. This requires to define such criteria, to provide professional training and to verify or certify that commercialized stoves meet the criteria.
- If briquettes have to be produced (for example by the PNUD-Ministry of Infrastructure ongoing project), promote the use of such briquettes in replacement of coal. This requires adapted stove design, promotion campaigns, innovative delivery mechanisms, demonstrations, etc.
- assess additional demand and respond accordingly;
- transfer experience to at least five *aimag* centers and/or urban centers;
- use the lessons learned to consider the practicalities of promoting improved fuelwood and dung stoves for rural populations.

12. **Stakeholders involved in project:** To be determined during preparation (See Part II)

PART II – INFORMATION ON BLOCK A PDF ACTIVITIES

13. **Activities to be financed by the PDF:**

Task 1: costed plan for new delivery mechanisms: a) channeling credit to *ger* communities and receiving repayments; b) training of technicians (private technicians and technicians from the Municipality) to promote stoves improvements (new stoves, inserts and best practices) in the ger's families, on a commercial basis; c) organization of free-of-charge training sessions in gers district areas, in favor of informal stove producers and local families, with the collaboration of Mon San Cie and NGOs; d) promotional package offers, including an improved stove (or insert kit) and necessary coal and woodfuel for one winter season;

Task 2: costed plan for building awareness about the new stoves/inserts and the credit possibilities through the production of information campaigns using TV spots, radio and animation in gers districts;

Task 3: organization and animation of a national workshop with all key stakeholders such as MNE, Ministry of Infrastructure, Municipality of UB, private sector, Environment's NGOs, Women's NGOs, stove producers, gers districts officers, media, donors, etc. The objective is to discuss the draft proposals of the pluri-annual GEF project;

Task 4: preparation of a pluri-annual project document to be presented to the GEF secretariat.

14. Expected outputs and completion dates:

- (a) Operationally relevant recommendations based on representative sample of the poorer urban communities
- (b) A plan for awareness building using all available media and opportunities
- (c) A transparent and culturally acceptable means of selling stoves, stove inserts
- (d) A transparent and culturally acceptable means of disseminating best practices for the poorest families to improve, by themselves, the traditional stoves with affordable rough materials,
- (e) A realistic plan for pacing awareness building and developing credit facilities

15. Other possible contributors/donors and amounts:

The World Bank (ESMAP) for household surveys, design of improved stoves and inserts, air pollution tests, and experimentation of innovative delivery mechanisms including micro-credit aspects (\$43,000), Government of Mongolia for workshop (\$5,000)

16. Total budget and information on how costs will be met (including the Block A grant)

- (a) Preparatory surveys- ESMAP
- (b) Stove/insert/best practices experimentation program - ESMAP - Mon San Cie
- (c) New delivery mechanisms - US\$ 16,000 GEF PDF A and ESMAP
- (d) Building awareness about the new stoves/inserts - US\$ 4,000 GEF PDF A
- (e) A national workshop - US\$ 3,000 GEF - PDF A and GoM
- (f) Preparation of a pluri-annual project document – US\$ 2,000 GEF PDF A and ESMAP and GoM

PART III – INFORMATION ON THE APPLICANT INSTITUTION

17. **Name:** Ministry of Nature and Environment

18. **Date of establishment, membership, and leadership:** 1987, Government Ministry

19. **Mandate/terms of reference:** To create the legal, economic and organizational background for environmental protection and proper use of natural resources; to coordinate the activities of governmental and non-governmental organizations, to ensure that sustainable economic development is consistent with the carrying capacity of nature, to establish integrated monitoring systems for environmental equilibrium, to conduct environmental monitoring.

20. **Sources of income:** Government budget

21. **Recent activities/programs, in particular those relevant to the GEF:** UNDP-GEF Biodiversity Conservation Project, UNDP-GEF Eastern Steppes Biodiversity Project

PART IV – INFORMATION TO BE COMPLETED BY IMPLEMENTING AGENCY

22. **Project identification number:** To be decided

23. **Implementing Agency contact persons:**

- Tony Whitten, East Asia Environment Unit, The World Bank, Washington DC, ph. 1-202-458-2253, fx 1-202-522-1666, email twhitten@worldbank.org and/or,
- René Massé, EMTEG, Energy Unit, The World Bank, Washington DC, ph. 1-202-473 8682, fx 1-202-522 3483, email rmasse@worldbank.org

24. Project linkage to Implementing Agency program: An improved stoves project is specifically mentioned in the World Bank Country Assistance Strategy for Mongolia 1998-2000