BOARD
OF
DIRECTORS

ASIAN DEVELOPMENT BANK

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TECHNICAL ASSISTANCE TO THE KYRGYZ REPUBLIC FOR ENVIRONMENTAL MONITORING AND MANAGEMENT CAPACITY BUILDING II (FINANCED BY THE GOVERNMENT OF FINLAND)

The attached Report is circulated for the information of the Board. The President approved the technical assistance on 11 September 2000.

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ASIAN DEVELOPMENT BANK **TAR: KGZ 33193**

TECHNICAL ASSISTANCE
(Financed by the Government of Finland)

TO THE

KYRGYZ REPUBLIC

FOR

ENVIRONMENTAL MONITORING AND MANAGEMENT

CAPACITY BUILDING II

September 2000

CURRENCY EQUIVALENTS
(as of 21 July 2000)

Currency Unit	–	Som
Som1.00	=	$0.0213
$1.00	=	Som46.958

The exchange rate of the som is determined on a managed float basis through periodic foreign exchange auctions. The calculations in this report are based on an exchange rate of Som46.958 to $1.00.

ABBREVIATIONS

ADB	–	Asian Development Bank
LIMS	–	laboratory information management system
MOEP	–	Ministry of Environmental Protection
TA	–	technical assistance

NOTES

(i) The fiscal year (FY) of the Government ends on 31 December.
(ii) In this report, "$" refers to US dollars.

I. INTRODUCTION

1. The Government of the Kyrgyz Republic has requested the Asian Development Bank (ADB) to provide technical assistance (TA) to improve the national capacity for environmental monitoring and management. The TA Fact-Finding Mission visited the Kyrgyz Republic from 19 February to 5 March 2000. This report is based on the findings of the Mission and the understandings reached with the Government on the objectives, scope, terms of reference, implementation arrangements, and cost estimates for the TA.[1] The TA is included in the country assistance plan for 2000. The TA framework is presented in Appendix 1.

II. BACKGROUND AND RATIONALE

2. Harsh natural conditions and delicate ecosystems constitute the Kyrgyz environment. Major environmental concerns are industrial pollution from mines and factories, including those that process radioactive and industrial toxic and hazardous wastes. While current environmental problems threaten economic growth potential, the situation could rapidly deteriorate if appropriate policies and programs are not pursued, particularly as economic activity increases.

3. The Kyrgyz Republic's degraded environment is believed to affect the poor more than the nonpoor. Since independence in 1991, the country has experienced (i) deterioration of social infrastructure; (ii) increased poverty, unemployment, and underemployment; (iii) sharp reduction in the size and change in the composition of income and social protection payments; (iv) rapid deterioration in social services provision; and (v) increased social disintegration. Poverty incidence has risen from about 50 percent to more than 60 percent in recent years.

4. Little is known about the relationship between poverty and environmental degradation in the Kyrgyz Republic. A national strategy for poverty reduction is being prepared, and ADB and the Government intend to sign a poverty reduction agreement by the end of 2000. Connections between poverty and the environment need to be clarified. At the microlevel, insufficient resources can lead to overextractive practices. For example, a household's lack of access to central heating and gas increases the pressure on forests because of firewood collection. Intensive livestock farming to provide supplemental household income leads to overgrazing and, subsequently, soil erosion. At the macrolevel, it is the poor who are more likely to be residing in areas affected by air and water pollution. Thus they are more prone to diseases related to poor environmental conditions, particularly since they have no resources to abate pollution nor treat pollution-related diseases. This reduces quality of life and productivity, and leads to deeper poverty, and in turn increasing pressure on the environment.

5. Effective environmental management is one of the keys to poverty reduction but a prerequisite is sound environmental institutions to support priority environmental management programs. Proper management necessitates a technically appropriate environmental information system to support national and local governments in planning and decision making. National environmental policies can be set with public health as the indicative factor. The information management system should be able to relate and combine health indicators with pollutant pathways through air, water, and soil; and track temporal changes from source to target. This can be initiated by identifying geographically contained, high-risk groups—environmental exposures should be related to pertinent data. For example, a database can relate water and air quality, health, and occurrence of diseases (pathway), and thus provide information for setting priorities.

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[1] The TA first appeared in *ADB Business Opportunities* on 10 February 2000.

6. ADB has provided two TAs[2] to the Kyrgyz Republic to support building necessary institutional and information foundations. A TA to strengthen environmental institutions and improve environmental impact assessment in the Kyrgyz Republic was financed by ADB during 1996-1997. One of the four focal areas was environmental monitoring. The TA identified tasks to strengthen the capacity of institutions in environmental monitoring and data management. With the correct data, environmental investments can be made that have the most impact on the poor, or poverty reduction investments can be made with maximum improvements in the environment. The correct database can also guide the removal of incorrect environmental subsidies that have negative impacts on the poor.

7. Based on recommendations from TA 2397, and in line with the Government's national environmental action plan,[3] ADB provided TA for environmental monitoring and management capacity building. Eight case studies were undertaken in Chui oblast, where the capital city Bishkek is situated. Source-target pathway[4] monitoring was established at the case study sites. The TA also initiated a training-of-trainers program with parallel financing for international training by the Government of Finland. During the training, the processing of the field data, and the available archive information was conducted using several databases on networked computers, placed within the offices of the participating agencies and connected by a server established at the Ministry of Environmental Protection (MOEP). A laboratory information management system (LIMS) was established to enhance future connectivity, improve quality assurance, and facilitate reliable cross-agency data comparison. The LIMS continues to be used by the staff of the agencies involved. Networked databases for information exchange, across agencies concerned with environmental management, is considered by the Government as the cornerstone for strengthened environmental performance. The TA also identified critical strengthening needs, and organized them in the form of a plan; they include (i) clarification and extension of the environmental mandate to relevant agencies; (ii) updating and revising environmental regulations and standards to include integrated pollution prevention and control, based on source-pathway-target concepts; (iii) development of the environmental permit system; and (iv) integration of regulations and standards into integrated pollution prevention and control, in line with ISO14000.[5] Those wider issues can be taken into account by cooperating with other development agencies, but they cannot be addressed comprehensively due to lack of resources.

8. To allocate the limited environmental and natural resources properly for poverty reduction, the environmental monitoring and management systems need to be improved. A TA is also required to demonstrate the linkages between poverty reduction and environmental management, so that government agencies will be able to design their policies correspondingly.

9. As identified under the action plan resulting from the previous TA, there are urgently required tasks to strengthen the capacity of the involved institutions, to address their duties in environmental monitoring and data management, and to undertake new efforts to ensure priority is given to investments for environmental monitoring and information systems that optimize impacts on poverty reduction. TA is needed for this. The previous training case studies were all

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2 TA 2397-KGZ: *Strengthening Environmental Institutions and Improving Procedures for EIA*, for $556,000, approved on 13 September 1995; and TA 2934-KGZ: *Environmental Monitoring and Management Capacity Building,* for $598,000, approved on 11 December 1997.

3 Kyrgyz Republic. Ministry of Environment Protection. 1995. *National Environmental Action Plan*. Bishkek.

4 A source-target pathway approach includes planning of the monitoring so that impacts of particular sources of pollution can be identified, and economic as well as other consequences evaluated by source.

5 ISO14000 is the environmental management system standards, International Organization for Standardization.

located in Chui oblast. The capacity building must now be extended to the next important oblasts of Jalal-Abad and Osh. The training would be similar. Case studies will be taken from real life. Most of the trainees will come from the local government.

III. THE TECHNICAL ASSISTANCE

A. Objective

10. The objective of the TA is to strengthen planning and decision making in environmental management by improving the capacity of key institutions in environmental monitoring and data management with maximum impacts on poverty reduction.

11. The objective will be achieved by (i) evaluating environmental issues related to poverty reduction, (ii) implementing a training program in three oblasts and developing training case studies, (iii) expanding the data management system, and (iv) maintaining support to MOEP's oblast monitoring departments, its laboratory, and other participating laboratories. Workshops and seminars, as well as materials and equipment, will be provided for training purposes.

12. Strengthening of institutional capacity will continue in Chui oblast, where the work was started under the previous TA. Strengthening of monitoring and data management capacity will be expanded to Osh and Jalal-Abad oblasts.

B. Scope

1. Environmental Indicators for Poverty Reduction

13. The environmental analysis will be based on national and other statistics. It will analyze the environmental impact on the poor and environmental risks, regarding access to natural resources, environmental health, property rights, and other relevant issues. Strategies to reverse the negative effects on the poor, while fostering economic growth, will be proposed at a general level for the whole country. Detailed recommendations for environmental monitoring to address those concerns, by generating adequate information for environmental management and investment, as well as regulatory decision making, will be prepared for the oblasts of Chui, Osh, and Jalal-Abad. Both urban and rural poverty will be addressed. A review workshop will be organized to incorporate the views of the relevant ministries, other agencies, and nongovernment organizations. The draft strategy report will provide guidance for the detailed capacity-building work program, which will be prepared during the inception phase of the TA. Workshops and seminars will be held during the three first months of TA implementation to gain feedback on the draft environmental poverty strategy.

2. Training for Environmental Monitoring and Data Management

14. During the inception phase, briefing seminars (one or two days) will be organized in Bishkek (for the city and Chui oblast) and in Osh (for the oblasts of Osh and Jalal-Abad), to introduce the TA to the local government. The oblast-level training in Chui, Osh, and Jalal-Abad will include four two-week training courses in Bishkek, two two-week training courses in Osh, and two two-week training courses in Jalal-Abad, or an equivalent number of training days.

15. The first course in Bishkek for 30 trainees will focus on the concept of environment and poverty, and on physical, chemical, and biological monitoring of air, water, and soil quality. The 30 trainees will attend a practical introductory seminar in the following fields, at the beginning of

the training: (i) environmental management in the transition to a market-oriented economy; (ii) relationships between environment, economic growth, and poverty; (iii) environmental monitoring as a management tool; (iv) environmental information networks; (v) interpretation and analysis of air quality monitoring; (vi) interpretation and analysis of water quality monitoring; (vii) interpretation and analysis of soil quality monitoring; (viii) preparation of monitoring programs; (ix) preparation of monitoring reports; (x) review of environmental permit applications and other documents; (xi) environmental standards, including ISO 14000; (xii) risk-based environmental management; and (xiii) environmental impact assessment.

16. One two-week course will then be organized in each of the three involved oblasts for a small group of trainees, to establish the case studies. The subjects should be relevant to the everyday activities in the institutions. Another set of two-week courses in each of the three oblasts will be organized six months later, after completion of the fieldwork. It will focus on data management and preparation of reports. In designing and implementing the case studies, special attention will be paid to the environmental impact on the poor, and to the practical generation of economic growth and income, as a component of environmental improvements. Manuals and materials for all training periods will be prepared in English and translated to Russian. The final two-week seminar for all 30 participants will be organized in Bishkek at the end of the work to evaluate the outcome and to facilitate preparation of the final report.

17. The 30 trainees will be selected mainly from the professionals currently working in the environmental and other relevant sectors of the oblast governments, in a gender-neutral manner. Representatives of nongovernment organizations and the private sector will be encouraged to participate on their own account. The selection criteria will include computer literacy, commitment to participation on a full-day basis, capacity to benefit from the training in their current work and train others, and commitment to their work.

3. Expansion of the Data Management System

18. Expansion of the data management system, established under TA 2934, will build on the LIMS. LIMS databases contain the field and laboratory data of the training case studies, and they are regularly updated. The current local area network consists of a server and two computers in MOEP, and computer work stations in Hyrdromet, in the Institute of Geology, and in the Sanitational Epidemiology Station in Bishkek to support the current operational server and two computers in MOEP. To expand the network, a second server will be provided, and 10 new computer work stations will be connected to the network, one to each of the three oblast-level regional monitoring units of MOEP, three to relevant city offices, and four for training purposes in other locations. The system plan will be updated, hardware and software installed and tested, additional licenses obtained, user manuals provided in English and translated to Russian, and a two-week user training organized for the trainees.

19. The participating agencies will be encouraged to maintain and finance operations and databases, and provide support after completion of the capacity-building activities under the TA, including commitment to continue employing the trainees.

C. Cost Estimates and Financing Plan

20. The total cost of the TA is estimated to be $814,000 equivalent consisting of $440,000 in foreign exchange cost and $374,000 equivalent in local currency cost (Appendix 2). The Government of Finland will provide $650,000 equivalent, to cover the full foreign exchange cost and $210,000 equivalent of the local currency cost. The TA will be financed on a grant basis.

The Government of the Kyrgyz Republic will finance the equivalent of $164,000, covering salaries of counterpart staff, cost of training facilities, furnished office space, communications, and secretarial services.

D. Implementation Arrangements

21. MOEP will be the Executing Agency. A steering committee chaired by MOEP will be established. Organizations concerned with the TA objectives will be represented, including the Ministry of Health, Academy of Sciences, Ministry of Agriculture, State Agency for Geology and Mineral Resources, Bishkek SanEpid, oblast governments, Ministry of Emergencies and Civil Defense, as well as energy and other sector agencies. The Ministry of Statistics may be involved. MOEP will appoint a TA director as the counterpart to the consultant team leader, and a TA manager in each of the three involved oblasts to take care of the day-to-day managerial activities. MOEP will provide the consultants with all the documents required for the review work and services using the equipment and facilities, which have been developed and purchased during the previous TA 2934.

22. The TA will be implemented over 18 months, from November 2000 to April 2002. The TA provides 12 months of international and 72 months of domestic consulting services. An international consulting firm will be recruited by ADB in accordance with ADB's *Guidelines on the Use of Consultants*, and other arrangements satisfactory to ADB for the engagement of international and domestic consultants, using the simplified technical proposal procedure. Terms of reference are attached as Appendix 3. Equipment and materials will be procured by the consultants, in compliance with ADB's *Guidelines for Procurement*.

23. The international team leader will be appointed for 8 person-months (three visits) and will have expertise in environmental management capacity building. The team leader will be assisted by an environmental poverty expert (3 person-months), and by an environmental information systems expert (1 person-month). Four domestic experts will be appointed for 18 person-months each. They will all have expertise in environmental monitoring and data management. One will have particular expertise in environmental information systems. Another will have additional expertise in environmental economies. The third will have additional skills in environmental health and social matters. The fourth will be a training expert. The consultants should preferably have working skills in Russian.

24. ADB and MOEP will jointly monitor and periodically review TA implementation through monthly progress reports. The consultants will prepare the training materials and three reports describing the progress and outcome of the TA, which will be discussed in tripartite review meetings with ADB, the Government, and the consultants. The reports will be an inception report at the end of the first month of the fieldwork, an interim report 10 months after the start of the fieldwork, and the draft final report 17 months after the fielding of the international consultants. The final report will be submitted two weeks after receiving the comments of ADB and the Government. The reports will be written in English, and translated to Russian.

IV. THE PRESIDENT'S DECISION

25. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance to the Government of the Kyrgyz Republic in an amount not exceeding the equivalent of $650,000, to be financed by the Government of Finland on a grant basis, for the purpose of the Environmental Monitoring and Management Capacity Building II, and hereby reports such action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Target	Monitoring Mechanism	Assumptions of Risks
Goal Provide management capacity building for environmentally sustainable decisionmaking.	Appropriate information available and published for project planning, pollution control, and feasibility consideration	Review and compare new and current quality of decisions	Willingness to incorporate environmental feasibility into decision making
Purposes Strengthen the institutional capacity to carry out monitoring and data management, to provide information to government institutions and the private sector, in project development. Study the environmental impact on the poor.	Previous training case study findings improved New training case studies established and carried out appropriately More reliable environmental information available Environmental capacity used, integrated to natural resources and investment decisions	Regular reports and review visits Use of information in Asian Development Bank (ADB) loan projects Statistics of productivity in monitoring and data services Follow-up of the trainees' carrier	Changes of staff in the involved institutes Lack of counterparting resources
Outputs Recommendations on how to maximize poverty reduction through environmental improvements 30 local experts trained Data management network in two more oblasts Laboratories and their cooperation strengthened	Report prepared to support national environment and poverty Full capacity of all trainees 10 new workstations installed and operational, connected to the existing network Involved agencies producing and sharing data for the training studies	Review visit and discussions Review of the progress of case studies and personal capacity by reports and workshops Checked during review visits Verified in workshops, review visits, and reports	Limited availability of data Performance of individuals, language skills Commitment of the involved institutes and persons Lack of transparency Compatibility of systems
Inputs Consultants Workshops Monitoring materials Data management equipment	12 person-months international and 72 of domestic consulting Studies and reports shared Sufficient supply for case study analyses and sampling Training, computers, software, printers, Internet access	Regular reports Review visits Review of the results Review visits and reports	Change of persons responsible of key activities Communication skills Commitment to the TA as designed

(Reference in text: page 1, para. 1)

COST ESTIMATES AND FINANCING PLAN
($'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing[a]			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	244	0	244
ii. Domestic Consultants	0	114	114
b. International and Local Travel	30	5	35
c. Reports and Communication	12	8	20
2. Equipment			
a. Instruments and Materials	30	15	45
b. Computers, Printers, etc.	22	0	22
3. Training, Workshops, Seminars	30	30	60
4. Miscellaneous Administration	5	10	15
5. Representative for Contract Negotiations	10	0	10
6. Contingencies	57	28	85
Subtotal (A)	**440**	**210**	**650**
B. Government Financing			
1. Office Accommodation and Transport	0	60	60
2. Remuneration and Per Diem of Counterpart Staff	0	64	64
3. Others (training facilities, electricity, Secretarial services)	0	40	40
Subtotal (B)	**0**	**164**	**164**
Total	**440**	**374**	**814**

[a] Financed by the Government of Finland through the Channel Financing Agreement.
Source: Staff estimates.

(Reference in text: page 4, para. 20)

TERMS OF REFERENCE FOR THE CONSULTANTS

A. International Consultants

1. Team Leader

1. The team leader will be appointed for 8 person-months during the total 18-month duration of the technical assistance (TA). The consultant will have expertise in environmental management capacity building and environmental monitoring training. The duties will include the following:

(i) Manage and coordinate all activities in liaison with Asian Development Bank (ADB), Ministry of Environmental Protection (MOEP), and the Implementing Agencies, under the guidance of the TA director, including preparation of detailed work programs for all members of the team during the inception phase.

(ii) Organize training for 30 trainees in environmental monitoring and data management, including (a) introductory two-week workshop in Bishkek, focusing on the concept of sustainable development; (b) two-week workshop in Chui to develop the training case studies initiated under the previous TA 2934; (c) two-week workshops in both Osh and Jalal-Abad to develop training case studies for on-the-job training; (d) on-the-job training of one year in each of the three involved oblasts; (e) two-week wrap-up workshops in each of the three oblasts; and (f) concluding two-week workshop for all trainees in Bishkek.

(iii) Prepare introductory and general training materials for (a) environmental management during the transition to a market-oriented economy; (b) relationships between environment, economic growth, and poverty; (c) environmental monitoring as a management tool; (d) environmental information networks; (e) interpretation and analysis of monitoring air, water, and soil quality; (f) preparation of monitoring programs; (g) preparation of monitoring reports; (h) review of environmental passports and other documents; (i) environmental standards, including ISO 14000; (j) risk-based environmental management; and (k) environmental impact assessment.

(iv) Organize brief seminars in Bishkek (for the city and Chui oblasts) and in Osh (for the oblasts of Osh and Jalal-Abad) to introduce the TA to the people.

(v) Prepare training materials for data management, focusing on extension of the laboratory information management system (LIMS) developed during TA 2934.

(vi) Plan, organize, implement, and supervise the data management training components for the case studies.

(vii) Purchase and install the equipment and materials for sampling, analyses, data management, and other needs of the TA.

(viii) Prepare detailed plans for environmental monitoring and data management in Osh and Jalal-Abad oblasts, including estimates for costs and human resources required, and proposals for implementation of the plan.

(Reference in text: page 5, para. 22)

(ix) Liaise with all relevant national and environmental organizations, and organize a workshop to present the outcome and draft final report of the TA.

(x) Prepare inception (first month), interim (10th month), draft final (17th month), and final reports (two weeks after receiving comments), TA progress reports and other reports including guidelines and manuals developed under the TA. The reports will be written in English and translated to Russian. They will also be presented in electronic form.

2. Environmental and Poverty Expert

2. The environmental poverty expert will be appointed for 3 person-months during the 18-month duration of the TA. The consultant will have expertise in environmental economics and poverty reduction, and strategy development. The duties will include the following:

(i) Prepare recommendations to address poverty through environmental improvements for the Kyrgyz Republic during the first month for the TA (20 pages and appendixes), based on the existing environmental, economic, and social information. Modify strategy during the next month for use at pilot-scale in the oblasts of Chui, Osh, and Jalal-Abad, where capacity building for environmental monitoring and data management will be carried out. The report will focus on the environmental obstacles to poverty reduction and provide recommendations on the priorities to be addressed, draw policy comparisons, and bring best practices into the discussion of the National Poverty Strategy for the Krygyz Republic.

(ii) Organize a feedback workshop on the draft strategy.

(iii) Assist the team in incorporating the views of environmental economy and poverty reduction into the capacity building for environmental monitoring and data management.

3. Environmental Information Systems Expert

3. The environmental information systems expert will be appointed for 1 person-month. The consultant will have expertise in data management systems like LIMS, and data management training. The duties will include the following:

(i) Organize and manage the import, purchase, assembly works, maintenance, and use of the data management equipment, and user training including manuals in English and Russian.

(ii) Extend the existing LIMS computer network (5 work stations) for the environmental data management by 10 more work stations in the oblast offices of Chui, Osh, and Jalal-Abad.

(iii) Organize an opportunity for the trainees to improve their skills in computer literacy and English language.

(iv) Assist the team leader in preparing reports and plans.

B. Domestic Consultants

1. Expert for Environmental Monitoring and Data Management, Information Systems

4. The expert will take care of all everyday activities needed to use and develop the LIMS network; will maintain the databases under the TA, make presentations in the workshops, provide on-the-job training, assist the international experts, and collaborate with the participating agencies.

2. Expert for Environmental Monitoring and Data Management, Environmental Economy

5. The expert will assist the international experts in preparing the environmental poverty strategy, and in incorporating the economic risks to the risk-based monitoring planning. Particular attention will be paid to costs and benefits resulting from such aspects as environmental health, sustainable use of natural resources, land use, and possibility of promoting economic growth by providing appropriate information for decision makers. The expert will make presentations in the workshops and provide on-the-job training.

3. Expert for Environmental Monitoring and Data Management, Environmental Health and Social Matters

6. The expert will make presentations and provide on-the-job training, with particular attention to the health risks and assessment of relationships between poverty and quality of the living environment. Access should be established to other national and international databases that contain relevant standards.

4. Expert for Environmental Monitoring and Data Management, Training

7. The training expert will assist the international and domestic consultants by organizing the workshops, on-the-job training, facilities, and materials. The expert will also focus on the preparation of human resources development plans.