Environmental Policy and Technology Project

For the New Independent States of the Former Soviet Union

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RUSSIAN FEDERATION

FINAL REPORT

Delivery Order No. 11
Russian Far East Sustainable Natural Resources Management Project

Prepared for:
U.S. Agency for International Development
Office of Environment and Health, Moscow

Prepared by:
Environmental Policy and Technology Project
A USAID Project Consortium Led by CH2M HILL

PREFACE

Under the 1992 Freedom Support Act, the United States Congress initiated a program to provide assistance to new independent states (NIS) of the former Soviet Union. Cooperative Agreements were signed between representatives of the U.S. government and each country in which assistance was to be undertaken. The U. S. Agency for International Development (USAID) was given the responsibility to coordinate all U. S. Government assistance to the NIS under the Act. The strategic objectives of USAID's assistance to the NIS were to promote:

1. Environmentally sound, sustainable economic development during the transition to a market based economy;
2. Reduction in pollution-related risks to health; and
3. Reduction of the threats to the global and regional environment.

Through competitive bidding, USAID awarded a multi-year contract to a team managed by CH2M HILL International Services, Inc. (CH2M HILL) to support implementation of an environmental assistance program to republics of the former Soviet Union. Under this contract, termed the Environmental Policy and Technology (EPT) Project, CH2M HILL was to assist USAID's missions in Moscow, Kyiv, and Almaty undertake a program to promote environmental improvements in the NIS.

The CH2M HILL team included the following organizations:

- Center for International Environmental Law
- Clark Atlanta University/HBCUMI Environmental Consortium
- Consortium for International Development
- Ecojuris
- Environmental Compliance, Inc.
- Harvard Institute for International Development
- Hughes Technical Services Company
- International Programs Consortium
- International Resources Group, Ltd.
- Interfax Newsagency
- K&M Engineering
- Ogden Environmental and Energy Services Company
- World Wildlife Fund (US).

The USAID mission in Moscow supports environmental, and other, assistance programs to the Russian Federation. CH2M HILL established an office in Moscow to manage and support activities in the Russian Federation under the EPT Project. As appropriate, field offices were established at specific project sites within the country. The project's headquarters office in Washington, D.C. provided overall direction and management support for project activities in all regions.

This report was prepared as a contractually required deliverable under the contract between USAID and CH2M HILL. Although work on this report was conducted in cooperation with the assisted governments and USAID, the findings and recommendations are those of the CH2M HILL team. They do not necessarily represent official positions of the governments of the assisted countries nor of USAID.

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Section 1
Introduction

Delivery Order (DO) 11 was designed to promote sustainable, multiple-use natural resources management in the Khabarovsk and Primorski territories. To achieve that goal, the delivery order established three closely related purposes for the Russian Far East Sustainable Resources Management Project (RFE Project):

- **Institutional development**. to strengthen the policy and institutional framework for sustainable natural resources management;

- **Sustainable forest management**, to promote environmentally sustainable forest management in the Khabarovsk and Primorski territories; and

- **Biodiversity conservation management**, to enhance the protection of endangered species and critical habitat of the Sikhote-Alin mountain region.

These three major components were further broken into major tasks for purposes of project implementation. While the resulting twenty-two tasks were distinct, the delivery of the combined work plan elements was the key to success. For instance, community leaders were most interested in small enterprise development to improve local economic conditions and embraced the overall work plan, which included many conservation measures as a part of the whole, whereas they would have been reluctant to accept needed resource conservation measures alone.

The RFE Project was carried out under the auspices of the Environmental Policy and Technology (EPT) Project, a project funded by the United States Agency for International Development (USAID). Project implementors from the U.S. funded by USAID included the U.S. Forest Service (USFS), Harvard Institute for Economic Development (HIID), ISAR, the Peace Corps, Ecologically Sustainable Development (ESD), the World Wildlife Fund (WWF) and a consortium led by CH2M HILL International Services, Inc. as prime contractor. The consortium was the Project's largest U.S. implementor, and the CH2M HILL RFE Project Manager was therefore assigned responsibility for providing overall coordination and direction to all U.S. and Russian implementors.

The field organization and, in fact, the scope of the tasks implemented, was guided by the original and subsequent work plans dated April 24, 1995, December 7, 1995, and November 27, 1996. The second year work plan incorporated changes in the scope of tasks, based on successes and new information gained during the first year. The only significant modifications from the original work plan were (1) the cancellation of DO Task 2.2a, work plan Task 20, which proposed to demonstrate best forest practices, and (2) the cancellation of DO Task 2.1a, work plan Task 18, as a result of USAID's decision not to go forward with the small enterprise fund. The forest practices demonstration was canceled because it was duplicative of the Canadian Model Forest program, and it was felt by U.S./Russian partners and the Project Coordinating Committees (PCCs) that activities evolving from policy and land-use planning tasks were preferable to those originally envisioned.

The principal term of the Russian Far East Project ended on September 27, 1997. An additional year of funding was provided through Delivery Order 10 to further enhance sustainability of investments and support replication, principally through USAID's Replication of Lessons Learned (ROLL) Project.

This final report presents the activities undertaken and accomplishments realized by the Russian Far East Project under Delivery Order 11 (and under two Delivery Order 10 tasks) during the period from September 1994 through September 1997. A deliverable under the CH2M HILL consortium contract, this report, for the most part, provides information on the consortium's activities under the Project (identified as EPT/CH activities). However, given the role of the CH2M HILL RFE Project Manager in coordinating and directing the activities of other U.S. Project implementors, this report also provides information on the activities of other Project implementors (identified appropriately) and on overall Project accomplishments and impact (identified as RFE Project or EPT Project accomplishments and impact).

Each of the report's following three sections begins with a discussion of the activities implemented under each component task and of the outputs of these activities. When applicable, task-level discussions of major accomplishments, lessons learned, sustainability, and replication are included. Each section concludes with a component-level discussion of impact, sustainability, and replicability.

Section 2

Component 1: Institutional Development

The first project component comprised three sub-components and fourteen cross-cutting tasks designed to promote the adoption of policy changes to encourage private sector-led sustainable forest management and community-based conservation and to strengthen the role of public and private participation in this transition.

2.1 Sub-Component 1: Policy and Institutional Development

2.1.1 Policy and Institutional Development (DO Task 1.1, Work Plan Tasks 1-4)

This project sub-component comprised four tasks: identify forest resource problems (Task 1); conduct policy analysis of highest priority problems to identify reforms (Task 2); design, monitor, and evaluate policy reforms for broader adoption (Task 3); and train personnel in policy analysis (Task 4).

Activities and Outputs

Work plan tasks 1 - 4 were led by the Harvard Institute for International Development (HIID) with assistance from EPT/CH staff and the U.S. Forest Service (USFS). Most funding for completion of the tasks was included in a cooperative agreement between USAID and HIID. As required in DO 11, EPT/CH staff provided substantial support and assistance to HIID task managers. This support included:

- Provision of input to studies and reports;
- Organization of three workshops, including logistics and Russian participation and translation of documents;
- Provision of transportation and interpretation services;
- Provision of office space including a field office in Khabarovsk;
- Facilitation of oral and written communication with PCCs.

Task 1, identification of forest resource problems and attendant workshops, was completed in late 1995. Analysis of three policy issues - forest codes, leasing mechanisms, and charges/fees - was completed in DATE under Task 2. A book, *Russian Far East Forest Sector: A Status Report* by V. Karakin and A. Sheingaus was also prepared, published and distributed in English and Russian under this task. Originally, Task 3 envisioned conduct of a “legal experiment”, which was viewed as a more viable option than the revision of laws and regulations. Ultimately, however, a revised regional forest code was successfully drafted under this task. U.S.-based training and study tours were carried out under Task 4. A training needs assessment was conducted in April-May 1995.

Harvard University hosted trainees in both 1995 and 1996, and five Russian Federal Forest Service managers were hosted by the USFS for two weeks in Alaska in June 1997. In the latter case, EPT/CH provided interpretation services and logistical support for the participants.

2.2 Sub-Component 2: Regional Planning and Strategies

The four tasks under this sub-component were designed to support the development of a regional integrated land use plan as a mechanism for making sound development and conservation decisions.

2.2.1 Support Regional Land Use Plans and Regional Biodiversity Strategies in Each Krai (DO Task 1.2a and b, Work Plan Task 8)

Activities and Outputs

This task was led by EPT/CH resident staff with substantial assistance by Washington State University.

As described below, Project Coordinating Committees were operational throughout the life of the project. A ten-member Regional Planning Council was chartered November 1995 and conducted three public meetings in Chuguevsky Raion in support of land-use planning and held five working meetings in Vladivostok between 1995-1997. This Council was introduced and accepted as the best way to achieve stakeholder participation in the land use planning process. This can be considered a significant step in the direction of transparency and democratization.

A two-week integrated resource planning training course was held in the U.S. Pacific Northwest in the Spring of 1996 for the eight specialists comprising the Chuguevsky multi-disciplinary planning team.

Lessons Learned, Sustainability, and Replication

Those affected by government decisions are interested in observing and participating in the decision-making process. The decision-makers benefitted by virtue of conducting the planning in a public forum through open support for the process and outcomes. It can be expected that the methodology will be employed in future efforts replicating the Chuguevsky planning pilot.

2.2.2 Introduce Regional Land Use Planning and Management (DO Task 1.2c and Work Plan Task 9)

Activities and Outputs

This task was led by an EPT/CH consultant, guided by the Regional Planning Council chaired by the Regional Forester, and accomplished by teams from the krai, raion, and leskhozes supported by the EPT/CH Geographic Information System (GIS) center jointly operated by the Pacific Institute of Geography, Biology and Soils Institute, and the Federal Committee on the

Environment.

A landscape level integrated resource management plan (1:100,000 scale) including Chuguevsky and the neighboring raions of Olginsky, Kavalerovsky, and Dalnegorsky covering approximately 3.5 million acres of the central Sikhote-Alin was developed. Supporting documentation includes: twelve (12) GIS database maps portraying the resource and socio-economic conditions; a situation forecast through the year 2005 for land, forest, soil, and mineral resources; a resource use report for forest (including timber and non-timber products), hunting, land, and water resources; primary use zoning maps at 1:100,000 for biodiversity conservation, forest, and hydrobiological problems and valuable ecosystems; and a general primary use zoning map at 1:100,000 reflecting the 5 primary use zones and numerous sub zones.

Stand level plans were developed for Chuguevsky, Koksharovsky, and Shumnensky leskhozes of the Chuguevsky Raion. Supporting documentation includes 1:50,000 scale resource maps for each of thirty-eight watershed basins that further specify resource use conditions and restrictions as set forth in the publicly accepted landscape plan described above.

Two land use workshops were conducted for 30 local administration, leskhoz managers, federal nature protection committee staff, non-governmental organization (NGO) representatives, and multi-disciplinary team members in Chuguevsky, July 1-12, 1996.

A two-part report and maps that support designation of the Django ecological-ethnographic territory of the Khor Basin, Khabarovsk Krai, for the native indigenous people was prepared under contract by the Wildlife Federation of Khabarovsk.

Accomplishments, Lessons Learned, Sustainability, and Replication

Integrated resource management plans were completed at the landscape and timber stand level for a large area that is critical from an economic and environmental conservation standpoint. The planning was accomplished in an open, participatory forum. At this writing it is probable that the Russian Federal Forest Service (RFFS) will establish certain leskhozes as special areas permitting a departure from current direction from Moscow in favor of implementation of the activities as decided upon in the planning process. The planning process was completed in a much shorter time on a larger area than would typically be the case for public land use planning in the United States.

The project's work under this task shows that Western methodology and technology can be adapted to Russian conditions and policies, resulting in modern capability to plan and conduct natural resource activities with the best available information. The effort to maintain the current data bases for resource decision making will be less costly in terms of time and money than was the manual system it replaces. Replication within the region will require the entering of appropriate data, but can be supported with the hardware and software already provided by EPT/CH and other donors. Replication outside the region will require the investment in hardware, software, and data entry. The Khabarovsk Krai Administration has decided to pursue a similar course and is currently establishing the necessary support facilities and equipment with relatively minor assistance from EPT/CH.

2.2.3 Develop Multiple Data Sources for Long Term Natural Resources Planning and Management (DO Task 1.2d, Work Plan Task 10)

Activities and Outputs

This task was established to support both tasks 9 and 11, which require GIS technology, and was guided by EPT/CH staff and consultants.

A workshop, hosted by the Far Eastern Branch of the Institute of Geography, was conducted February 6-10, 1995 and included 11 GIS specialists from Primorye and Khabarovk Krai brought together for the purpose of coordination and agreement on the sharing of data bases and use of uniform standards, as well as for training on GIS software.

GIS centers and satellite operations were identified and established at the Pacific Institute of Geography, Far Eastern Branch, and in Chuguevsky, with partners including the RFFS, the Primorski Regional Association of Indigenous Peoples, Biology and Soils Institute, and Federal Committee on the Environment. In Khabarovsk, the Krai Administration created the center with EPT/CH assistance; the Wildlife Foundation of Khabarovsk under contract to EPT/CH completed data bases for biodiversity planning and land use designation for the Khor River Basin.

A workshop, hosted by the Far Eastern Branch of the Institute of Geography, was conducted on September 23, 1995 for 17 GIS specialists from Primorye Krai, Khabarovsk Krai, Chita Oblast, Amur Oblast, and Magadan Oblast.

One workshop was held in Sikhote-Alin in association with Task 23 to develop a GIS monitoring database (see Task 23). An outreach program for GIS users was also developed, with two GIS specialists traveling to three sites in the Russian Far East and eastern Siberia including: Kamchatka, Sakhalin, Novosibirsk, and Barnaul. A total of 40 people were trained to use GIS for conservation evaluation and planning.

The following resource maps were produced in electronic (GIS ARC/INFO format) and hard copies:

Primorye Krai

1. Land-use map, based on satellite imagery
2. Land ownership map
3. Transportation infrastructure (road system, railways)
4. Settlements
5. Water resources (hydrologic system, lakes, streams, rivers)
6. Hunting resources

Khabarovsk Krai

1. Land-use map, based on satellite imagery
2. Land ownership map
3. Transportation infrastructure (road system, railways)
4. Settlements

5 Water resources (hydrologic system, lakes, streams rivers)

A workshop was conducted in May 1996 for five people with extensive GIS backgrounds in Primorye and Khabarovsk Krai. The purpose of this workshop was to go through a complete work cycle in developing a GIS data base, using the 1996 tiger census data as a training tool (see Task 11). Participants developed skills in team building, creation of GIS data sets, and application of data sets for analysis.

The following data bases were developed:

Primorye Krai

1. Forest Cover Types: A relational data base and map of forest resources within all leskhozes within the Sikhote-Alin ecosystem boundaries. This data base is based on Forest Service inventory data and represents the most detailed, comprehensive GIS data base on forest resources that exists in Russia today.

2. A complete forest cover map of the entire krai, delineating each leskhoz and the major forest types, at 1:500,000.

3. Map of existing and proposed protected areas (zapovedniks, zakazniks, nature monuments, national parks, nature parks, and zones of traditional use).

4. Distribution maps of endangered, threatened, endemic, and all vertebrate species, including:
   - **S** 289 species of birds;
   - **S** 70 species of mammals;
   - **S** 15 species of reptile;
   - **S** 9 species of amphibians;
   - **S** 50 species of endangered/threatened insect species;
   - **S** 2 species of endangered/threatened fish;
   - **S** 12 species of endangered/threatened mollusks;
   - **S** 216 species of endangered/threatened plants.

   A total of 663 distribution maps and associated data bases on habitat associations (to link to the Forest Cover Map) and status of species (endemic, threatened, endangered, etc.).

5. Data base linking habitat preferences of flora and fauna to the Forest Cover types developed in 1 above.

Khabarovsk Krai:

1. Habitat Type Map of Khabarovsk Krai east of the Amur River: A map of the major habitat types (21 categories) in southern Khabarovsk Krai.

2. Map of existing and proposed protected areas (zapovedniks, zakazniks, nature monuments, national parks, nature parks, and zones of traditional use).

3. Distribution maps of endangered, threatened, endemic, and all vertebrate species, including:
   - 48 species of birds;
   - 39 species of mammals;
   - 12 species of reptiles;
   - 8 species of amphibians;
   - 203 species of endangered/threatened plants.

   A total of 310 distribution maps and associated data bases on habitat associations (to link to the Forest Cover Map) and status of species (endemic, threatened, endangered, etc.).

4. Data base linking habitat preferences of flora and fauna to the Forest Cover types developed in 1 above.

In Primorye Krai, an assessment of the efficacy of using satellite imagery for developing a forest cover map was performed by GIS specialists and forest ecologists at Sikhote-Alin Reserve. A report on the pilot program is available.

In Khabarovsk Krai, EPT/CH established GIS covering the natural resources for Chuguevsky Raion that included twelve layers of data (maps and supporting data bases). Data layers were overlaid for an analysis, and maps were produced from each layer and the resultant analysis.

Data bases within and between the two krai were coordinated to assure consistency within the Sikhote-Alin mountain range area of concern. A team of GIS professionals on integrated resource management planning was also established.

Major Accomplishments

The RFE Project greatly enhanced the capacity of local government and non-government organizations to develop and use spatial-relationship data bases. Paralleling the situation in the U.S., where NGOs rely on Geographic Information Systems to monitor government processes and decision-making surrounding natural resource management and environmental protection, the increased capacity of Russian NGOs to use GIS systems is a key component of the democratization process as it relates to natural resource management. For both government and non-governmental agencies, the increased capacity to develop and effectively present spatial data should translate into more effective, and more adaptable, resource management processes. Maps are no longer static entities, but become in actuality data bases that can be updated as changes occur, thus providing the opportunity to track changes in resources. Thus, planning processes become dynamic entities that can track changes and adjust through time, and not static entities with no flexibility.

The forest inventory cover map of Primorye Krai represents the most intensive and extensive data base that exists on forest resources in Russia. This data base can be the basis for development of long-term management plans at all levels within the krai - from the stand level within each forest district, to the entire province. This data base should act as an example of how to apply new technology and associated new spatial analysis in the management of forest resources.

The biodiversity data base has provided the opportunity to conduct a thorough Gap Analysis of Primorye and Khabarovsk Krai (see Task 11), which will represent the first time that the GAP Program has been applied outside North America, and should act as a model for future biodiversity analysis in Russia.

Lessons Learned, Sustainability, and Replication

By increasing their capacity to work with GIS data bases, EPT/CH has increased the ability of several NGOs to secure future work and future funding. This aspect of sustainability has already been demonstrated by a number of grants that have been successfully given to NGOs now considered to have expertise in GIS applications.

Long-term planning by governmental organizations is most effective when flexibility and the ability to project into the future are components of the planning process. Development of GIS data bases for use by government agencies should greatly increase their effectiveness in making management decisions that affect natural resources.

In the past, environmental assessments involving any resource development project (required by law) were dependent on expert opinions to develop ecological-economic assessments. The data bases that have been developed should greatly increase the efficiency with which assessments will be done in the future by decreasing the time required (since data bases already exist) and increasing the reliability of the data (since they are not dependent on a "professional opinion").

The data base that was developed for the gap analysis, and which can play a major role in biodiversity protection and management in the future, was created in an amazingly short time frame. Such data bases developed in the U.S. for the same purposes have uniformly taken much longer. The process through which these data were developed can act as a model on how to develop such GIS data bases.

2.2.4 Krai Strategies for Biodiversity Conservation (DO Task 1.2e, Work Plan Task 11)

Activities and Outputs

Biodiversity working groups were established and are active in each krai. The Khabarovsk Krai Governor adopted the working group as the official advisory council on biodiversity matters.

An ecological-economic assessment of the proposed Kema-Amgu National Park was developed through a joint contractual agreement between EPT/CH, the Committee for Environmental Protection, and the Institute of Geography. This 152-page document was required by law to detail the feasibility of creating this new national park, which was proposed in the Primorye Krai Administration's normative document *A Plan for Nature Protection Through the Year 2005*.

Support for developing an ecological-economic plan for Matei Zakaznik in Khabarovsk Krai was provided by EPT/CH, and plans are moving forward with gazetting of this land. Initial plans in Primorye Krai focused on a proposed zakaznik (wildlife refuge) in Lazovsky Raion. When interest by key parties in this region faltered, attention was focused on Borisovkoe Plateau

(Barsovy-Shofan Plata). This region is key habitat for tigers and leopards in southwest Primorye Krai. Borisovkoe Plateau Regional Zakaznik was signed into law in 1996 by the Primorski Krai Administration, thereby protecting 61,300 ha for highly endangered leopards and tigers, and protecting a unique and biologically rich ecosystem.

Zakazniks are administered by the regional Department of Hunting Management, which did not have sufficient funds to fully provide infrastructure support to the newly created Borisovkoe Plateau Regional Zakaznik. EPT/CH provided sufficient funding for purchase of a vehicle, creation of signs demarcating boundaries, building of a patrol cabin, and provision of field allowances for new wildlife managers to patrol the region to eliminate poachers.

An ecological-economic assessment of the proposed Upper Ussuri National Park was developed through a joint contractual agreement between EPT/CH, the Committee for Environmental Protection, and the Institute of Geography. This document was required by law to detail the feasibility of creating this new national park, which was proposed in the Primorye Krai Administration's normative document *A Plan for Nature Protection Through the Year 2005*. With completion of the first phase of this program, a consultant was employed to develop the documentation and obtain signatures at the Raion level necessary for gazetting of Kema-Amgu National Park. This phase of the program was successful; this national park awaits one final signature to be agreed upon by the Krai Administration.

With support from EPT/CH, the necessary documentation was developed by the Primorye Committee for Environmental Protection to prevent liquidation of existing zakazniks. A full economic assessment of one proposed nature park was made to fully explore and evaluate the cost/values of setting aside protected areas. This process employed the newly burgeoning field of ecological economics, which attempts to define the economic value, for instance, of watershed protection. Thus a new technology to assess values of protected areas was introduced to the Russian Far East.

As of July 1997, a decree from the Khabarovsk Krai Administration created a new form of protected status, and the "ethno-ecological territory" called "Django" was established in the Khor Basin. This special management unit is a multiple use region in which some components will receive strict protection (the Chuken Zakaznik is being established) and other regions will be managed for sustainable exploitation of wildlife resources by the native Udege peoples in the region. A 98-page document produced by the Khabarovsk Wildlife Foundation details management options for the region.

A full report was submitted (primary author V. V. Gaponov of Primorski Krai Administration) on the biological diversity of Chuguevsky Raion. The report includes concrete recommendations for development of a set of protected areas (including zakazniks, and special protected lands) that would act as a set of "stepping stones" in creating an ecological corridor. Initial steps for creation of a zakaznik were developed.

Biodiversity plans were completed for each krai using gap analysis, a technology introduced to assess existing plans for nature conservation.

Ecotourism in the Russian Far East: a Feasibility Study was published in September 1995. Based partly on this assessment, five ecotour groups from the U.S. and three from Japan as well as groups from Germany, visited reserves. Brochures were developed for each reserve. This sub-task was led by the World Wildlife Fund (WWF).

A Tiger Census was conducted in the winter of 1995/1996 and resulted in a report on numbers, distribution and habitat status of the Amur tiger in the Russian Far East (in Russian and English). This project employed over 650 forest guards, conservation officers and hunters to participate in the census, and included individuals from over ten academic institutes, research stations, and reserves to design and implement it. Results of this census served as the basis for the Federally Targeted Program which was approved in July 1997.

The following papers on tiger ecology were prepared and submitted:

- Matyushkin, E.N., Pikunov, D.G., Dunishenko, Y.M., Miquelle , D.G., Nikolaev, I.G., Smirnov, E.N., Salkina, G.P., Abramov, V.K., Bazylnikov, V.I., Yudin,V.G., & Korkishko, V.G. (1996). *Numbers, distribution, and habitat status of the Amur tiger in the Russian Far East: "Express-report"*. Final report to the USAID Russian Far East Environmental Policy and Technology Project.;

- Miquelle, D.G., Quigley, H.B., & Hornocker, M.G. (1995). *A habitat protection plan for Amur tiger conservation: a proposal outlining habitat protection measures for the Amur tiger*. 33pp.;

- Miquelle, D.G., Smirnov, E.N., Quigley, H.B., Hornocker, M.G., Nikolaev, I.G., & Matyushkin, E. N.. (1996). *Food habits of Amur tigers in Sikhote-Alin Zapovednik and the Russian Far East, and implications for conservation*. J. Wildl. Res. 1:138-147;

- Miquelle, D. G., W. T. Merrill, Y. M. Dunishenko, E. N. Smirnov, H. B. Quigley, D. G. Pikunov, and M. G. Hornocker (in press). *A Habitat Protection Plan for the Amur Tiger: Developing Political and Ecological Criteria for a Viable Land-use Plan*. To be published in "Tigers 2000": Proc. London Zool. Soc. Symposium.

An outline for a monograph based on the 1996 tiger census was developed by all coordinators of that project. The monograph itself was not completed within the time frame of DO11, but its conception was spawned by the work completed under the auspices of EPT. This monograph will be:

- N. Matyushkin, D. G. Pikunov, Yu. M. Dunishenko, D. G. Miquelle, I. G. Nikolaev, E. N. Smirnov, G. P. Salkina, V. K. Korkishko, V. K. Abramov, V. G. Yudin, V. I. Bazylnikov (in preparation). *The Amur tiger in the Russian Far East: a review and assessment of distribution, numbers, and dynamics during the last half century*.

An ecological/economic assessment for the creation of the Central Ussurka National Park was

completed under contract with the Committee for Environmental Protection and the Institute of Geography. The 130-page report and all legal papers were prepared, and gazetting of this national park awaits a single signature in the Krai Administration.

A 178-page ecological/economic assessment for the creation of the Southern Primorye Nature Park was prepared under contract between EPT/CH, the Committee for Environmental Protection, and the Institute of Geography.

The Primorye Committee for Environmental Protection with financial assistance from EPT/CH conducted an inventory and prepared the necessary documentation to secure the status of 193 State Nature Monuments.

The Legal Basis for Biodiversity Protection in Khabarovsk Krai was completed under contract to EPT/CH.

EPT/CH provided support for the rehabilitation center in Khabarovsk Krai (for tigers, bears, and other injured or orphaned animals).

Major Accomplishments

There were three main thrusts to this task: (1) support for planned protected areas; (2) assessment of the capacity for biodiversity protection of existing plans; and (3) conservation of endangered species. The RFE Project made important contributions in each of these areas in both Khabarovsk and Primorye krais.

Support for one new zakaznik in Primorye Krai and gazetting of a new "ethno-ecological zone" in Khabarovsk Krai represent major steps towards a more comprehensive plan for biodiversity protection. The majority of paperwork required for four proposed national parks in Primorye and one zakaznik in Khabarovsk were conducted with the support of EPT/CH. Two of these proposed parks are very close to being gazetted. This represents a major success, considering the amount of time it takes to create new protected areas anywhere in the world.

Although Primorye Krai has a plan for nature protection, the gap analysis and associated assessment of biodiversity protection will bring a new methodology employing concrete data developed by local scientists to assess the existing plan. Thus, this new technology, in concert with the existing data base, will provide a means for creating an interactive planning process and a means to continuously update plans as new data are obtained and new assessments conducted. Khabarovsk has no comprehensive biodiversity conservation plan, but it is hoped that the biodiversity assessment will act as a catalyst towards development of such a plan.

The census on tigers is the first time ever that a range-wide survey was conducted on any subspecies of tigers and, therefore, represents a milestone throughout the world. This data base will be a key component of any planning process for tiger conservation for the next ten to twenty years. A total of 80,000 hectares (ha) were added to the Sikhote-Alin State Reserve in 1995, increasing the size of this key protected area to over 400,000 ha, and securing critical habitat for the endangered Siberian tiger.

Lessons Learned, Sustainability and Replication

The ecological economic assessment of protected areas represented application of a new technology to assess the values of protected areas, and was the first time this methodology was introduced to the Russian Far East.

The progress made in gazetting new protected areas will act as a catalyst to push these efforts through to completion. Already, there are new proposals, and new funding mechanisms are being sought that use the work completed under the RFE Project as leverage for securing more funding.

Gap analysis provides a new technology to assess existing plans for nature conservation in both krais, and should bring new insights into not only where biologically rich areas occur in this region, but how to design areas to preserve them. In Primorye Krai, the gap analysis provides a unique opportunity to assess the existing plan for nature protection with a new methodology and to determine how well the existing plan will act to protect existing biodiversity of the krai. This process can be replicated throughout Russia, wherever biodiversity planning is occurring.

2.3 Sub-Component 3: Institutional Strengthening and Public Awareness

2.3.1 Project Coordination (DO Task 1.3a, Work Plan Task 12)

Activities and Outputs

This task was led by EPT/CH resident staff.

Project Coordinating Committee were chartered and are active in both krais. EPT/CH provided a Technical Assistant for each krai coordinator, as well as office equipment and file organization for the PCC coordinators.

Accomplishments

The PCC meetings are providing a regular forum for diverse views on natural resource issues to be presented prior to decisions by government administrators. A major accomplishment is the access to high level government officials heretofore largely unavailable to non-government individuals and organizations. To a lesser extent, government officials from different levels are using the forum as an opportunity for coordination of their responsibilities.

Lessons Learned, Sustainability, and Replication

Project coordinating committees are an effective way of assuring collaboration in the implementation of projects and serve to illustrate democratic processes employed in making decisions and achieving project objectives.

The two PCCs have been focused on the successful implementation of the RFE Project work plan, which is having the effect of demonstrating the usefulness of advisory boards to decision-makers, potentially leading to institutionalization of the concept. In short, the PCC chairmen (in

one case, a Vice-Governor and, in the other case, the Director of the Dept. of Natural Resources acting for the Vice-Governor) like the control that comes with bringing the various government and non-government officials to a forum where issues can be discussed and decided with the attendant responsibility for support of decisions by the participating parties.

The strategy is easily replicable both within the project area and in other areas of Russia with a minimum of facilitation by our current Russian partners.

2.3.2 Non-governmental Organization Institutional Strengthening (DO Task 1.3b, Work Plan Task 13)

Activities and Outputs

This task was led by EPT/CH resident staff with input from ISAR.

1. A series of eight NGO capacity-strengthening workshops was conducted for 274 participants, 131 from Khabarovsk and 143 from Primorye (work plan Task 13a):

   - "Grant Writing and Fund Raising", April 26-30, 1995, led by the Biodiversity Center, Moscow, and organized by Ecologos Fund/Wildlife Foundation of Khabarovsk, 28 participants;
   - "Democratic Leadership", September 1-3, 1995, led by "Golubka", Moscow, and organized by ISAR, 23 participants;
   - "Environmental Leadership" September 4-6, 1995, led by "Golubka" and organized by ISAR, 24 participants;
   - "Environmental Leadership" (2 seminars, basic/advanced), January 21-26, 1996, led by "Golubka" and organized by ISAR, 50 participants;
   - "Citizen's Participation in Environmental Decisionmaking", March 13-19, 1996, led by "Ecojuris" and organized by EPT/CH and the Khabarovsk Society for Nature Protection, 65 participants;
   - "How to Manage an Effective NGO", December 11-13, 1996, led by IREX and Eurasia foundation, EPT/CH sponsoring 1 participant to Moscow;
   - "Environmental Information: Principles and Practice of Management at the Local Level", Feb 27-28 and March 3-5, 1997, led by "Ecologia" and organized by EPT/CH, 52 participants;
   - "Active Methods in Environmental Education", June 22 - July 4, 1997, led by Prof. Dmitry Kavtaradze, Moscow State University and organized by EPT/CH, 31 participants.

2. Eight local networking seminars (outside and locally run) and two environmental education conferences were held for 363 participants (141 from Khabarovsk and 222 from Primorye) (work plan Task 13b) **:**

- **!** "Interactive Methods in Environmental Education", August 12-17, 1995, led by "Bluebird" NGO and organized by EPT/CH, 21 participants;
- **!** "Ecology through Games and Colors", July 31- August 6, 1995, led by Obninsk College and organized by the Small Marine Academy, 50 participants;
- **!** Networking meeting targeting public participation, December 20-23, 1995, led by the Regional Environmental Information Center, Khabarovsk and Amursk and organized by the Wildlife Foundation of Khabarovsk, 35 participants;
- **!** Environmental Education Conference, February 9-11, 1996, led and organized by the Regional Environmental Information Center, NGO Association "Bolon-Clean water" Khabarovsk, 112 participants;
- **!** "Interactive Methods in EE", March 28-30, 1996, led by the Architecture Lyceum and organized by the Khabarovsk Dept of Education, 49 participants;
- **!** Democratic Environmental Journalism seminar, May 28-30, 1996, led and organized by EPT/CH, 50 participants;
- **!** "Ecology through Games and Colors" (stage 2), June 16-30, 1996, led by Obninsk College and organized by the Small Marine Academy, 50 participants;
- **!** "Interactive Methods in EE" (train the trainers seminar), August 12-14, 1996, led and organized by "Bluebird" NGO, 20 participants;
- **!** "Legal Aspects of Establishing New Protected Territories", November 12-16, 1996, led by Ecojuris, local NGO's, and public organizations and organized by EPT/CH and the Wildlife Foundation of Khabarovsk, 78 participants;
- **!** Primory Environmental Education Conference, March 13-15, 1997, led by the Small Marine Academy, Green Cross, Far Eastern State University, and the Teacher's Retraining Institute and organized by EPT/CH, 178 participants;
- **!** "Ecology, Games and Colors" (stage 3), July 27-August 10, 1997, led by Obininsk College and organized by EPT/CH, 50 participants.

3. Nineteen NGO/public participation seminars, with 424 participants (110 from Khabarovsk and 314 from Primorye) were held in outlying areas (locally run) (work plan Task 1.3c):

- **!** "Democratic Leadership", November 19-23, 1995, led by "Bluebird and organized by "Trud", Amursk, Khabarovsk Krai, 25 participants;

- Environmental education youth project “Strolling Environmentalists”, October 1995-May 1996, led and organized by the Small Marine Academy, 20 participants;

- “Interactive Methods in Environmental Education for Vladivostok School Teachers” (series of 5 seminars), October-December 1995, led by “Bluebird” and organized by “Bluebird” and the Vladivostok City Dept of Education, 100 participants;

- “Environmental Leadership in Environmental Education”, May 17-18, 1996, led by the Architecture Lyceum and organized by public interest groups of Pereyaslavsky raion, Khabarovsk Krai, 27 participants;

- “Environmental Leadership and Partnership”, June 27-29, 1996, led by the Architecture Lyceum and organized by public interest groups of Pereyaslavsky raion, Khabarovsk Krai, 27 participants;

- Environmental education seminar for Lazo village school teachers, August 25-27, 1996, organized and led by the Lazo Reserve Ecocenter, 20 participants;

- Environmental education seminar for Young Foresters Academies, teachers of Khabarovsk Krai Forest Service, October 22-24, 1996, led by the Architecture Lyceum and organized by the RFFS of Khabarovsk Krai, 20 participants;

- Environmental education seminar for Lazovsky Rayon, October 1996, led and organized by the Lazo Reserve Ecocenter, 29 participants;

- “Seven Steps to Knowledge” (series of 4 environmental education seminars for outlying regions of Primorski Krai), January-August, 1997, led by local NGOs Pervotsvet, Bluebird, and Green Cross and organized by the education departments of Chuguevsky, Kavalerovsky, Pozharsky and Krasnoarmeisky raions, 100 participants;

- Environmental education seminars for Chuguevsky and Olginsky rayons (2), February-March 1997, led and organized by Lazo Reserve Ecocenter, 40 participants;

- “Environmental Education Methods Applied to Regional Component in Teaching Biology” (Khasansky Raion), July 21- 23, 1997, led and organized by Tatyana Zaeva, environmental activist, 43 participants.

4. EPT/CH sponsored the attendance of 7 educators at the St. Petersburg annual conference on Environmental Education held by the Russian Association of Environmental Educators.

2.3.3 Regional Cooperation (DO Task 1.3c, Work Plan Task 14)

Activities and Outputs

This task was the responsibility of ISAR and funded through its cooperative agreement with USAID.

Regional environmental centers in Vladivostok and Khabarovsk were and continue to be operational, and data bases, e-mail, and other support for NGOs is in place. Refer to the publication "Information on ISAR-Far East and its role in the EPT/USAID Sustainable Natural Resource Management Project," dated April 1997, and subsequent reports for a comprehensive review of Task 14 activities.

2.3.4 NGO Grants Program (DO Task 1.3d, Work Plan Task 15)

Activities and Outputs

This task was also the responsibility of ISAR and funded through its cooperative agreement with USAID.

Grants were made to the two Task 14 EcoCenters and 92 other organizations. Technical assistance was provided through publications and staff consultation with organizations**.** Refer to the publication "Information on ISAR-Far East and its role in the EPT/USAID Sustainable Natural Resource Management Project," dated April 1997, and subsequent reports for a comprehensive review of Task 15 activities.

2.3.5 Public Awareness and Environmental Education (DO Task 1.3e, Work Plan Task 16)

Activities and Outputs

This task was designed for implementation by GreenCom with assistance from ISAR, EPT/CH, and the Peace Corps. Ultimately, no agreements between USAID and GreenCom and the Peace Corps were completed, and this task was only partially funded. EPT/CH took on the principal responsibility for training seminars and public outreach in collaboration with ISAR, while ISAR received funding through its cooperative agreement with USAID for the publishing program. Through separate funding under its Cooperative Agreement, WWF also served as an implementor of public awareness and environmental education.

1. EPT/CH sponsored a participant to a seminar on children's environmental education projects at Obninsk College, St. Petersburg EE Center, October 1-22, 1995, including acquisition of training materials. The seminar was organized by the Small Marine Academy.

2. EPT/CH sponsored the winter meeting of environmental education teachers to evaluate success in implementing the "Ecology in Games and Colors" program for elementary schools including distribution of 200 sets of color paints. January 5-6, 1996. The meeting was organized by the Small Marine Academy.

3. EPT/CH sponsored a participant to the Moscow environmental education conference on "Methods of Field Ecology for Schoolchildren" conducted by "Ecosystem" and organized by Far Eastern State University, January 29-February 2, 1996.

4. EPT/CH sponsored a participant to the "Deep Ecology" conference at the environmental education center in Vilnus, June 3-8, 1996. The conference was organized by Bluebird..

5. An Environmental Journalists Conference and Festival with 40 participants was organized and held by EPT/CH at Bychikha, Khabarovsk Krai, July 21-24, 1997, to further develop networking and the plans for an association of environmental education journalists similar to and linked with the U.S. counterpart.

6. Financial and consultant support was provided to the association of environmental education teachers "Krug" in the establishment of its Environmental Education Resource Center.

7. In collaboration with the U.S. Peace Corps and Sikhote-Alin Reserve, EPT/CH sponsored a summer Environmental Camp in June/July 1996 for 36 students from seven villages of Terneysky raion.

8. EPT/CH provided matching funds for establishment of the Terney Community Environmental Center.

9. In collaboration with the U.S. Peace Corps, the Far Eastern Marine Reserve, and Young Naturalist School teachers from Arseniev, EPT/CH sponsored a 40-student summer camp "Students for Better Environment Program", August 10-31, 1997.

10. Sixty-five publications were reviewed and 29 recommended for publication with over 30,000 books released to environmental educators as of April 1997 through the ISAR publishing program. ISAR strengthened and supported establishment of "green" publishing houses "Zov Taigi" in Primorye and "Broccoli" in Khabarovsk. Four issues of the journal "Zov Taigi" were printed and distributed throughout the Sikhote-Alin region to highlight EPT programs. Four brochures of EPT seminar proceedings were published through the "Design" Publishing House of Vladivostok. Please refer to "Information on ISAR-Far East and its role in the EPT/USAID Sustainable Natural Resource Management Project" for a comprehensive review of ISAR's translation and publishing program.

2.3.6 Public Sector Support (DO Task 1.3f, Work Plan Task 17)

Activities and Outputs

This task was implemented by EPT/CH resident staff in collaboration with the USFS, PERC, AED, and the U.S. Peace Corps.

1. Five U.S. study tours were held:

- Study tour for three government officials from Primorski and Khabarovsk krai, January 5-27, 1995;

- NGO study tour for four environmental activists, October 15-30, 1995, in coordination with the U.S. Humane Society and facilitated by PERC;

- NGO study tour and participation at the NAEE Annual Conference for four environmental activists from the RFE, November 1-5, 1996, coordinated by PERC, ISAR, and EPT/CH;

- Study tour for government environmental decision makers. Sponsored one participant to AED course on environmental decision-making, May 1997;

- Forest Management Study Tour for five Russian Federal Forest Service managers, June 1997, hosted by the USFS.

2. The U.S. Forest Service-organized Natural Resources Career summer camp in Sitka, Alaska, July 29 to August 18, 1996, was attended by two students from the RFE.

Accomplishments of Work Plan Tasks 13-17

Thirty-five seminars with 1061 participants and 2 conferences with 290 participants were held.

EPT/CH took a prominent role in NGO strengthening with a focus on NGO-government relations. A series of training/working seminars on the most important local environmental and resource management issues permitted constructive interactive discussions between NGOs and government representatives. The importance of these dialogues is great, as they provided a foundation for citizen participation in environmental decision making with a right to access to information, public hearings, and the responsibility placed upon government to openly consider program options.

The ISAR grants program, together with assistance provided by ISAR and EPT/CH staff, have served to strengthen the environmental community as a whole as well as individual NGOs.

Public attention to issues through media coverage has been heightened by the RFE Project-supported publications and other media coverage of project initiatives. In particular, a workshop in May 1996 in Vladivostok and a conference in July 1997 in Khabarovsk brought together over 50 journalists, resulting in the establishment of the Association of Environmental Journalists of the Far East and stimulating activism among environmentally concerned journalists

Methodological support to teachers in the two krai was provided through ISAR's Publishing Program and extensive training seminars. As a result, there now exists an Association of Teachers throughout the two krai - "Krug" - actively using, promoting and outreaching the program.

Lessons Learned, Sustainability and Replication of Work Plan Tasks 13-17

It is clear that substantial concern for the environment exists within the population of the RFE. The

RFE Project has helped support the movement at a time when the interest is high, but resources for organization and impact are low. It is also apparent that the various levels of government are concerned with the negative impact of certain activities on the environment, and they are looking for ways to mitigate these impacts during a period of harsh economic reality. The EPT initiative, together with those of many other donors, are welcomed by the vast majority of government and non-government entities.

Sustainability will result from a network of local environmental activists and teachers plus two Information Centers and the Environmental Education Resource Center in Vladivostok, as well as the Association of Journalists, all of whom have received support in finding new sources of revenue through grants.

2.4 Institutional Development: Impact, Sustainability, and Replicability

Two distinctly different approaches to improving forest management policies were undertaken in the Khabarovsk and Primorye krais. In Khabarovsk Krai, the Harvard Institute for International Development (HIID) employed a very structured approach to identifying problems and seeking solutions which are to culminate in adoption of a new regional forest code. During much of the life of the project, the Federal code was under review and ultimate revision, making HIID's work difficult since any regional code would have to conform to the Federal policy and serve as further interpretation of that policy for implementation at the regional level. In Primorye Krai the approach was to complete comprehensive land use plans for a substantial raion and use the resulting outcomes to support a regional modernization of forest policies. Both approaches were found to have merit and positive sustainable and replicable results.

In Khabarovsk Krai, an elite team of regional Russian scientists were contracted to work with a HIID consultant to identify the most crucial problems confronting administration officials in establishing economically sustainable forest policies and ultimately draft a revised code. Transparency was achieved through a highly public process of drafting the regional forest code that would take into account such issues as concession terms including tenure and pricing. At this writing, the proposed code is before the Krai Duma for consideration with early passage considered likely. An unanticipated outcome of this effort was the support given Krai administration officials in defining regional versus federal responsibilities and authorities for federal forest land administration in this far removed region.

In Primorye Krai, the initial steps of problem identification were undertaken jointly with Khabarovsk Krai and agreement reached as to the ranking of issues to be addressed. Unlike Khabarovsk Krai, Primorye Krai preferred to address the issues on a raion (county) basis using the piltask in Chuguevsky Raion as the launch pad for revisions to krai forest policies. As will be described later, landscape and timber stand level plans developed for Chuguevsky Raion were completed as the principal term of this project was coming to a close. It is likely that the results from the Khabarovsk Krai approach together with the more definitive results of land use planning in Chuguevsky will be combined as the Primorye Duma considers revision of its forest code.

The impact of USAID's support in the area of forest policy is long term with both definitive short term results and future benefits derived from well thought out policy decisions that have evolved with EPT Project assistance. In the short term, benefits will flow from regional codes that adopt accepted standards of fair value for resources and recognize the intrinsic and other values to be gained by harvesting at sustainable levels while protecting certain areas for special values. It is difficult to quantify the impact of the training at Harvard and in the RFE and tours in the U.S. on future resource decisions, but clearly the views held by administrators and scientists who will play important roles in the evolution of RFE forest practices have been beneficially altered by exposure to the positive and negative experiences of the west.

The application of the project experience elsewhere in the forested areas of Russia is dependent only on the will of the Russian Federal Forest Service and the individual regions with recognition of the need for coherent long term policies for sustaining benefits from natural resources. The codes and plans are replicable with modification to meet the needs of a particular region and replication of the

Khabarovsk forest code in the short term is likely elsewhere in the RFE.

Without question, one of the most desirable outcomes of the EPT Project has been increased participation by stakeholders in decisions on natural resources being made by their government. Challenges to be faced included improving coordination between government entities at all levels, between the government and NGOs, and with the public at large. The vehicle used by EPT to introduce participation processes and the attendant transparency in decision making was the Project Coordinating Committee (PCC) in both Khabarovsk and Primorye Krai. Again, the task results evolved differently in the two krai, with positive outcomes in both cases.

In Khabarovsk Krai, Vice Governor Levintal assumed a proactive role as Chairman of the PCC and used the forum to elicit input on a variety of EPT and other resource issues. The Vice Governor and PCC were kept abreast of EPT task activities and individual members assumed liaison roles with project participants in their specific areas of expertise. At one point the biodiversity oriented representation was recognized as a standing committee on biodiversity policy by the Governor. Dr. Levintal's level of participation was important both because of his duties as Vice Governor which included international economic development programs and because he is the Governor's spokesperson on relations with Moscow including the division of roles in the management of federal forests. As with the Primory PCC, the inclusion of non-government members provided NGOs with an opportunity to interface with decision makers in a public forum, resulting in what has become a much better relationship between interest groups and their government leadership. The very nature of the EPT Project required PCC members composed of federal and krai administrators and NGO leadership to consider views that would most likely have been avoided in past relationships and decisions. While much is left to be accomplished in terms of public participation in government, the early signs are encouraging as witnessed by the level of participation in the development of the draft Khabarovsk Krai forest code. A key problem is the apathy on the part of much of the public which is focused on the economic reality of surviving during a difficult transition to a market economy. Yet it is this very time when wise decision making can help assure a brighter future.

In Primorye, the PCC was chaired by Vice Governor Dubinin, whose other duties as first Vice Governor involved the day to day operation of the krai government. While he supported the EPT Project as necessary, the management of the PCC was left to the Director of the Department of Natural Resources. This PCC took a distinctly different tack from that in Khabarovsk and met continually to both approve the approach and results of each of the work plan tasks. Again, members were assigned liaison functions with project participants and were required to represent task activities in detail as each task was designed and implemented. At first the committee was less than fully represented by the NGO community, a situation which was remedied by agreement with the RFE Project Manager during the first year. Representative of the positive results of this PCC was the formation of a planning council to oversee development of the Chuguevsky land use planning. The planning council was chaired by PCC member Anatoly Prikhodko, the RFFS regional forester under whose jurisdiction most of the lands in question rest. A process was used to reach agreement on land use allocations based on alternatives developed using geographic information systems that represented the various current and potential uses of the lands.

It is already apparent that the Khabarovsk PCC is serving non-EPT purposes and can be expected to continue as a sounding board for resource issues. Much of the longevity of this PCC may have to

do with the high level exposure attained by its membership and the receptiveness of Vice Governor Levintal to its opinions. In Primorye, the PCC continues to operate, and liaisons developed by members will surely continue. To what extent the PCC remains standing following the end of the EPT Project is yet to be determined. The contract extension gave EPT the opportunity to convince leadership of the merits of using the committee for ongoing resource issues.
Advisory committees are easily replicated based on the charters that are in place for the two in the RFE Project. Depending on the nature of the assignment, they should be established with sunset provisions such as those in the U.S. Advisory Committee Act, and membership should be refreshed on a regular basis. Currently, members were appointed by the two governors. Future opportunity to elect certain of the membership may be appropriate, again depending on the nature of the decisions being taken by those advised.

Like western resource planning in the not too distant past, land and resource planning in the RFE has suffered from the lack of a strategic public and multi-disciplinary approach to establishing goals and implementing programs for sustainable resource management and protection. In 1994, EPT Project planners determined that the Chuguevsky Raion, supported by Primorye Krai, was both ready and able to proceed with contemporary land use planning with the assistance of USAID, assistance which would include the import of western technology including equipment and methodology based on U.S. land agency planning in the Pacific Northwest. Chuguevsky Raion , where timbering had had a great impact on the resource base and where critical biodiversity resources were at stake, was strategically situated for purposes of piloting a planning project. A landscape level plan completed for the Raion which "zoned" this very large territory was then further developed with stand level plans for three leskhozes (comparable to a ranger district in the USFS organization). Using geographic information systems (GIS), it was possible to demonstrate the economic and other trade-offs of various zoning proposals in a quantifiable and understandable way for local administrators and managers. Consensus on a land use plan that includes set asides for protection of high values such as community watersheds and threatened animals such as the Siberian Tiger was attained in a public process guided by a planning council. This plan became the basis for the follow-on stand level activity plans in the three leskhozes's. Inherent in the process as it relates to a commercial timber program is the need to delineate parameters on harvest within the bounds of the Federal Forest Code. Policies such as maximum slopes that can be harvested or the grade of logging roads are determined. In the absence of a contemporary krai level forest code, these practicable considerations form potentially broader policy from the ground level up, hopefully leading to the best forest practices for a particular region being incorporated into krai code. The participants in the Chuguevsky planning process include those in key positions to influence duma consideration, and it is anticipated that the results of the pilot will strongly influence upcoming legislative consideration by that body.

The Chuguevsky pilot has met with enthusiastic support from Russian government and non-government participants. It is clear that implementation of the planning has priority. It is also quite apparent that assistance will continue to be required as the plans are implemented and that assistance can most effectively come from the partnership developed with the USFS. There is little doubt that the effort to implement the pilot planning will be sustainable and that the area in question benefitted by virtue of a long term achievable and balanced program of resource management.

The short term opportunity for replication of the pilot elsewhere is compromised by the financial limitations of most units of the RFFS. The process is very labor intensive and requires a considerable

investment in hardware and software, but possibly more importantly requires the long term commitment to maintaining data bases. It is clear that Khabarovsk Krai intends to modernize its resource planning using the equipment supplied in part by USAID. In this case, the effort is being given the necessary high priority by Vice Governor Levintal. The approach will be different from the Chuguevsky pilot in that the krai administration will centrally develop the GIS capability for use by the various federal and krai users. Institutional knowledge of planning methodologies is now resident in the RFE through experience with the pilot, and teams or individual members are available to replicate the planning in other areas.

A crucial objective of the RFE Project was to advance the general public's awareness and participation in decisions affecting the environment. EPT efforts focused on strengthening environmental NGOs and government institutions while stimulating the general public's interest in the issues through the mass media. ISAR ably developed a small grants program to assist NGOs in organizing and equipping themselves to pursue a wide variety of environmentally sound objectives. Environmental Centers were established in each krai to act as clearinghouses for NGOs and improve networking between groups and individuals. Midway in the project, ISAR received additional funding from USAID to pursue an aggressive environmental translation and publication program, which substantially improved the project's ability to provide substantive assistance in environmental education by publishing Russian and translating and publishing western materials for use in schools and adult education.

It is clear that the enormous effort that went into educational programs for environmentally oriented government and non-government institutions will have a long lasting impact on the future role that environmental ethics will play in resource decisions affecting the region. Educational tours in the U.S. for administrators and NGOs and seminars and conferences in the RFE and western Russia have brought an awareness to those concerned that would have been much longer in developing without the financial support of USAID. As noted by the director of one NGO, "we have been like flowers ready to bloom and you have brought the sunlight". In fact, over the three years of the project the NGOs became much better prepared to represent their causes and have gained access to decision makers through project forums. At the same time, those that govern came to discover that NGO representatives make sound contributions to public policy and are much less apt to ignore opportunities for their input.

More difficult in some respects were efforts to engender public interest in regional environmental issues. The establishment of an RFE association of environmental journalists based on the U.S. counterpart has effectively joined what had been single voices of journalists from throughout the RFE. Additionally, interest in environmental journalism has increased as the free press has matured in Russia, with the opportunity to publish critical material which was likely to be suppressed in the past. A concern remains among journalists as to the personal risks involved in becoming too critical on some of the more divisive issues. The opportunity to demonstrate the importance and impact of participation by the public came principally in the development of forest policy and land use planning. The general public in the RFE has been so focused on the difficulties associated with the economic and political changes in Russia in general and in the Russian Far East in particular and so unused to being asked its opinion on issues that it was not unexpected that it would be difficult to engender participation in project efforts. As might be expected, the greater interest and participation came at the point of decision impact in the villages at the same time dependent on resource utilization and

with residents more environmentally conscientious than those of the major cities.

In short, NGOs and environmental institutions are stronger and will sustain themselves into the future with less help from NGOs from other countries as the public environmental awareness increases through the educational efforts of the association of RFE journalists and the NGOs themselves. In fact, there are signs that local NGOs are beginning to object to the imposition of the "outside" views of their western counterparts, preferring to advance their causes within an environment that they understand much better than those that would assist from outside. The journalist association has already expanded well beyond the bounds of the project area to include much of the RFE and has independent plans for the future.

In terms of replicability of the project effort in NGO strengthening and public outreach, it should be recognized that the RFE and the project area is somewhat unique in Russia and that the project served, at least in part, to make it financially possible to expand programs that already existed within Russia much sooner than would otherwise have been the case. Some of the project's most effective delivery came from the well advanced NGOs and institutions of western Russia because it was not necessary to transcend cultural and language differences as was the case with U.S. and other foreign programs. A spin-off benefit was the awareness on the part of those western Russia contributors of the need and interest in proactive programs in the RFE.

Section 3

Component 2: Sustainable Forest Management

The second project component comprised two sub-components and five tasks designed to establish a forest management system based on principles of sustainable forestry, protection of non-timber values, and sustainable economic development.

3.1 Sub-Component 1: Promote Sustainable Development of the Forest Industry

3.1.1 Establish Small Enterprise Fund (DO Task 2.1a, Work Plan Task 18) and Promote Investments and Seek Venture Funding (DO Task 2.1b and 2.1c, Work Plan Task 19)

Activities and Outputs

These two tasks were implemented by EPT/CH resident staff and consultants and U.S. based EPT/CH staff working in collaboration with the World Forestry Institute, Washington State University, and the University of Alaska Small Business Development Center.

Recommendations for the Design and Implementation of a Small Enterprise Fund were prepared in June 1995. However, in late 1996, USAID decided not to proceed with a Small Enterprise Fund, eliminating many elements of work plan Task 18. USAID later decided to fund the purchase of equipment for selected enterprises from DO 10, with technical and procurement support from DO 11, under a "small enterprise assistance program".

EPT/CH conducted a number of in-country training events on small business development. Six 3-5 day short courses on "How to Start and Operate a Business" were conducted in 1995 and 1996 at varying intensities for about 150 participants in Khabarovsk and Vladivostok in collaboration with the University of Alaska-Anchorage Small Business Development Center. One of these seminars was specifically tailored for residents of the native indigenous villages. A seminar on "Problems of Small Business in Timber-Processing and Furniture Manufacturing" was held in Vladivostok in DATE for 29 participants. An agreement with the International Wood Product Association for the development of a marketing course for the RFE was also developed.

An assessment of the forest sector in Primorye and Khabarovsk krais was conducted, and a data base of about 100 timber processing and 50 non-wood forest product enterprises was developed. Technical processing and business development assistance was provided to about 100 of the enterprises contained in the data base.

To increase awareness of RFE opportunities:

1. The reference book (general prospectus) *Conditions for Forest Business in Primorye* was published.

2. Company profiles were developed and supplied to potential U.S. partners through the

EPT/CH representative at the World Forest Institute in Portland, Oregon.

3. EPT/CH staff and consultants made presentations and published articles on RFE opportunities:

   - A presentation on the program "Russia Today" (Washington, D.C.), broadcast on several channels, by S. Sheveiko;

   - A presentation on EPT's role in Russian small business support at the Pacific Rim World Wood Products Congress by S. Sheveiko and R. Gareev;

   - Publication of an article on the Russian forest sector in the journal "Wildman's World Wood Review", Vol.4.#3, March 1997 by S. Sheveiko and R. Gareev.

EPT/CH actively encouraged the modernization of RFE small- and medium-sized enterprises and the introduction of American technology into the RFE market through provision of U.S. manufacturer information, as follows:

1. Five 3-5 day short courses were held in the region for non-timber forest products (NTFP) processors. These courses covered topics such as processing technologies, marketing, and harvest management concerns. They directly reached 91 individuals representing over 60 companies and villages in the region.

2. EPT/CH worked directly with over 25 village-based companies in the RFE to develop improved harvest management principles, introduce and train processors in new technologies, and assist with company management principles.

3. EPT/CH helped found two timber-processing enterprises in Primorye - "Russki Les" and "Ugrumov C.C.," who will use modern sawing equipment for lumber production with an attendant reduction in round log export.

4. EPT/CH assisted in the creation of the region's first industry association designed especially for the non-timber forest products industry. The "Far Eastern Association of Non-Timber Forest Products Processors" was officially registered in Khabarovsk Krai in the spring of 1996. The aim of the association is to provide a point source for industry information on harvesting, processing technologies, market information and pricing, and cooperation between harvesters and processors.

5. An informational-analytical center for RFE forest enterprises is being designed in conjunction with the Association of Timber Processors. An agreement with the World Forest Institute for liaison with the future center has been developed.

6. EPT/CH provided considerable equipment under the small enterprise assistance program, as follows. Equipment provision was carried out in conjunction with training workshops and one-on-one technical assistance. Equipment provision activities included the identification of appropriate equipment and, where technological gaps were found, the design and

construction of new technologies in the region. Whenever equipment was provided, training seminars were held on-site at the processor's facility to ensure understanding of the technology and operations:

- Vacuum sealing machines for improved product packaging and 50,000 product bags suitable for local or international trade, delivered to 18 companies;
- Full-size infrared dehydrators, delivered to 20 companies and villages;
- Economy size infrared dehydrators, delivered to eight companies, villages, and the Non-Timber Forest Products Processor Association;
- Production model "Harvest Master 17" dehydrators (designed by EPT RFE Chief Forester and built completely in Russia), delivered to 4 companies;
- Product weighing scales (commercial class), delivered to 20 companies;
- A juice extractor and bottling facility, delivered to the Limonnic Company in Vladivostok;
- A honey packaging line for flavored honey products, delivered to Amurbiopharm in Khabarovsk;
- Equipment for marketing member products (computer, printer, software, copier), delivered to the Far Eastern Association of Non-Timber Forest Products in Khabarovsk;
- Product advertising brochures, product labels, and advertising campaigns, developed through EPT for 14 RFE NTFP companies.
- A full production bottling line, delivered to Promokhota JS Company in Khabarovsk for producing bottled NTFP juice products;
- Wood processing equipment, delivered to three companies. Business plans were developed for optimal application of this equipment and market evaluations were performed. Training in the use of the equipment was provided during the extension year.

EPT/CH intensively sought investors and partners for Russian companies, as follows:

1. A market report on non-wood forest products was prepared in July, 1995. This report identified various non-timber forest products with the highest potential for production in both the local RFE market and the international market. Further, the study recommended the introduction of new technologies aimed at improving the processing and harvesting technologies of the region.

2. U.S. trips were organized for four company managers to meet American equipment suppliers and potential partners. One trip resulted in the purchase of substantial U.S.-made equipment and a contract to act as the dealer in the RFE for Koetter Co. dry kilns.

3. EPT/CH consultants and employees met regularly with representatives of interested companies and major financing sources and participated in numerous timber industry seminars and conferences.

4. EPT/CH assisted six companies (including two joint ventures with the U.S.) to prepare applications for TUSRIF financing.

Accomplishments

The NTFP industry of the RFE has grown remarkably with EPT assistance over the past three years. New products are now seen in the local markets, improved food safety has been observed in all phases of production, marketing strategies are much more effective in terms of sales and prices, and at least 3 companies have begun marketing their products in the United States and abroad as a direct result of EPT Project activities. An association has been formed that will serve to unify non-timber forest products enterprises and help restore the historic economic stability of villages dependent on purchasers of these products.

The Primorye Association of Timber Processors was founded in November 1996 with direct EPT support. This Association, around which enterprises desiring to produce value added products can coalesce, will result in the reduction of raw log exports and the supply of products to the domestic market that meet international standards. EPT has become the clearinghouse for brokering investment opportunities and partnerships as well as providing much needed information on technology.

Numerous companies have found U.S. partners and obtained much needed financing through EPT efforts:

1. A California company, "UNIDUS INC.," showed its interest in the Russian forest sector and EPT found a Russian timber-processing partner from Irkutskaya oblast from whom this U.S. company now purchases saw timber. They are currently negotiating for expanding production and creating a JV (joint venture).

2. As of this writing, one timber-processing and two non-timber forest product companies have obtained loans from TUSRIF with EPT's assistance. In the case of the timber-processing enterprise, EPT helped determine priorities in timber processing, decide on equipment, and find suppliers.

3. With EPT assistance, the American company "McGregor Hardwoods Ltd" and Russian company "Timber" agreed to start a project on birch wood processing into high quality products for the American market, adding a value-added dimension to an underutilized hardwood species.

4. During the extension year, EPT assisted the company "Far East Import" to find a partner in Khabarovsk for construction of an ice cream factory similar to one already located in Magadan.

Lessons Learned, Sustainability, and Replication

The economic situation and general investment climate in Russia, and particularly the RFE, made this task very difficult. While the above achievements are significant, the future is dependent on how quickly domestic and outside investors begin to regard investments in the huge natural resource wealth of the country and region as being good and safe.

The NTFP program as implemented in the RFE by EPT has many opportunities for replication in other locations around Russia and the world. Specifically in Russia, the harvest management principles, processing technologies, and marketing strategies could be replicated very effectively.

Sustainability is largely vested in the associations that have been formed for both wood and non-wood forest products. In both cases there is every reason to believe the associations will be self-sustaining with contributions by the membership. In the case of the wood products, the data bases and contacts established by EPT will serve into the future to support partnerships and investments as well as market development as the economic incentives improve. It is planned that a "clearing house," with connections to the World Forestry Institute in Portland, Oregon, will be maintained at the Primorye Association of Wood Producers.

3.2 Sub-Component 2: Maintain and Restore Forest Stocks

3.2.1 Planning Best Practical Forestry Practices (DO Task 2.2a, Work Plan Task 20)

Activities and Outputs

This task was canceled by a work plan amendment approved by T. Tiffany, USAID on September 29, 1995.

3.2.2 Forest Fire Prevention and Control (DO Task 2.2b, Work Plan Task 21)

Activities and Outputs

This task was led by the USFS with logistical support from EPT/CH. Equipment provided under this task was funded under DO 11, while most other costs associated with other task elements was provided under the USAID/USFS cooperative agreement. Additionally, regular USFS appropriations for the international program have served to augment the USFS program in the RFE.

1. The USFS conducted a number of team reviews:

   - Team review of RFFS fire communications capability, September 7-21, 1995;

- ! Team review of RFFS fire information, data collection, storage, programs, and equipment preparatory to recommendations on fire behavior modeling, September 20 - October 11, 1996;

- ! Team review of suppression activities and training needs assessment;

2. Fire prevention analysis were conducted in Khabarovsk Leskhoz, Khabarovsk Krai, and Chuguevsky Leskhoz, Primorye Krai.

3. A forest fire prevention analysis and plan were prepared in August 1995.

4. Two 6-member RFFS fire fighting teams were trained by the USFS in the U.S. during the spring of 1996 and 1997.

5. USFS consultants presented six programs on fire fighting and fire behavior while in the RFE for a total of 81 participants.

6. Fire suppression equipment including fire trucks, radios, lightning detection computers and programs, hand tools, and protective clothing and shelters delivered to the RFFS in both krai.

7. EPT/CH translated approximately 25 publications totaling over 400 pages of translated text identified by the USFS. These materials are currently in use in both krai to train fire fighting crews.

8. U.S./Canadian lightning detection programs were modified to fit Russian forest conditions and are currently undergoing testing.

9. A region-wide fire prevention symbol "Siberian Tiger Cub" was developed and is being used in the region to lead the fire prevention public awareness program, which has been introduced in local schools and forestry schools to make the public aware of the impact man-caused wild fires have on the region.

Accomplishments

This task achieved a substantial increase in the effectiveness of the RFFS to manage and fight wild fires. In terms of capacity, the EPT fire program delivered much needed equipment that is used to fight fires directly while adding to the capacity of the RFFS to manufacture tools in the future. The training programs and materials provided through the EPT project are in use currently and are increasing the effectiveness of the Russian crews. Lightning detection equipment and communication equipment has aided the RFFS in identifying areas of potential fire, BEFORE they become large losses, while the ability to stage initial attack crews to the areas is made possible. Public awareness programs that utilize the symbol of the Russian Taiga, a Siberian Tiger, have been developed and are currently in use. Although these public awareness programs take years and even decades to produce measurable results, the RFE is well on its way to gaining the upper hand in public awareness of forest fires.

Lessons Learned, Sustainability, and Replication

The identification and implementation of a forest fire prevention and control program depends greatly on the situation existing in the specific area where control is desired. The underlying impetus of this successful program was developed through the cooperative program between the RFFS, the USFS and the EPT Project. Replication of this program can be best achieved by tailoring it to the region of implementation.

3.2.3 Reforestation Technology and Enhanced Regeneration (DO Task 2.2c, Work Plan Task 22)

Activities and Outputs

This task was led by EPT/CH staff and consultants with very substantial support from the USFS and a Peace Corps volunteer.

A study of the reforestation practices utilized in the region, completed in 1995, determined the status of the science of local forest regeneration practices. Specifically, the study identified the need for increased technologies in greenhouse management and containerized seedling stock.

Training programs were identified as the most appropriate means to accomplish the goal of developing a greenhouse facility for the Russian Far East. The first of a series of U.S.-based training programs was initiated in the spring of 1996 and hosted by the U.S. Forest Service. Six Russian scientists from Khabarovsk Krai traveled to the U.S. for a one-month study tour of U.S. greenhouse technology management and training. The result of this training was substantial in that the greenhouse managers of the two facilities receiving assistance from EPT immediately started implementing improved management technologies in the growing of containerized softwood seedlings.

The second U.S. training program focused on forest genetics and the principles of improving the genetics of seed provided to the greenhouse complexes. In spring 1997, seven Russian scientists traveled to the U.S. for a one-month study tour. Again, the results were seen immediately, as the two teams (one from Primorye and one from Khabarovsk Krai) were put to the task of completing seed zone maps for Korean Pine, larch, and spruce. Not only were the seed zone maps completed, but aggressive plans were made to develop three seed orchards in the region through a cooperative program between the RFFS in the two krai and EPT.

An international conference was sponsored by EPT/CH, The Far Eastern Forestry Institute of Khabarovsk, and the Russian Federal Forest Service in the fall of 1996. The “Korean Pine – Broadleafed Forests of the Far East International Conference” attracted over 100 scientists from around the world. More than 112 reports were presented with 12 papers by the most eminent international authorities on the issues. The proceedings of the conference are currently being published thorough a cooperative effort of the EPT Project and the U.S. Forest Service.

Additional workshops were sponsored through EPT/CH on topics concerning ecosystem management, harvesting regimes for natural regeneration, forest genetics as it is affected by

management practices, greenhouse management, integrated pest management programs, seed collection practices, plantation establishment, seed processing principles, tree planting technologies and practices, and associated topics. Approximately 110 participants attended these educational programs (in addition to the international conference listed above) and are now implementing improved management practices as a result in their participation in these programs.

The EPT RFE Chief Forester and seven U.S. consultants (U.S. Forest Service and others) worked one-on-one with Russian forest practitioners in developing sound management principles and technologies in numerous forest regeneration-based topics. Outputs included:

- Renovation of the Khabarovsk seed bank facilities;
- Three redesigned Russian Greenhouses (Gursky);
- Three retrofitted Russian Greenhouses (Nekrasovka);
- Two newly designed 60 m x 10 m greenhouses (Nekrasovka);
- One prototype greenhouse used for testing and experimentation (Nekrasovka);
- Water well jointly funded with the RFFS (Nekrasovka).

Accomplishments

The accomplishments of this task are truly remarkable. In terms of capacity, the EPT reforestation program has assisted the RFFS in the development of a world class greenhouse facility (8 full size greenhouses, 2 prototype greenhouses), a seed extractory and storage facility, and planting equipment to ensure successful reforestation practices.

The Sosnovka Seed Breeding Facility (home of the Nekrasovka Greenhouse Complex) now houses Russia's first world class seed extractory. The equipment provided by EPT/CH includes a production-based seed scalper, seed sorter, seed moisture meters, and a seed separator to clean and process seed prior to storage. In the past, the seed breeding center could only sort its seed by hand. The seed needed for one greenhouse took 120 person-days to sort, and sorting was not always successful. Using the new equipment provided by EPT/CH, the same job can be completed in just one hour. Training was provided by U.S. Forest Service consultants and has changed how the RFFS processes its annual seed harvest. Additionally, through increased seed recovery practices, the annual amount of seed required has actually decreased (even though the number of greenhouses has increased).

The EPT Project delivered and made operational the first freezer and cooler complex for reforestation efforts in Russia. The freezer and cooler units have a capacity of 425 m^3. The freezer can hold enough seed for up to 10 years of greenhouse sowing, while the cooler will store seedlings over winter and into the spring to facilitate improved planting. The entire storage facility is supported by a back-up power generator and an on-site facilities manager to oversee operations. Prior to EPT/CH's delivery of equipment, the seed extractory stored its seed in glass

jars and in small cooler units that could not hold more than one year's supply of seed. The losses each year were substantial, and the system was not efficient.

In 1997, the combined production of seedlings from the two greenhouse complexes will exceed 1.2 million seedlings as a direct result of the EPT reforestation program. The production from the Nekrasovka greenhouse complex in 1995 (prior to implementation of improved management practices) was 6,000 seedlings. That number grew to 300,000 seedlings after just one year (1996). The same improvement was seen at the Gursky Greenhouse Complex, where in 1995 only 500 seedlings were grown to full size. After the first year production increased to 120,000 seedlings. The current capacity to produce 1.2 million seedlings will be increased in a managed growth program over the next five years to achieve the demands of the region for high quality containerized seedlings.

Lessons Learned, Sustainability, and Replication

The replication potential of this task is high. The need for containerized seedlings is substantial throughout Russia. Regions from St. Petersburg to Sakhalin Island are in need of regionally adapted conifer seedlings to plant in harvested, burned, or insect-infected regions. The initial plan was to deliver "drop in" high technology greenhouses produced in the United States. It became apparent early in the program that the need was to demonstrate what could be accomplished within the current means of the RFFS. The new greenhouses were designed on-site utilizing RFFS crews and materials available in the RFE, for the most part. The greenhouses are clearly replicable and maintainable at reasonable costs to the RFFS. There is little doubt that the RFFS will continue the program into the future.

3.3 Sustainable Forest Management: Impact, Sustainability, and Replicability

Acceptance of the USAID environmental agenda by RFE Russian sponsors was in large measure predicated on a commitment to help with economic development, particularly in small forest dependent communities. During the life of the RFE Project, the economic/financial situation in the region improved somewhat, but not to the extent that potential investors are willing to commit to substantial capital investments. This situation tempered project successes in the area of joint partnership development. The project contribution made to immediate and ultimate development and improvement of environmentally sound forest based enterprises took many forms including the training of entrepreneurs, development of business plans, assistance in applying for loans and grants, technical evaluations of operations, assistance in locating and privately purchasing U.S. equipment, demonstration tours of similar business ventures in the U.S., development of products, training in production, provision of equipment, development of markets and identification of trading partners. Because of the high capitalization costs of wood products industries, it was beyond the reach of the project to do other than provide demonstration equipment, training, information and advice to Russian participants. The association of wood product producers formed with project assistance serves as a clearinghouse in continued efforts to link U.S. and Russian partners, locate appropriate processing technology and develop markets. To that end, the project developed and supplied data on potential Russian partners most of whom were examined on site from a technical standpoint by expert consultants from the U.S. It is this contemporary information that will likely serve as the first source of opportunity as the market develops.

The non-timber forest products assistance provided by the project has had a considerable impact in rejuvenating an important industry that has struggled since the devolution of the State run system. Because low capitalization costs associated with this industry, EPT was able to move aggressively with impressive results in the marketing of new products and expansion of existing markets using technologies within the means of the sector. The impact, particularly in small communities, has been substantial with harvesting and in some cases initial processing of a variety of food and medicinal products returning residents to at least seasonal employment. An association of NTFP enterprises was formed with EPT assistance and serves in support of market and product development for its members.

The impediment, but not barrier, to the sustainability of USAID's contribution in the development of small and medium sized environmentally sound forest based enterprises remains the lack of a capital source for even the highest potential ventures. As capital becomes available with the evolution of Russian bank lending policies and as confidence in the Russian Far East as a reasonable investment target grows internationally, many of the small and medium sized enterprises with which the project worked will be well positioned to advance quickly. In many cases the benefit derived from the project will be that these businesses are ready for any opportunity with workable and achievable plans for development. In the meantime, the NTFP operations in particular are achieving significant growth in the domestic market through product development and improvement directly resulting from EPT assistance.

The RFE is clearly distinct from much of Russia and particularly the west due to it's positioning,

resources and the regional political nuances. Replication in or inclusion of regions bordering the project area and in Siberia is certainly possible and underway in some cases as with the expansion of the scope of the associations.

Second only to the need to develop wise policy for forest resources is the urgent need to repair damage to forest ecosystems wrought by fire, disease, insects and inappropriate harvest practices. As explained earlier, while addressing the policy issues the EPT Project set out to define and address the need for fire prevention, detection and suppression and reforestation. The USFS is leading the cooperative fire program that it had started in advance of the EPT Project and continues to both send specialists to the RFE and sponsor Russians to the U.S. in an attempt to improve the fire program within the currently limited means of the RFFS. The EPT Project provided much needed fire fighting supplies and equipment in support of the USFS effort. The size of the problem has overwhelmed the RFFS ability to cope during a time of greatly reduced budgets with basic programs such as aerial detection going largely unfunded. The results of wild fire and ensuing erosion, insect and disease infestations and invading vegetation have an enormous long term impact on the productivity and potential economic development of much of the project area. The USG through USAID and the USFS international program has made a meaningful contribution to reducing the impact of this globally debilitating situation, but much more is required. While the EPT Project delivered detection and suppression equipment and provided resources for fighting fire, the level of support is far from sufficient to overcome institutional short comings. With return to reasonable funding levels the RFFS, with technological and methodological assistance from the U.S., can overcome problems that are not that unlike those of Alaska prior to the strategic planning done in that state by federal and state agencies. In the meantime, RFE forest managers are largely at the mercy of nature and a segment of the public that continues to thoughtlessly set fires that escape containment.

On a much more positive note, the project reforestation program stands as the most visible success of USAID's assistance to the RFE, with a seed breeding center and greenhouses unparalleled in Russia. The regional Russian Federal Forest Service (RFFS) benefitted immensely by the project at a time when it had been directed by Moscow to launch a massive regeneration project. Under that direction, some of the needed infrastructure had been developed but no measurable success in growing tree stock had been attained. EPT/CH managers and consultants from the USFS and elsewhere evaluated the situation and abandoned the original work plan task calling for the import of a U.S. "drop in" greenhouse in favor of developing a somewhat less technologically advanced, but far more replicable and maintainable, model suited to local needs. During 1997, production in the two greenhouse complexes supported by the project exceeded 1.2 million containerized seedlings, but as important, the equipment to support a modern seed breeding facility was in operation with attention turning to enhancing seed quality through the development of seed orchards, bare root seedling production development and out planting techniques, to name a few.

There is little doubt that the national interest displayed in the reforestation activity will assure its growth and sustainability into the future despite current budget limitations. This is the pride of the RFFS in the RFE and viewed by many in the RFFS administration as a solid contribution by the United States. Green house managers have been trained in the U.S., and the USFS will continue to provide technical assistance. Greenhouse replication has been successfully

accomplished without project assistance at the current sites, and funding through the ROLL program will permit replication in Primorye krai in the future. The technology is such that it can be exported to other regions of Russia where containerized seedlings are appropriate to the reforestation program.

Project-prepared impact statements that present more detail on the fire and reforestation tasks, including graphics, are attached in Appendix 1.

Section 4

Component 3: Biodiversity Conservation Management

The third project component comprised three tasks designed to provide immediate action to preserve critical habitat in the Sikhote-Alin region and to introduce long-term management practices to secure the future of this global resource.

4.1 Sub-Component 1: Biodiversity Conservation Management

4.1.1 Strengthen Protected Area Management and Anti-Poaching Programs DO Task 3.1, Work Plan Task 23)

Activities and Outputs

This task was completed by EPT/CH staff and under contract with the World Wildlife Fund (WWF). Additional, complementary activities were carried out by WWF under its separate Cooperative Agreement with USAID.

1. EPT/CH provided equipment and supplies identified by the Association of Zapovednik Directors to seven reserves. This equipment included boats, jeeps, trucks, radios, fuel, uniforms, computers and peripherals, and leased space.

2. An analytical review of trends of natural ecosystem dynamics in zapovedniks of Primorye was completed. Recommendations for zapovedniks for developing a unified system of biological monitoring in nature reserves of Primorye were developed. A Scientific Information Center at the Sikhote-Alin Reserve was established and equipped. A PC-based information-reference system on rare and endangered animal and plant species of Khabarovsk Krai was developed.

3. An ecological awareness program was developed for protected areas. A calendar with views of Primorye zapovedniks was prepared, and numerous reports relating to project issues and tasks were disseminated through the media (TV, radio, and newspaper). Construction and renovation work on ecological centers at Sikhote-Alinsky, Lazovsky, and Ussurisysky Zapovedniks was completed.

4. An international conference on the Far Eastern Leopard, attended by 70 participants, was held in Vladivostok and resulted in an action plan and the "National Strategy for Leopard Preservation in the RFE". The strategy was subsequently adopted by the State Committee on Environmental Protection.

5. A management plan was developed for Lazovsky Zapovednik.

6. Economic/ecological justifications for three national and one regional park in Primorye were prepared in cooperation with the Pacific Institute of Geography and the Federal Committee on the Environment. Agreement was obtained from regional authorities

(Primorsky Committee on Geology and Regional Committee on Land Resource Management) in support of national park creation. The Khor Basin ecological-ethnographic protected territory was created in July, 1997.

Accomplishments

The reserves benefitted from an infusion of equipment and other support during a time of critical need. EPT Project assistance, together with that provided by other donors, undoubtedly permitted operation of the reserves at a level well beyond that which would have been otherwise possible. In particular, the anti-poaching programs were maintained, environmental centers created, key species research accelerated, and plans for future operations developed including financial support from regional administrations and fund raising activities such as ecotourism. General public awareness of the reserve system and many environmental issues has been heightened by the mass media campaign to inform the citizenry.

Lessons Learned, Sustainability, and Replication

Certain of the elements of this task are readily replicable, such as management planning and resource data collection, storage and retrieval if the computer capability exists to support the program. Much of what was accomplished by the EPT Project was intended to meet a critical need for financing operations and maintenance. Many other reserves have identified similar needs, but the resources were not available through the EPT Project to assist. It is the responsibility of the Russian government at all levels with assistance by outside donors to see that adequate funding is made available to meet at least the minimum required program to maintain the existing reserves and fund any new reserves that are created.

4.1.2 Promote Community Development and Participation (DO Task 3.2, Work Plan Task 24)

Activities and Accomplishments

This task was led by PERC, a subcontractor to WWF under the EPT/CH contract.

PERC worked with the Association of Non-Timber Forest Products and EPT/CH staff to identify and market opportunities for commercial production of traditional forest products. Equipment and business/processing training was provided.

Conservation committees were created in two villages. These committees were involved in the planning for community projects including the establishment of territories of traditional resource use.

Accomplishments

The re-institution of an organized means of generating income through the sale of non-timber forest products as an alternative to less desirable uses of the natural resources is a major accomplishment under this task. Development of the conservation committees as a predecessor

to what will ultimately become recognized village councils under Russian law should make that transition easier to achieve.

Lessons Learned, Sustainability, and Replication

The Association of Non-Timber Forest Products will continue to serve as the catalyst for generating revenues through gathering and, in some cases, processing materials at the village level.

4.1.3 Establish Conservation Trust Fund and Management of Biodiversity Component and International Expertise (DO Tasks 3.3 and 3.4, Work Plan Task 25)

Activities and Outputs

This task was led by WWF with logistical assistance from EPT/CH resident staff.

While the Fund was not yet operational by September 27, 1998, its basic structure was established during the principal term of DO 11 through the following documents:

- Draft Grant Agreement between WWF and the Fund;
- Draft Charter of the Fund;
- Draft Grants Program Operations Manual;
- Fund-raising Strategy;
- List of Board of Trustees of the Fund.

Accomplishments

The documents necessary for establishment of the Conservation Trust Fund were under review by USAID at the end of DO 11. At that time, it was yet to be determined if the Conservation Trust Fund proposed as DO Task 3.3, work plan task 25, would be approved at a lesser funding level by USAID. The seed money is contained in a separate cooperative agreement between USAID and the World Wildlife Fund, which continued beyond the end of the DO 11 contract term.

4.2 Biodiversity Conservation Management: Impact, Sustainability, and Replicability

In many respects, pursuing USAID's objectives in biodiversity preservation was the most difficult aspect of the EPT/RFE project. To realize a comprehensive, coordinated biodiversity strategy for the target Sikhote-Alin mountain range required collaboration between the two krai at a level never before entertained. Conditions within the reserve system were deteriorating due to greatly reduced funding, and the level of poaching was high, due as well to the generally depressed economic situation.

USAID direct assistance to the reserves could not have been more timely, as the equipment and operating capability provided made it possible to maintain programs at near acceptable levels. In addition, the project focused regional administration attention on the plight of the reserves, and this led to financial support from that quarter. Ultimately, however, a combination of self determination and improved funding from the federal government will be required to bring the reserves back to fully acceptable standards. Assistance by WWF in the development of management plans and identification of alternative sources of funding for operations will speed recovery of the reserves.

A major contribution of the project came in the area of Siberian Tiger conservation and management. In collaboration with WWF/Germany, a census was conducted and accepted by regional and federal managers which now provides a basis for developing a long term conservation strategy and habitat management plans. At this writing, a monograph on the Siberian Tiger is due out soon. This census represented the first time that a range wide survey was conducted on any subspecies of tigers, a milestone throughout the world. Further augmenting this program was the introduction of gap analysis methodology operating in a GIS environment, making possible the discreet identification of areas of critical concern to the survival of the species in the wild. With WWF/Germany taking the lead, a constructive and effective program to reduce poaching of tigers was implemented.

The project partially financed regional institutions in the development of assessments required to support designation of new parks and reserves resulting in designations in both krai. Two of the four park proposals the project supported were close to being gazetted at the end of DO 11. When complete, these will represent major successes. Establishment of protected territories must rely on the agreement of the RFFS, as virtually all lands under consideration fall under that government institution's purview. Using the PCC forum, whose membership included leadership from the RFFS, and the Chuguevsky planning pilot with its planning council headed by the Regional Forester, it was possible to demonstrate quantitatively the limited economic impact of setting aside lands for specific purposes such as reserves and gain unanimous agreement for the proposed designations.

Using GIS technology supported by the project's center, a comprehensive biodiversity strategy was developed for the biodiversity rich Sikhote-Alin mountain range. While every attempt was made to make a seamless plan for the two krai, the nature of the available data made that difficult. What is important is that the administrators on either side of the border are of common purpose as to land use considerations on adjacent areas. That was accomplished through close coordination

between the sides. It is intended that the Primory Krai Duma will memorialize the strategy.

The USAID program of assistance has permitted reserves in the two krai to sustain a much higher level of program than would otherwise be possible. It is apparent that more support from the regional levels of government will be forthcoming to help continue programs. Managers are learning how to seek and obtain support from outside of Russia. Attempts will be made to augment revenues through ecotourism, but the significance of those contributions will be limited in the short term. What will sustain the reserves until funding materializes in sufficient amounts is the professionalism and dedication of the managers and employees.

Appendix 1

RFE Project Impact Statements