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# **ADVENTURES ON EARTH: EXPLORING OUR GLOBAL LINKS**

**GRANT NO: FAO-0230-A-00-6016-00**

## **FINAL PROJECT REPORT**

**Submitted to the Development Education Program**

**U.S. Agency for International Development**

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**Final Report**  
**Adventures on Earth: Exploring Our Global Links**  
CA: FAO-0230-A-00-6016-00  
Submitted by: Kimberly Crews, Population Reference Bureau

## **Executive Summary**

The Population Reference Bureau (PRB) in collaboration with the Geographic Education Program at the National Geographic Society, and the National Council for Geographic Education (NCGE) developed, produced, and began to disseminate "Adventures on Earth: Exploring Our Global Links." This classroom guide, for use with students in grades 6-12, encourages students to consider how people use the environment, the consequences of meeting human needs, the environmental impact of people's actions and choices, and how solutions to environmental problems must be addressed at local, national, and international levels. Geographic alliance networks in each state received at least 200 copies of the kit to distribute through training workshops organized and conducted by teachers who were trained at the annual conference of the National Council of Geographic Education in November 1996. Eighty educators, from 36 states and Canada, were trained at the conference. Between January and August 1997, these educators (along with PRB staff) conducted 63 teacher-training workshops for over 1,800 educators and pre-service teachers in 28 states. These educators also have conducted or planned at least 31 additional workshops to take place between September 1997 and June 1998; the workshops, planned in 16 states will reach an estimated 1,056 educators. In addition, 2,587 educators in 23 states received copies of the "Adventures on Earth" teaching kit at conferences, institutes, meetings, and in the mail. Also, the Geographic Education Program at NGS published a lesson from the teaching kit in the *UPDATE* newsletter, which reaches 55,000 educators throughout the country. Educators have also purchased the teaching kit from PRB, downloaded selected materials from PRB's Home Page, or used selected lessons that have been reprinted in other publications.

Reports from those who have presented the materials in teacher workshops indicate that teachers respond enthusiastically to the presentation, see the interdisciplinary applications of the materials, appreciate the application of real-world data, and are eager to use the materials in their classroom. Teachers of elementary, secondary, college, and adult students have all used these materials in their classrooms.

Evaluation surveys administered to the 80 educators trained at the November 1996 NCGE meeting in June indicate that they were more likely to use lessons presented at the Nov. workshop

than the others in the teaching packet; as a teaching aid the materials were rated “excellent”; and the level of student engagement while using the lessons was rated “excellent.” While the level of response to the survey and post-test was disappointing, the results of the post-test indicate that participants better understand the broad range of environmental stresses that global citizens face. They can also identify some of the variety of the contributions to environmental stress from people in developing and industrialized countries.

## **Narrative Description of *Adventures on Earth* Activities**

The goal of “Adventures on Earth: Exploring Our Global Links” is to increase teachers’ and students’ knowledge of the interdependence of Earth’s human and natural systems and the implications for sustainable development and development assistance.

*Objective 1: Develop a set of student-centered teaching materials to help students make the connections between local actions, global systems, and foreign assistance. Publish 10,000-15,000 sets of lessons for grade 6-12 teachers.*

PRB published 18,000 copies of the “Adventures on Earth” teaching kit in February 1997. (See Appendix A for copies.)

### **“Adventures on Earth”**

The contents of the teaching materials developed have a slightly different focus than the one stated above. Our goals were a little too ambitious; we found it impossible to actually include a comprehensive discussion of Earth’s human and natural systems in a six-lesson teaching kit. With input from teacher-advisors and members of the writing team, the focus of “Adventures on Earth: Exploring Our Global Links” was reconsidered. The final version of the classroom guide encourages students to consider how people use the environment, the consequences of meeting human needs, the environmental impact of people’s actions and choices, and how solutions to environmental problems must be addressed at local, national, and international levels.

The “Adventures on Earth” package includes:

- The *1997 World Population and the Environment Data Sheet* poster with selected country data, text, graphs, charts, maps, and photographs.

- The 54-page teacher's booklet, which contains comprehensive, reproducible learning activities, readings, maps, illustrations, and an 8.5" x 11" version of the *1997 World Population and the Environment Data Sheet*.

PRB produced 14,500 kits for distribution in the U.S. In addition, the Canada Geographic Alliance purchased 3,500 for distribution to educators in Canada.

### **Development of Teaching Kit**

The draft of the teaching materials was prepared by PRB staff with a team of teachers from selected geographic alliances. These drafts were used in training workshops in November 1996. After the materials were tested and reviewed by the teachers who attended the workshop, editing and production took place at PRB in December and January. The published materials were sent to the states for distribution in February 1997.

The teaching package is longer than the one originally proposed and therefore slightly more expensive. The narrow time frame made review and testing challenging. We would have benefited from more time for review and revision. In addition, we encountered human resource difficulties, which lengthened the production process. We were still able to release the materials in February, but the process was stressful. The narrow time frame allowed no time for unexpected challenges.

### **Feedback and Dissemination**

Feedback on the materials has been very positive. The colorful data poster has received rave reviews. Following the workshops that were conducted by PRB staff, participants volunteered that they thought the activities in the kits were well thought out, fit into their curriculum, and they were excited about the prospect of using them with their students. Although we received too few post-project evaluations to make broad generalizations, Table 1 is a compilation of comments from workshop evaluations and from teachers who used the materials with their students.

Table 1a is a compilation of the results from the project evaluation where NCGE workshop attendees were asked about use of the material with their students. (See Evaluation in Appendix C.) The 19 respondents consistently rated the lessons between 4 and 5 on a scale from 1 to 5 with 5 being excellent. The survey also indicates that the respondents were most likely to use the lessons demonstrated in the workshop and those that require less time and preparation.

National Geographic Society's Geography Education Program published one of the lessons in the winter edition of *UPDATE* (Appendix A). These newsletters were distributed to 55,000 educators

## ***Table 1: Feedback on Adventures on Earth Materials***

### ***Comments From Workshop Evaluations***

Materials are eagerly accepted.

Presentation met with enthusiasm.

Teachers are receptive.

“Adventures on Earth” material makes geography, and history real, current, and relevant.

Math teacher especially interested in using statistical information that is current.

Great model for student-centered instruction.

Teachers are eager to use the materials in their classroom and share materials with other teachers.

Even college faculty said they would use case studies.

Materials are excellent. ...like hands on teaching methods. “Exciting”

### ***Comments from the Evaluation Form sent to NCGE participants***

I love the material.

Materials used with students as young as first grade, as well as college students, and adult audiences.

Elementary teachers felt that the materials can be adapted for their level. The group particularly enjoyed the Shopping at the Global Resource Bank activity.

“The first two lessons in the series are great. I think they worked so well because we got hands-on experience participating in these lessons at the NCGE in Santa Barbara. Also, these lesson fit well with my curriculum last year. I hope to incorporate the lessons on Haiti and Bangladesh this year. Thanks for the great resources!”

“I used these lessons in gifted and talented classes. We only meet once a month, so it was difficult to carry over from one lesson to the next, but the students were very interested and seemed to enjoy the lessons and learn a lot.”

## ***Table 1A: Adventures on Earth Questionnaire***

*19 Respondents used the Adventures on Earth teaching kit with their students*

<b><i>LESSONS Frequency</i></b>	<b><i>RATED AS A TEACHING AID Poor 1 to Excellent 5</i></b>	<b><i>LEVEL OF STUDENT ENGAGEMENT Very Uninterested 1 to Very Interested 5</i></b>
<b><i>WHAT HUMANS NEED 19</i></b>	<b><i>4.68</i></b>	<b><i>4.42</i></b>
<b><i>MAPPING HUMAN STRESS 13</i></b>	<b><i>4.85</i></b>	<b><i>4.54</i></b>
<b><i>SHOPPING AT THE GLOBAL RESOURCE BANK 12</i></b>	<b><i>4.58</i></b>	<b><i>4.58</i></b>
<b><i>THE PRICE OF FAILED STEWARDSHIP 6</i></b>	<b><i>4.33</i></b>	<b><i>4.5</i></b>
<b><i>A MATTER OF ACCOUNTABILITY 4</i></b>	<b><i>4.25</i></b>	<b><i>4.25</i></b>
<b><i>PLANET EARTH 6</i></b>	<b><i>4.67</i></b>	<b><i>4.83</i></b>

throughout the U.S. In addition to the lesson, the newsletter contained information about obtaining the complete teaching package.

A lesson from "Adventures on Earth" appears on PRB's home page and information about the materials and the project appeared in, *Perspective* (the newsletter of the National Council for Geographic Education), and PRB's newsletter *Population Today*.

During the summer of 1997, one of the lessons was reprinted in the newsletter for Friends of Geography (FOG), a regional geography organization on the Texas Gulf Coast (attached). Three hundred copies of the newsletter were distributed to teachers in the Houston Metropolitan area.

PRB sent a press release (Appendix A) regarding the teaching kit to a list of educator newsletters and journals. In response, the teaching kit was mentioned or reviewed in the following publications, among others:

- *Newsletter #3* of the Council of Chief State School Officers
- *Florida Geographic Alliance*, Spring 1997 newsletter
- *People & the Planet*, volume 6, number 3 1997: 28
- *Environmental Communicator*, Vol. 27, No. 2, March/April 1997 (North American Association for Environmental Education)
- *News and Views*, June 1997 (newsletter of the National Association of Biology Teachers.
- *Ideas and Information about Development Education*, Winter/Spring 1997.

***Objective 2: Provide published materials or access to these materials for 60,000 educators throughout the United States.***

By August 30, 1997 components or complete sets of the "Adventures on Earth: Exploring Our Global Links" teaching guide had been provided to at least 60,208 educators throughout the United States through: 1) training and distribution at workshops; 2) incorporation in *UPDATE* and other newsletters; 3) distribution through the geographic alliance network at the state level; 4) and sales.

### **Workshops**

Upon completion of the first draft of the classroom guide, our first task was to provide training to 108 educators from state geographic alliances at the NCGE meeting in November 1996. We trained 80 teachers from 36 states and Canada in two half-day workshops at the meeting. One hundred copies of the teaching materials were sent to two educators from each state and/or the geographic alliance coordinator from the state.

While the workshops were successful, we were disappointed in not getting participation from each state. However, many states had no attendees at the conference; since the conference was in California many teachers from the East Coast were unable to attend. In the future, workshops at two events might be planned, but this would increase the cost of the project. In addition, the process for pre-registration became complicated because the roles of each organization (PRB, NGS, and NCGE) were not clear to the registrants; while the collaboration facilitated the promotion of the workshops, it also complicated the procedure for the selection and registration process.

Participants from the NCGE workshops were asked to conduct workshops in their states to share the teaching materials with their colleagues. Between January and August 1997, 63 workshops were conducted in 28 states and the District of Columbia, reaching 1,865 educators (see Table 2). At least 31 additional workshops are planned or have been conducted between September 1997 and the remainder of the 1997-1998 school year. Table 3 identifies the states and events for these workshops, which are projected to reach 1,110 additional educators. Some states planned special thematic workshops; programs from two of these are included in Appendix B.

These outreach activities include workshops conducted by Project Director, Kimberly Crews, in the District of Columbia, Texas, California, South Carolina, Wisconsin, and Maryland. She conducted workshops with participants from the NCGE meeting in Texas, California, and Maryland.

### **Other Dissemination**

Some states, particularly those with no educators at the initial training workshop, did not conduct workshops. However, the materials were distributed by the alliance coordinators at seminars, meetings and conferences; sent to alliance members through the mail; or distributed during other workshops or institutes. Other states disseminated the remaining packages in this manner after workshops had been conducted. Table 4 outlines how 25 states disseminated 2,922 teaching kits in this manner.

### **Sales**

Between February and August 1997, 168 copies of "Adventures on Earth" were sold. During that same period PRB sold 321 copies of the *World Population and Environment Data Sheet*. Complimentary copies of the data sheet have been distributed at various conferences during the year.

*Objective 3: Encourage educators to use these materials with students in geography science, and global studies classes during Earth Week 1997.*

**Table 2: Adventures on Earth Workshops  
January 1997 to August 1997**

<i>State</i>	<i>Sponsor</i>	<i>Date</i>	<i>Number Attended</i>
<i>Alabama</i>	Summer Geography Institute	June-97	38
	Geography Alliance Steering Committee	June-97	20
	Advanced Geo. Technology Institute in Florence	July-97	20
<i>Alaska</i>	Social Studies Cross-Curriculum Building	26-Aug-97	85
	Social Studies Cross-Curriculum Building	28-Aug-97	20
<i>Arkansas</i>	Arkansas Geography Alliance	5-Apr-97	35
<i>California, N.</i>	California Council for the Social Studies	9-Mar-97	30
	Wallenberg High School	17-Apr-97	35
<i>California, S.</i>	St. Charles Borromeo Academy	9-Apr-97	8
	San Marcos High School	15-Apr-97	10
	San Diego Wild Animal Park	19-Apr-97	60
	St. Mary Star of the Sea School	7-May-97	9
<i>Connecticut</i>	Yale University, Center for Int'l & Area Studies	2-Apr-97	80
	Yale University, Center for Int'l & Area Studies	7-July-97	20
<i>District of Columbia</i>	Embassy Adoption Program	27-Jan-97	50
	DC Alliance Summer Institute	July-97	18
<i>Georgia</i>	Walker County School District	Mar-97	60
	NE Georgia RESA	22-Apr-97	22
<i>Hawaii</i>	Hawaii Geography Alliance Workshop	5-Apr-97	20
<i>Illinois</i>	Pre-Service Education Majors, Lewis Univ.	Feb-97	24
	Bowen High School, South Chicago	Apr-97	10
	Pre-Service Education Majors, Lakeforest College	Apr-97	30
	Pre-Service Education Majors, St. Francis College	Apr-97	27
	Franklin Fine Arts Academy	May-97	20

***Table 2: Adventures on Earth Workshops  
January 1997 to August 1997***

<i>State</i>	<i>Sponsor</i>	<i>Date</i>	<i>Number Attended</i>
<i>Indiana</i>	Indiana Geography Alliance Summer Institute	June-97	30
	St. Mary-of-the-Woods College Workshop	June-97	30
<i>Kansas</i>	Eisenhower Middle School District In-Service	14-Mar-97	35
	Kansas Geography Alliance Summer Institute	June-97	39
<i>Michigan</i>	Michigan Geo West Institute	June-97	40
	Michigan Advanced Summer Geography Institute	June-97	20
	Michigan Summer Geography Institute	June-97	35
<i>Minnesota</i>	Urban Geography Institute	June-97	29
	AP Geography Conference, Mancaleston Univ.	July-97	51
<i>Mississippi</i>	Mississippi Environmental Education Association	5-Apr-97	25
<i>Missouri</i>	Kansas City, Missouri School District	2-Apr-97	26
	Wydown Middle School	14-Apr-97	10
	Ladue Junior High School	3-May-97	18
	Kansas City, Missouri School District	3-May-97	10
	Rockwood Valley Jr. High	5-May-97	5
<i>Nebraska</i>	Geographic Educators of Nebraska	June-97	12
	State Mid-Level Conference	25-June-97	2
	ASGI	July-97	21
<i>New Jersey</i>	State Geography Bee Workshop	Apr-97	40
<i>New Mexico</i>	New Mexico Geographic Alliance	21-June-97	20
<i>New York</i>	Summer Geography Institute, Buffalo	June-97	25
	Summer Geography Institute, Long Island	July-97	25
<i>North Carolina</i>	NC Council for the Social Studies Conference	Feb-97	35

**Table 2: Adventures on Earth Workshops  
January 1997 to August 1997**

<i>State</i>	<i>Sponsor</i>	<i>Date</i>	<i>Number Attended</i>
	NC Center for the Advancement of Teaching	Mar-97	10
<i>Oklahoma</i>	Cameron University	Feb-97	25
	Rogers University	15-Apr-97	30
	Rogers University	15-Apr-97	33
	Rogers University	18-Apr-97	25
<i>Pennsylvania</i>	Warrior Run School District	Mar-97	20
<i>Rhode Island</i>	Rhode Island College	28-May-97	15
<i>South Carolina</i>	South Carolina Summer Geography Institute	18-June-97	30
<i>Texas</i>	Bedford, TX District Training Academy	11-Feb-97	25
	Mid-Cities Council for Social Studies	25-Feb-97	25
	9th Annual Geotech. Conference	7-Mar-97	35
	Central Presbyterian School	22-Apr-97	50
	District Staff Development	8-Aug-97	120
<i>Virginia</i>	Christopher Newport University	12-Apr-97	33
<i>Wisconsin</i>	Summer Geography Institute	25-June-97	45
<i>Wyoming</i>	Ecology Workshops, University of Wyoming	May-97	10
	<b>Total Number of Attendees</b>		<b>1865</b>

***Table 3: Adventures on Earth Workshops  
September 1997 - 1998***

<i>State</i>	<i>Sponsor</i>	<i>Date</i>	<i>Number Attended or Expected</i>
<i>Alabama</i>	Pre-Service Teacher Workshop, Jacksonville State Univ.	Sept-97	22
<i>Arkansas</i>	Arkansas Geography Alliance Fall Conference	26-Sept-97	80
	Arkansas Council for Social Studies	30-Oct-97	50
<i>Connecticut</i>	Bridgeport School District	Sept-97	70
<i>Illinois</i>	Chicago Public Schools	Oct-97	30
	Pre-Service Education Majors, Xavier University	Fall-97	65
	Pre-Service Ed. Majors, Benedictine University	Fall-97	50
	Pre-Service Education Majors, Elmburst University	Feb-98	25
	Pre-Service Education Majors, Lewis University	Feb-98	25
<i>Maryland</i>	MD Council for the Social Studies	24-Oct-97	30
<i>Mississippi</i>	Globe Program	Fall-97	50
	Jackson Public Schools	Fall-97	35
<i>Missouri</i>	MO Dept. of Elem/Sec Edu. Teacher Consultant Workshop	Jan-98	30
	Kansas City Geography Teachers	3-Mar-98	30
<i>Nebraska</i>	Annual GEON Workshop	Sept-97	67
	Geofest for Nebraska Geographic Alliance	20-Sept-97	2
	Educational Service Unit, Buffalo County	29-Oct-97	20
	Kearny Public Schools	4-Nov-97	30
<i>Nevada</i>	Nevada Alliance	Mar-98	30

**Table 3: Adventures on Earth Workshops  
September 1997 - 1998**

<i>State</i>	<i>Sponsor</i>	<i>Date</i>	<i>Number Attended or Expected</i>
<i>New Hampshire</i>	Weekend Workshop, Concord Area	Sept-97	19
	Keene State College	27-Oct-97	13
	Nashua Weekend Workshop	Spring-98	30
<i>New Mexico</i>	New Mexico Geographic Alliance	24-Oct-97	30
<i>Oklahoma</i>	Cameron University	Feb-98	25
<i>Pennsylvania</i>	National Science Teachers Regional Conference	Fall-97	50
<i>Rhode Island</i>	Univ. of Rhode Island, Narragansett Bay Classroom	8-Nov-97	70
<i>South Dakota</i>	South Dakota Geographic Alliance	Oct-97	30
	South Dakota Geographic Alliance	Apr-98	30
<i>Vermont</i>	Vermont Alliance for the Social Studies	Dec-97	15
<i>Virginia</i>	VA Geography Alliance Reunion	8-Nov-97	75
	Northern VA Geography Alliance	Fall-98	25
		<b>Total</b>	<b>1153</b>

***Table 4: Adventures on Earth Dissemination  
Teaching Kit Distributed February to August 1997***

<i>State</i>	<i>Distribution Receptients</i>	<i>Number Distibuted</i>
<i>Alabama</i>	Members of Alabama Geographic Alliance	90
<i>Alaska</i>	Anchorage School District, Department Chairs	75
<i>California, S.</i>	Teachers of 5 Middle Schools & 3 High Schools	70
<i>Colorado</i>	Participants at the Spring Annual Meeting & Colorado Geography Institute	100
<i>Connecticut</i>	Connecticut Geographic Alliance Members	100
<i>Delaware</i>	Members of Delaware Geography Alliance	150
	Summer Geography Institute	45
<i>Georgia</i>	Summer Geography Institute	30
	Other Teachers	50
	Geofest	60
<i>Indiana</i>	Indianapolis Teachers	70
	Indiana Geographic Alliance Board Meeting and New Members	30
<i>Kansas</i>	Kansas Geographic Alliance Members	120
<i>Louisiana</i>	Members of the Louisiana Geographic Alliance	200
<i>Maryland</i>	Social Studies Dept. Chairs in Middle Schools, Prince George's County	46
<i>Massachusetts</i>	Through Regional Service Centers	200
<i>Minnesota</i>	Minnesota Council for the Social Studies	50
<i>Nebraska</i>	Participants at the Fall Conference	70
<i>New Jersey</i>	Regional Geography Alliance Meetings	75
	School Administrators & Curriculum Supervisors	25

**Table 4: Adventures on Earth Dissemination  
Teaching Kit Distributed February to August 1997**

<i>State</i>	<i>Distribution Receptients</i>	<i>Number Distributed</i>
<i>New York</i>	Spring Meeting of the Geographic Alliance	75
<i>North Carolina</i>	North Carolina Geographic Alliance Members	155
<i>North Dakota</i>	North Dakota Minot Summer Geography Institute	35
	Geography 900, Mandan	20
	Geography 900, Dickinson	30
	Geography 900, Stanley	40
	Geography 900, Dickinson	30
	Seeds of Change Workshop, Wahpeton	12
	Seeds of Change Workshop, Minot	25
<i>Pennsylvania</i>	Teacher Conference	50
	PA Advanced Summer Geography Institute	25
	PA Alliance Summer Geography Institute	25
<i>Tennessee</i>	Tennessee Geographic Alliance Members	100
<i>Vermont</i>	Alliance members through Newsletter Ad.	120
	Vermont NEA Convention	60
<i>Virginia</i>	Richmond Area Geographic Alliance Members	30
<i>West Virginia</i>	Summer Geography Institute	39
	West Virginia Geographic Alliance Reunion	25
<i>Wisconsin</i>	Great Lakes Council for the Social Studies Meeting	200
<i>Wyoming</i>	Through Regional Leaders to Geography Alliance Members	170
	<b>Total Number Distributed</b>	<b>2922</b>

To encourage educators to use the materials during Earth Week, 29 “Adventures on Earth” workshops were conducted prior to or during the third week of April 1997. Also, the issue of *UPDATE*, that included one of the “Adventures” lessons, was distributed in February 1997; teachers who received this newsletter would have had access to the material before Earth Day. Other than the responses on the evaluation survey that was administered to the 80 NCGE workshop participants, we have no way of knowing how many teachers used the materials during Earth Week. Of the 26 respondents who returned the survey, 19 had used the teaching kit prior to the end of the school year.

While Earth Day was identified as an ideal time to launch the lessons, they are broad enough to be used at any time during the school year. Other respondents and those who were contacted by phone indicated that they generally expected to use the materials during the 1997-98 school year. They were unable to use them earlier because they did not have the time to incorporate them or they had already passed the point in their curricula where these materials fit.

### **Results of Pre-Test and Post-Test**

In the Pre-Test, we attempted to ascertain participants knowledge or thoughts on the basic needs of humans, the world regions that experience or contribute to environmental stresses (water, air, food, and health), and the levels and types of foreign assistance. (See Appendix C for evaluation instruments and results.) As discussed in the design shortcomings section, the post-test needed to deviate from the pre-test, which was not well designed.

What we can ascertain from the 18 post-tests that were completed is that respondents:

- Could generally identify the basic physiological human needs. In the pre-test when asked about the most important things used each day, respondents were almost as likely to list a car or computer as air and water.
- Correctly identified Middle East/North Africa as the region experiencing the greatest stress due to lack of water.
- Were able to make a correlation between potable water, sanitation, adequate diet, and access to health care to the health of children.
- Did make the link between wealth or level of industrialization and the level of carbon dioxide emissions, but generally failed to make the link between population size and carbon dioxide emissions.
- Understood the level of U.S. GNP allocated for foreign assistance. The average response in the pretest was 6.19%, but equal levels of respondents answered one percent and over 10 percent.

- Had a broader understanding of environmental stress than they did prior to participating in this project. They recognized that environmental stress could be found beyond developing countries and better understood the variety of factors that contribute to different kinds of environmental stress.

Because most of the teachers, who have used the materials so far, have done the basic lessons, they have yet to expose their students to some of the foreign assistance information that is developed in the latter part of the teaching package. A post-test at a later period might yield different results as teachers may use this part of the teaching package with their students.

### **Project Problems, Design Shortcomings, and Unanticipated Outcomes**

In one short year, it is very challenging to create a set of materials, test and receive feedback, disseminate these materials, and evaluate their effectiveness. If the project team falls behind or has a setback in one stage of the project, it could lead to the lack of attainment in many of the project objectives. I believe that the intensity of this type of project, while rewarding if successful, can lead to extreme stress among project staff, which contributes to burn out.

### **Material Development**

While I am extremely pleased with the “Adventures on Earth” teaching package, its development was extremely stressful. The development of the package took place over a short, two-month period. In the third month of the project, a draft was used to train the primary target group of teacher trainers. We asked each of these educators to review one lesson (preferably by using it with their students) and supply us with comments. Ideally, we would allow at least three to six months for this review process. But under the constraints of the grant the reviews were done in a two-month period. Some parts of the package were well reviewed, while others were merely edited. A greater review period would lead to more user-friendly and appropriate teaching materials.

The condensed time frame leaves no time for error. PRB also experienced a staff shortage in our production department. Rather than delay the project, it was necessary to use temporary workers, who added to the production cost as some of the work needed to be redone.

As can be expected, the final materials were different and lengthier than those originally planned. When a project involves the development of a new product, it is difficult to fully anticipate whether the project design is reasonable, whether the proposed design will work, and some of the

challenges of implementing the design. Due to the longer length, the printing and production costs were higher than budgeted, but these additional expenses were offset by extra sales.

One unanticipated result was the purchase of 3,500 teaching guides by the Canada Geographic Alliance. They also wanted to reproduce the materials in French, but there was not time to accomplish this.

### **Initial Training Workshop**

The problem with the initial training event was that the registration system was confusing and the full expected participation was not achieved. Our primary direct target audience, was 108 teachers (two from each alliance) who would represent their respective geographic alliance at the workshops at the NCGE conference in Santa Barbara in Nov. 1996. Only 80 teachers, representing 36 states and Canada, attended the workshops.

The information about registration for the workshops had to be put in the advance program for the Nov. conference. This information for the program was collected during the summer of 1996, before final notification of the grant was received. Quick calls were made between the three collaborating organizations to devise a registration strategy. The resulting strategy was confusing for all parties and led to confusion about who was to register and how approval for participation was to be obtained.

We did not anticipate the lack of participation at the workshop of teachers from some states. Because the NCGE meeting was held in Santa Barbara, many East Coast teachers did not attend. In the future, it might be wiser to plan workshops at more than one event to maximize the opportunity for teachers from all states to attend. However, this would increase the cost of the project.

### **Dissemination**

The materials went out on schedule, but teachers did not always have the opportunity to conduct workshops prior to Earth Week. For many workshops or conferences, the schedules are set up months in advance and teachers are required to submit proposals for participation months in advance. On the positive side, the majority of the teachers who attended the NCGE workshop have done or plan to do at least one workshop. However many of these workshops will take place beyond the grant period and therefore cannot be included in the matching amount. These workshops are listed in Table 3; their in-kind value is estimated at \$9,300.

Those who have spent some time developing their own workshops, have found the experience to be extremely rewarding. The materials can be adapted to audiences of all ages and provide for

interesting interaction during the workshop, and rewarding exchanges in the classroom. Several educators have planned multiple workshops for the 1997-1998 school year.

Many states sent no participants to the NCGE workshops. In these cases, the materials were sent directly to the state coordinators. While most of the coordinators distributed the materials in workshops, at meetings, or directly to alliance members, these materials were generally not demonstrated in workshops. We know that teachers are more likely to use materials that have been demonstrated. In the future, I would make more efforts to reach the primary target group directly, rather than depend on others to distribute the materials.

### **Evaluation**

Because many teachers did not have the opportunity to use the materials in their classroom during the 1996-1997 school year, they also did not complete the evaluation survey and post-test (see Appendix 3). They could not respond to the questions about use of the teaching package with their students, nor did they feel compelled to respond to the post-test. This severely limits the usefulness of these surveys.

In addition, the pre-test was developed rather hurriedly and did not adequately capture the main objectives of the project. Again, this is attributable to the lack of time between the development of the materials and the initial training workshops. The effort of the project staff was focused on just having the draft of the teaching packet completed in time for the workshop. The pre-test was done at the last minute.

### **Lessons Learned**

Again, our thinking that teachers will use well-developed materials that are shared during workshops is correct. The NCGE workshop participants have said, and the survey results show, that the lessons used most often are those that were demonstrated. Obviously, interactive, interdisciplinary, adaptable lesson also makes a difference. Please see Appendix D for selected feedback from various participants who confirm these assertions.

I think most of my concerns come from the constraints of conducting a one-year project with a partner, where the materials development and dissemination are required. I think the process would be better served with a little more time for material development, dissemination, and time for the target audiences to use the material and provide reasonable feedback. One way to achieve this might be to extend the project period to 18 months even if the funding must be spent in the first 12 months.

I believe that this added time would help ensure better products, careful dissemination, time for the target audiences to get the greatest benefit from the materials, and provide useful feedback.

One of the keys to a successful project is good communication. I think that next year's development education conference could highlight this theme and strategies for best results when working with partners.