NSRC LASER INITIATIVE

Final Evaluation Report

National Science Resources Center
National Science Foundation

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NSRC LASER Initiative
Final Evaluation Report

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INTRODUCTION

Leadership and Assistance for Science Education Reform (LASER) was a five-year[1] outreach initiative developed by the National Science Resources Center (NSRC). It was one of eight projects funded in 1997 by the National Science Foundation (NSF) for its National Implementation and Dissemination Centers Project. "The primary goal of Dissemination and Implementation Centers is to increase the expertise of state, district and school level educators to select, adopt, and implement high quality instructional materials" (NSF RFP).

The NSRC's goals for the LASER Center, as established in its original grant proposal, were:

1. To build awareness for a new vision of K–8 science learning and teaching with at least 2,000 school and community leaders representing more than 1,000 school districts.

2. To disseminate information about quality inquiry-centered, K–8 science curriculum programs developed from extensive research and field testing, and the support systems required for their implementation, to more than 2,000 leaders representing school districts, and officials from business, industry, academia, and museums from communities having 20% of the US student population.

3. To develop capacity with community organizations and institutions in eight regional sites in the country to help 300 or more local districts to implement and sustain effective K–8 science programs.

4. To provide 300 school districts located in the eight regional sites with access to resources and expertise for implementing and sustaining a K–8 science education program based on standards-based, K–8 science curriculum materials.

In addition to the NSF's funding, the NSRC has received critical financial support from corporations, private foundations, and four science curriculum publishers, as well as the funds regional site leaders have raised from local supporters and registration fees from school districts participating in the LASER Center programs.

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[1] As of this writing, the NSRC has received a one-year extension.

In this report, the LASER Center refers to the collaboration between the NSRC and its eight regional site partners.

EVALUATION

The National Science Resources Center contracted with the Program Evaluation and Research Group (PERG) at Lesley University to conduct the external evaluation of its LASER Center. While the NSRC outlined a broad set of goals for the LASER Center, PERG's evaluation has focused more narrowly on the NSRC's key strategy—providing programmatic support and technical assistance to its eight sites across the country for the purpose of building regional and district-based leaders' capacity to improve science education programs. Based on the NSRC's theory of action, evaluators have examined how the NSRC formed partnerships with the eight sites, as well as how the regional site leaders built a base of support for inquiry-centered science teaching and learning, planned and financed their outreach work with districts, and evaluated their own and their districts' progress.

The evaluation of the LASER Center was divided into four phases. One or more reports were produced for each phase.[2]

- **Year One**
  PERG documented the NSRC's Phase I program activities for LASER, described early stages of the regional sites' development, and identified emerging issues and challenges for the LASER Center.
- **Year Two**
  PERG prepared profiles of each regional site, documenting their work and evaluating their progress. In addition, evaluators consulted with the NSRC staff to help them establish an internal data collection system for the LASER Center, and worked with the network of regional site leaders to develop survey instruments they could use to track their districts' progress.
- **Year Three**
  PERG focused more closely on how, and to what extent, site leaders were

[2] PERG's previous evaluation reports include:
NSRC LASER Initiative: Year One Activities, with an Emphasis on the Regional Site Rubrics (May 1999).
NSRC LASER Initiative: Year Two Cross-Site Report (August 1999–May 2000) and LASER Regional Site Profiles (Spring 2000).
NSRC LASER Initiative: Year Three Cross-Site Report and Regional Sites' Technical Assistance Reports (June 2000–May 2001).
NSRC LASER Initiative: Regional Sites Evaluation Reports (July 2002).

developing comprehensive programs for providing on-going technical assistance to districts that had attended their Strategic Planning Institutes, and the role the NSRC played in that implementation work.

- **Final Evaluation**
  The final evaluation period spanned 18 months and was divided into two components. First, PERG developed in-depth studies of four successful regional sites, and second, analyzed how the NSRC originally designed the LASER Center and, over time, adapted it to accommodate regional conditions, deepened its partnerships with the regional sites, and thus was able to accomplish important Center goals.

DATA SOURCES

Data collection activities for 2002–2003 included:

- Interviews with the following NSRC staff—who have worked directly with the regional sites—about their role as a Center partner over the five years of the LASER project. Interviews were conducted between winter 2001 and fall 2002 with:

  Sally Goetz Shuler, Executive Director of NSRC
  Evelyn Ernst, Director of the LASER Center
  Wendy Binder, Senior Program Associate, the LASER Center

- A survey distributed to key regional site leaders at all 8 LASER sites during the fall of 2002

In addition, to prepare this report, PERG evaluators reviewed data from all previous years' sources, including:

- Implementation and Dissemination Centers RFP and reports on the Centers' work
- NSRC's written products 1998–2003:
  - Original LASER proposal to the NSF
  - Advisory board meeting notes
  - Lessons from the National Science Resources Center's work
  - Technical reports
- Materials and reports provided by the regional site leaders
- PERG LASER evaluation reports generated between 1998 and 2003

REPORT

This report presents an analysis of the LASER Center design. Refer to previous PERG reports for details about the development of the LASER Center and the work of its eight sites.

The rest of this report is divided into the following major sections:

The Proposed Design for the LASER Center
Changes to the LASER Center's Design
Findings
Recommendations

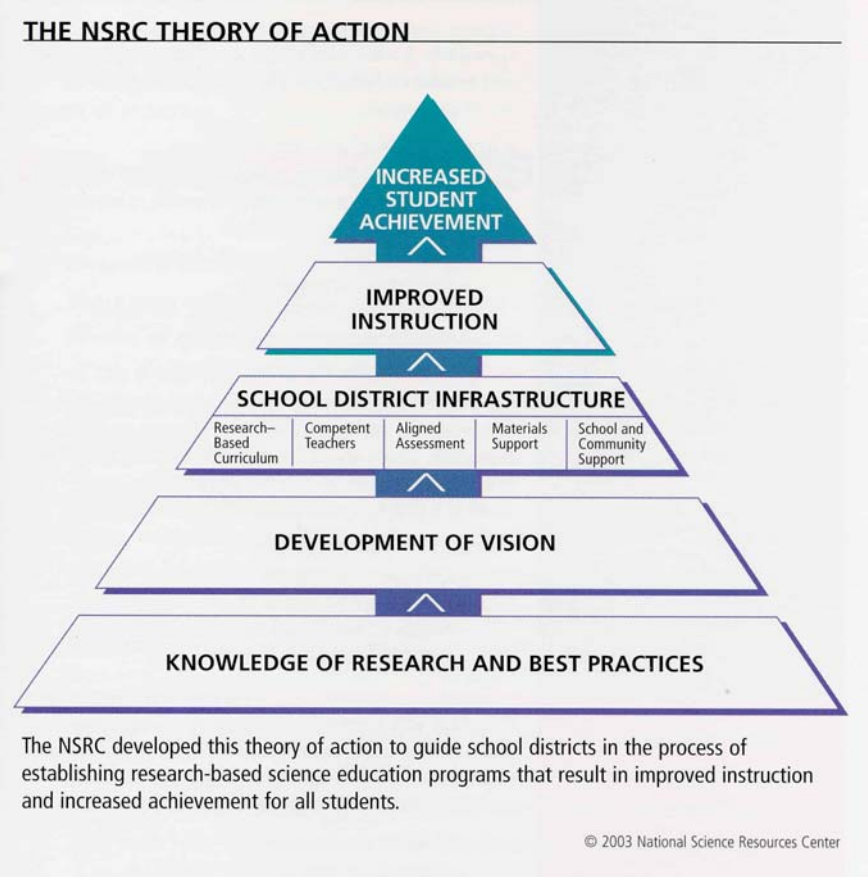
THE PROPOSED DESIGN FOR THE LASER CENTER

The National Science Resources Center's design for LASER was rooted in its prior history—more than a decade of experience working with school districts to improve science education. Based on knowledge of critical research and the findings from their work, the NSRC understood that to achieve the goals of the NSF's Implementation and Dissemination Centers' program—for educators to successfully select, adopt, and use new, inquiry-centered curricula—a district-based, systemic approach was needed.

One critical tenet of its proposed LASER Center was the theory of action the NSRC developed for districts' science education reform. This theory posits that educators must first develop a vision of effective science teaching and learning based on research and best practices. Second, they need to establish an infrastructure that includes five core elements known as the "NSRC's district reform model." The five components are:

1. High-quality, inquiry-centered science curricula
2. A comprehensive program to help teachers deepen their knowledge of science and develop their expertise
3. Effective materials support systems
4. Student assessments aligned with their curriculum
5. Broad-based administrative and community support

Once fully in place, such a carefully developed program should lead to a sustainable district science program, improved classroom instruction, and, ultimately, increased student achievement.

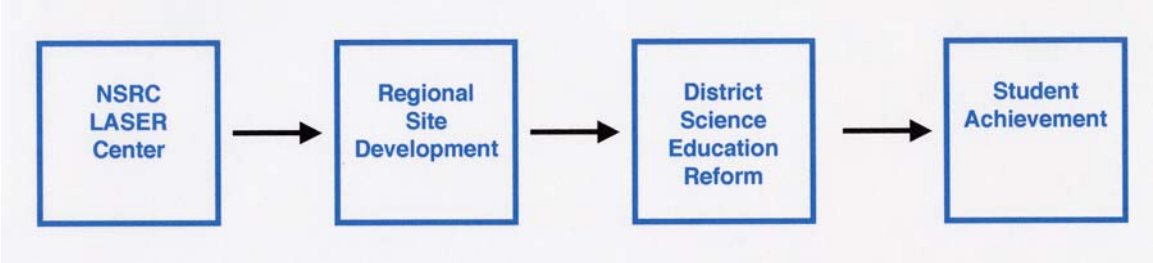


The NSRC's six-day Elementary Science Leadership Institutes, held in Washington, DC every summer since 1989, were designed explicitly to provide participating teams (comprised of key district administrators, science coordinators, teachers, and community scientists) with the research base, interactive learning experiences, resources, and mentoring that would allow them to create a shared vision and develop a five-year strategic plan that incorporated the five elements of the NSRC's district reform model.

Through the development of the LASER Center, the NSRC proposed to transfer its work from its Washington, DC base, bringing both its district reform model and its Strategic Planning Institute (based on its earlier Leadership Institutes) to eight selected regions throughout the country to help them "scale-up" science education reform.

> [We were] looking at being able to take this model and regionalize it; to catalyze the reform effort that we have been involved in . . . More people have to understand how to work with districts to review their programs and implement the new curriculum and five elements of reform. What was implied [in the LASER design] was building leadership in the regions. (NSRC)

The NSRC's purpose for its design and development of the LASER Center was to make its work available to more school districts throughout the country by building a network of leaders that could develop the necessary capacity to advance the NSRC's work regionally. And, through this network, the NSRC could ensure that participating districts would have access to the follow-up technical assistance they needed to reform their science programs—the kind of support the NSRC was unable to provide from its more remote base in Washington, DC.



THE NSRC'S PARTNERSHIP WITH EIGHT REGIONAL SITES

LASER's organizational structure was based on a partnership model that included the eight regional sites; four publishers of NSF-supported middle and elementary school curriculum materials; and the NSRC and its parent institutions (the Smithsonian Institution and the National Academies).

REGIONAL SITES

The NSRC used several criteria in selecting the eight regional sites:

- Sites where science reform was already taking place and where the NSRC expected that LASER would be successful; the NSRC referred to these existing science reform initiatives as "flare points" that could provide a base from which district science reform could grow
- Sites where potential LASER partners had a "demonstrated record of education excellence and leadership in K–8 science curriculum implementation and teacher enhancement, [in addition to a] knowledge of school district policy and practice that affects science curriculum implementation" (NSRC proposal)

The original eight LASER sites and the number of districts they initially proposed to work with over the life of the grant were:

Alabama (128 districts)
Oklahoma (540 districts)

Orange County, California (26 districts)

Rhode Island (21 districts)

South Carolina (86 districts)

Southwestern Pennsylvania (9 counties)

Tri-State (New Jersey, Eastern Pennsylvania, and Connecticut— around 1,000 districts)

Washington State (120 districts)

The NSRC assumed that the site leaders in these regions had access to resources and networks, and sufficient experience to leverage additional resources needed, and that they could build the corporate and political support that would facilitate their work.

According to the design, the NSRC and the eight sites would each be responsible for specific, complementary activities.

REGIONAL SITE LEADERS

The NSRC proposed a framework describing the conditions that would be required to create capacity for reform at the regional site level, and the work that the NSRC expected the regional site leaders would address. (These were described as a set of six Regional Site Development Rubrics. See Appendix A for more detailed description.)

- **Developing a Regional Partnership**
  Establishing a formal regional organization of leaders—representing diverse institutions such as corporations, museums, universities, foundations, and state agencies—who are committed to the improvement of K–8 science education and have agreed to spearhead the effort to improve science education programs in the region's school districts.
- **Building a Broad Base Of Support**
  Developing a broad base of support within the region, the districts, and their respective communities for initiating, implementing, and sustaining quality science programs in the region.
- **Developing a Strategic Planning Process**
  Using a strategic planning process to engage client school districts in the design and implementation of effective science programs.
- **Building Regional Capacity**
  Using quality products and services—such as conferences, institutes, technical assistance programs, access to models of best practice, and networking forums —to build capacity within the region for initiating, implementing, and sustaining effective science programs in local school districts.

- **Leveraging Resources**
  Developing the capacity to identify and obtain human and fiscal resources needed to implement and sustain effective science programs in the region.
- **Evaluating Impact**
  Establishing a process to evaluate and communicate the impact of regional products and services on client school districts' progress in implementing the five elements of an effective science program identified in the NSRC model.

THE NSRC

The NSRC planned to build the capacity of the regional site leaders through a combination of products and services they would offer each site. These included:

- Technical assistance to site leaders, particularly in relation to leadership development, strategic planning, and engaging districts in science reform
- Initiation and implementation products and services:
  - *Initiating Activities*
    Regional Planning Meetings
    Building Awareness Conferences
    Curriculum Showcases
    Strategic Planning Institutes
  - *Advanced Implementation Activities*
    Beginning and Advanced Implementation Conferences
    Networking Forums
    Teacher Leadership Institutes
    Advanced Implementation Guide (for districts)
    Electronic communication system

The NSRC proposal envisioned a phased-in approach, working with four sites during the first year, and adding the other four sites during the second year. The NSRC also planned to roll out its products, offering initiating activities in 1998 (and continued for the life of the project) and offering implementation activities for the first time in 1999. They expected that districts within the first four regions (that attended an SPI in 1998) would be ready for more advanced implementation events the following year.

PUBLISHERS

The publishers that partnered with the LASER Center are Carolina Biological Supply Company, Inc; Delta Education; Kendall/Hunt Publishing Company; and Lab-Aids, Inc. While they were instrumental in supporting district access to materials, they were not a focus of PERG's evaluation.

CHANGES TO THE LASER CENTER'S DESIGN

As the LASER Center partners—both the NSRC and the regional site leaders—began their work, they found they needed to adapt the original LASER design in a number of ways.

First, the borders of the regions and the number of districts they encompassed expanded from what was initially proposed.

As they started to develop their regionwide LASER partnership in order to garner support for inquiry-based science and LASER's district-based approach, the regional sites reached out to educational leaders and policy makers, corporations, universities, and foundations.

- **State Departments of Education**
  The site leaders in several regions sought state educational leaders' support to access available state DOE funds and a declared legitimacy for district K–8 science education improvements the state affiliation would bring. In exchange for state support, these site leaders found that the state education superintendents and/or DOE directors required them to include all districts, statewide, rather than address the needs of the smaller number of districts initially proposed.

- **Corporations**
  Similarly, potential corporate partners they approached had sets of communities and districts in their service areas they wanted LASER to serve.

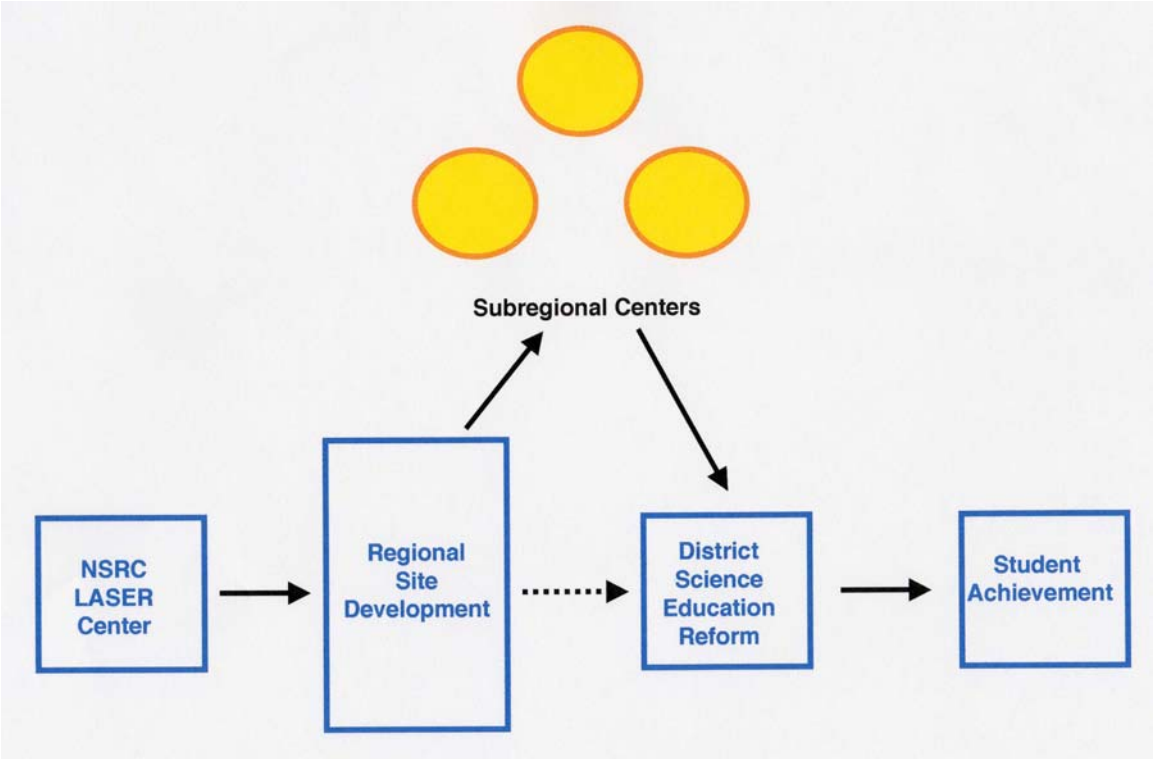
Second, few regions wanted to delay the start-up of their LASER programs until the second year of the grant.

These two changes had important implications for both the NSRC and the regional sites. It meant that the amount of work grew for both partners, and it subsequently altered their design for providing more advanced support and technical assistance to districts.

- The NSRC was asked to offer more of its planned initiating services and products than planned. As a result, given the available resources and staffing for LASER, the NSRC had to postpone the development of their proposed second phase implementation programs.

- At the regional level, to serve the added number of districts, site leaders worked in partnership with the NSRC staff to hold more SPIs than had been originally

planned. However, because they were unable to provide direct, in-depth follow-up support to this increased number of districts, they identified existing networks, or tried to develop new networks, of service providers to support the districts' ongoing needs. The following graphic depicts this change:



Site leaders' capacity-building work at the subregional level began to resemble that of the NSRC's.

FINDINGS

Over the course of the five-year Implementation and Dissemination grant, the partnership between the NSRC and the eight regional sites that comprised the LASER Center resulted in the achievement of the National Science Foundation's original program goals. The LASER Center "increased expertise of state, district, and school level educators to select, adopt, and implement high quality instructional materials" (NSF's I & D Center RFP).

In the two sections that follow, we highlight the LASER Center's key accomplishments, discuss critical challenges both the NSRC and regional sites faced as they conducted their work, point out the important adaptations they made to their original design as their complex work unfolded, and outline some of the lessons they learned through their joint efforts.

In the first part, we take a wide-angle look at the LASER Center's work *in toto*—that is, we examine the program outcomes from a broad, national perspective—what the NSRC and all eight regions, collectively, were able to accomplish over the five-year grant period.

In the second section, we narrow our focus, zooming in on the NSRC's strategies for creating a partnership with and supporting the development of eight regional LASER sites for the purpose of developing their capacity to help districts create and sustain effective K–8 science programs. We examine how well the NSRC's original theory described what actually unfolded in the field: what they expected site leaders to be able to do, and what support they expected to be able to provide as their partnership developed.

FROM THE NATIONAL VIEWPOINT: ACCOMPLISHMENTS, ADAPTATIONS, AND CRITICAL CHALLENGES

Through a concerted and collaborative effort, the LASER Center's leaders—at the NSRC and among the eight regional sites—have changed the national science education landscape in a number of important ways.

Key Findings

- Development of effective programs, products and services
- Capacity development: leaders to support science education reform
- A broadly shared vision of science teaching and learning
- Significant resources secured for improving K–8 science programs
- Involvement of more than 370 districts within the eight regional sites
- Development of regional technical assistance networks for sustaining districts' programs

1. Development of Effective Programs, Products and Services

Over the past five years, the NSRC strengthened some of the products and services it initially designed and planned to offer to, and in partnership with, the eight regional sites. It also developed some new programs in response to emergent needs at the site level.

This work—strengthening existing programs, developing new ones—was the result of the NSRC's close collaboration with national, regional, and local district leaders involved in the LASER Center's work and their mutual efforts to address national challenges to science education reform, as well as more adequately reflect the opportunities and constraints regional sites faced working within their local, state, and district contexts. LASER's attention to program improvement, and the capacity it has built among all of the partners involved in the Center, was a clear strength and a critical outcome of the NSRC regionalizing its work.

As a result of their joint enterprise, the NSRC/regional site partnership matured over the course of the grant. While initially taking the lead conceptual role, the NSRC staff, in meeting the demands of the LASER Center's work, reported that they had deepened their own knowledge and developed new areas of expertise through their involvement with their regional site partners.

Below, we briefly highlight the NSRC's accomplishments, lessons learned, and the challenges their staff faced in providing adequate technical support to the eight regions, as well as delivering the initiation and implementation programs they had proposed.

Technical Services for Regional Site Leaders

The NSRC learned early on that they needed to develop additional technical support services to assist the regional leaders as they formed their partnerships, developed region-wide strategic plans, identified and approached potential funders, considered how best to position LASER in order to secure state education policy makers' support, and initiated their work with districts.

During the start-up phase for each site, the NSRC responded as best it could to individual region's requests for these types of specialized technical assistance. Site leaders reported that the NSRC's presence, with its impressive Smithsonian and National Academies credentials, was often what first opened state-level education policy makers' and corporate foundation executives' doors. Their availability by telephone for ongoing planning advice, especially as events drew near, was also greatly appreciated. In fact, regional site leaders continued to use the NSRC staff members and the network of other regional colleagues to solve problems over the life of the grant.

Yet, given staffing and resource limitations, the NSRC found it could not address every site's needs. For example, site leaders particularly valued the regional planning meetings

NSRC staff held the first year of LASER, and asked for them to be continued on an annual basis. However, the NSRC found it did not have sufficient resources to visit each site each year for strategic planning purposes. While the regions did gather annually at the National Science Teachers Association (NSTA) meetings for LASER regional site leaders' network meetings, this did not replace their need for more individualized support.

The electronic network planned "to provide regional sites and school districts with access to resources and current information pertaining to science education reform" was never developed.[3]

Programs for District Leaders and Other Educators

Because of the increased scale and the more intense pace of the regional site development work (i.e. some sites' expanded geographical reach and inclusion of more districts initiating science programs), most of the NSRC's work was focused on providing more early implementation products than originally proposed, as was discussed earlier.

While the NSRC had planned to provide two advanced implementation products to support districts' post-SPI work, these were not offered. They would have been opportunities for the development of teacher leaders and assistance to regions' districts in the middle stages of implementing inquiry-centered K–8 science curriculum programs.[4] A third, the Next Step Institutes, sponsored jointly by the Association of Science Materials Centers (ASMC) and the NSRC, were held every other year, rather than annually.

In some regions, this lack of post-SPI support left the site leaders primarily responsible for coordinating and/or providing the ongoing follow-up programs for participant districts across their regions. It also hampered their efforts to build a region-wide coalition for the LASER Center because the existing products and services did not address the needs of districts within their regions that had previously initiated science programs and were now counting on the Center's support for deepening their work and sustaining their efforts in a more difficult political and fiscal climate.

However, the NSRC did develop several new programs in conjunction with some regional site leaders and in direct response to the needs of their specific regions. Most occurred in the later years of the grant. Examples of these include:

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[3] Leadership and Assistance for Science Education Reform (LASER), Proposal to the National Science Foundation, August 6, 1997, p. 26.

[4] Ibid, p. 21.

- Principals' symposia
- University science educators' conferences
- Institutes for teams of middle school educators
- Student assessment
- Post-SPI meetings to assess districts' progress and advance their strategic plans

At times, the knowledge base the NSRC staff and regional leaders developed, as well as these new program designs, directly benefited the larger group of regions, or a subset of them.

2. CAPACITY DEVELOPMENT: LEADERS TO SUPPORT SCIENCE EDUCATION REFORM

The NSRC designed and implemented a sophisticated set of interrelated strategies for developing leadership capacity at multiple levels, as part of its LASER Center work. Through these efforts, a significant cohort of new nationally-based, regional, and local leaders share the NSRC's vision and gained the critical knowledge and skills to work in concert, through the LASER network, to improve K–8 science education. (According to NSRC staff, the number of leaders was 225, as of February, 2003.)

These strategies and their outcomes are discussed in more detail below.

Expanding Regional Site Leaders' Knowledge and Expertise

The NSRC contributed to the regional site leaders' capacity to support science reform using three venues—individualized technical support services; mentoring and collaborative planning of the LASER Center programs in their own regions; and cross-fertilization with other science education leaders through participation in the NSRC's National Institutes in Washington, DC and serving as resource staff members at other regions' events.

- **Technical Assistance**
  The NSRC, as noted in the previous section, provided *individualized technical assistance* as their resources permitted, along with the use of their good name, to help the site leaders as they formed their partnerships, developed a region-wide vision and a set of strategies for expanding their existing work, built a base of support for science education reform in their regions, and secured resources needed to initiate their work.

  Several regional site leaders relied on the NSRC's assistance as they took on new regional responsibilities, especially for those aspects of the work where they had little or no prior experience. However, some site leaders reported that securing the

NSRC's attention and expertise in a timely way remained difficult throughout the grant period.

- **Collaborative Planning**
  Through their *collaborative planning* efforts, the NSRC "taught" some of the regional site leaders how to "run" the Strategic Planning Institutes—that is, to plan and oversee the logistics, financing, district solicitation and selection, and resource team staffing—and how to ensure that the experience continually met "quality" standards. Over time, some of the regional leaders became progressively more responsible for the Institutes at their individual sites. In this final year, one site ran its own Institute.

  Early on, the regional site leaders relied on the NSRC's expertise to guide them as they learned how to host the Institutes. In fact, the NSRC sometimes wanted them to take on more of the responsibility sooner, especially for securing district participation. However, some of the site leaders felt they had to struggle with the NSRC to make the Institutes more sensitive to their regional contexts. It took some time for the NSRC to determine what elements of their Institute designs could be altered, and under what conditions, without undermining the programmatic goals. For some regional site leaders, these changes did not come in time for them to work effectively with the districts in their regions. In two regions, the Institute design could not be modified sufficiently to meet their districts' needs.

- **Resource Team Service**
  Regional site leaders also *served on the resource teams* at their colleagues' Strategic Planning Institutes, bringing their expertise to other sites and learning from them as well. Most served on the National Strategic Planning Institute's team for one or more of the sessions offered each summer in Washington, DC. The NSRC used these summer Institutes as opportunities for national leaders to come together, further refine the existing program, and experiment with new session designs and approaches.

Developing District Leaders

At the Strategic Planning Institutes, district teams were fully exposed to the research and thinking behind the NSRC's systemic approach and the critical components of its district reform model. Over the course of the six-day institute, each team developed a plan for initiating a science program based on that model.

- They articulated a vision for their districts' science program.
- They explored standards-based, inquiry-centered curriculum programs and learned how to select, pilot, and adopt appropriate materials for their schools.
- They examined the components of a comprehensive professional development program that could support teachers' early implementation of the curriculum in

their classrooms as well as deepen their knowledge about science content, pedagogy, and student assessment over time.

- They learned how to set up an effective and efficient materials support system for distributing and refurbishing kit-based curriculum programs.
- And, they planned strategically how to secure the district and community support they would need to carry out their plan.

Throughout the week, each district team was mentored by a carefully selected team of national and regional experts.

Every LASER regional site leader we interviewed identified the importance of the NSRC's district reform model, and the design of the Strategic Planning Institute, as critical to their efforts to help districts develop an effective plan for advancing their local science reform efforts. They saw these as the central contributions of the NSRC to the LASER Center.

Creating a Cohort of Local Leaders to Sustain the Regions' Work

District leaders who first participated in a Strategic Planning Institute and then returned to their districts and schools and successfully implemented their plans for improving their science programs had opportunities to attend later Institutes and serve as members of a Resource Team. These locally-based leaders first entered the Institute Resource Team as fellows, working alongside more experienced leaders. As their own expertise grew, they had opportunities to step into more advanced leadership roles at the Institutes and within the region.

Obviously, to develop this local leadership cohort, regions had to hold multiple Institutes so local leaders could have sufficient opportunities to advance their knowledge and skills. Sometimes local leaders-in-training were able to attend neighboring regions' Institutes to further develop their expertise. In those regions where site leaders consciously used the Institutes for local capacity building, the number of district personnel able to help them continue LASER's work at the end of the five-year grant period was considerable. One regional site's most recent Institute's Resource Team was staffed almost exclusively with local leaders.

3. A Broadly Shared Vision of Science Teaching and Learning

Through the NSRC's products and services, its focus on the development of leadership capacity described in the previous section, and the regional outreach work of the eight site leaders, the LASER Center was extraordinarily successful in creating a broadly shared vision of science teaching and learning, as well as what it took to develop district

programs to fully support such a vision. In the regional sites where LASER fully operated by the end of the grant, this vision is now strongly held among:

- Regional leaders
- New corporate LASER partners
- Some state education policy-makers

4. SIGNIFICANT RESOURCES SECURED FOR IMPROVING K–8 SCIENCE PROGRAMS

As a result of the LASER Center's work:

- Some states are providing critical support and resources for districts' science programs
- Existing corporate sponsors have become more actively involved in supporting the regions' work with districts
- New sponsors have joined the science education reform effort

As outlined in our site studies last year, four of the most active and successful LASER regional sites leveraged more than forty-seven million public and private dollars ($47,000,000).

However, variations in regional contexts played a critical role in site leaders' ability to secure the participation of corporate partners and state department of education leaders in funding the LASER Center's work.

- **State Departments of Education**
  As highlighted in other sections of this report, a frequent stumbling block for site leaders was the narrow focus of their state departments of education on district improvement of literacy and mathematics. Some DOEs shared the regional leaders' interest in, and vision for, science teaching and learning, yet did not feel they could make this support known publicly, nor did they release any state funds for the LASER Center's work with districts.
- **Corporate Partners**
  In states that were home to few, if any, corporate headquarters, site leaders found securing substantive support from local corporate leaders difficult. However, as the LASER Center network developed, there is evidence that some regional leaders shared their corporate partners across sites, and/or corporations more generally committed to the Center's work extended their support beyond their original LASER region.

Without the active participation of these two critical sets of leaders, regional sites struggled to build a broad base of support, to raise the capital needed for their programs, and, thus, to fully advance their plans to expand science education reform within their regions.

5. Involvement of More Than 370 Districts Within the Eight Regional Sites

Working together through the LASER Center, the NSRC and the regional site leaders surpassed their projected goal of providing 300 school districts with access to resources and expertise for implementing and sustaining effective K–8 science programs. As of February 2003, more than 370 districts had participated in a Strategic Planning Institute offered by one of the LASER Center's eight regions.

Yet, the LASER Center partners' work primarily involved districts "new" to science reform. There was no plan for strategically involving more experienced districts, nor any attention to their needs for continued assistance as they fought to renew and sustain their programs.

6. Development of Regional Technical Assistance Networks for Sustaining Districts' Programs

In the NSRC's LASER Center design, regional site leaders were expected to coordinate and/or provide ongoing technical assistance to districts in their designated regions. As the sites grew, this task became more important and more challenging.

At the five-year mark, several regions have successfully exploited existing networks of technical assistance providers, such as NSF-funded State Systemic Initiative regional centers or hubs (in Tri-State and SC regions), state universities (in OK), education service districts (in WA and SW PA), and museum-based science education programs (in Tri-State and SW PA). Another site has designed and is in the process of securing funds for a newly established network, although it also draws on existing centers of expertise (in WA).

Yet districts' access to these resources remains uneven within and across the regions. Frequently, access depends on districts' ability to pay. Each of these networks remains fragile.

FROM THE REGIONAL VIEWPOINT: ACCOMPLISHMENTS, ADAPTATIONS, AND CRITICAL CHALLENGES

In the previous section we looked at the impressive accomplishments that the LASER Center in its entirety reached over the period of the grant. In this section, we take a closer look at what happened at the regional site level.

Site leaders in all eight regions shared the LASER vision for science teaching and learning; all believed in the validity, usefulness, and strength of the district reform model; all were able to increase regional capacity for initiating, implementing, and sustaining effective science programs in local school districts. In analyzing the regions' work site by site, however, we found that the development in four of the eight sites resembled what was described in the LASER site development framework. At the other four sites, regional leaders found that they used other approaches to improve science teaching and learning in their regions, and thus their work developed differently. We also found that the LASER products did not meets the needs of all districts located within the eight sites.

To understand this variation between sites and how the work differed, it is important to consider the contextual factors that were significant in shaping the effectiveness of the LASER Center design.

CONTEXTUAL FACTORS

The eight regional sites were diverse. They were geographically distributed across the country; their reach encompassed six entire states, and regions of another three states. The educational policies and the extent of the states' control over local district decision-making varied considerably.

Some regional site leaders and the districts they hoped to serve had been actively pursuing science educational reforms for some time; their work was well aligned with the LASER design. For others, the LASER program design represented a newer venture that required more outreach, examination, and consensus-building before planned work with districts could proceed.

Given this variation, the following contextual factors influenced the pathways that the sites followed in order to build regional capacity:

- **Size/Shape of the Region**
  The size of the regional sites—their geographic spans as well as their numbers of districts— affected site leaders' strategies for contacting districts, holding LASER events, and providing follow-up support. The numbers of districts per site ranged from 26 to 1000.

- **State Policies**
  In some regions, state policies supported the LASER regional site leaders' work with the districts; in others, they impeded progress. Important state policy issues included state science standards, curriculum frameworks, courses of study; curriculum adoptions; standardized tests; and the primacy of science.

- **Cost of the Program**
  How to secure sufficient resources was a serious consideration in almost every region's strategic planning process. While LASER products and services were viewed, for the most part, as being of high quality, regional site and district participation were expensive.
  - Regional site costs included site leaders' time; project operating costs; funds to support district attendance at SPIs; establishment of post-LASER events; an infrastructure for follow-up support and evaluation systems.
  - District expenses included event fees; curriculum adoption; and professional development programs.

THE LASER SITE DEVELOPMENT FRAMEWORK

Four Sites Where the Work Followed the Framework

In four sites (Alabama, South Carolina, Tri State, and Washington) the regional leaders' work unfolded much as the NSRC had anticipated. Because of the different regional contexts and challenges, however, their work progressed at different rates of speed. Leaders of these four sites successfully:

- Created effective small teams of leaders that worked in partnership to develop their regional LASER site
- Had dedicated time for LASER, and were able to incorporate LASER into their own jobs
- Built a broad base of support
- Influenced decision-makers at state and local levels; three site leaders worked successfully to secure the support of state-level policy-makers
- Raised sufficient funds to hold initiating events
- Found the SPIs effective for bringing in districts, helping them understand systemic reform and create strategic plans, as well as for building leadership capacity at both regional and district levels
- Secured the assistance of existing technical assistance providers or developed a new infrastructure to support districts' work over time

Four Sites Where the Work Did Not Follow the Framework

Leaders at the four other sites (CA, OK, RI and SW PA) continued to consider themselves to be active LASER Center sites. All helped districts build their capacity to implement science reform. However, most continued regional approaches that had proved successful for them in the past rather than follow the NSRC prescribed framework. Specifically, some were not able to develop a region-wide partnership to advance the LASER Center's work. Others were not able to use Strategic Planning Institutes to help their districts improve their science programs.

- **The District Reform Model**
  Some site leaders found they needed to work with districts from the "bottom-up" rather than "top-down" to improve science education. In OK, state funders required regional leaders to work directly with teachers rather than districts; the teacher became the unit of change and regional leaders focused on the district reform strategies that they considered key—supplying curriculum materials, providing professional development on their use, building material support centers, and developing teacher leadership.
- **Partnership**
  All four sites faced challenges in creating regional partnerships. The principal leader in SW PA was unable to develop a regional partnership among several organizations because the authority and resources to do so could not be coordinated. In RI it proved impossible to draw the state into partnership since the statewide curriculum focus, funding, and professional development was concentrated on literacy and mathematics.

REGIONAL SITE PROGRESS AS MEASURED BY THE REGIONAL SITE DEVELOPMENT RUBRICS

Each year of the LASER project we asked regional site leaders to indicate where they would place themselves along the levels of work described by the Regional Site Development Rubrics.[5] The results from all years and all sites appear in the following two pages. Note that while all sites developed district capacity, the second four sites made more uneven progress in the five other rubric areas than did the first four sites described above.

Please note that some rubric ratings were not available for the following reasons:

[5] The Regional Site Development Rubrics can be found in Appendix A. Evaluators' comments on the Regional Site Development Rubrics appear in Appendix B.

- In 2001, we reported on the technical assistance programs in all sites except CA and SW PA, and only rated their progress on Building Regional Capacity and Evaluating Impact.
- In 2002, we only focused the evaluation on OK, SC, Tri-State, and WA.
- Rubric levels for Leveraging Resources were not available until 2002.
- SW PA was not actively engaged in LASER 2000–2002 and we do not have any ratings for those two years.
- CA's ratings are not available for 2001–2003.

Regions' Progress on the Site Development Rubrics 1999–2003

Washington

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	0	0	0	0	0	
2000	4	2	2-3	3	0	
2001				3-4	0-1	
2002	4	4	4	4	0	
2003	5	4	4-5	4	3	4

South Carolina

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	1	1	0	1	0	
2000	1-2	2-3	3	1	0	
2001				3-4	0-1	
2002	3	4	4	4	1	
2003	4	4	4	4	1	4

Alabama

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	0	0	0	0	0	
2000	1	1	0-1	1	0	
2001				1-2	0	
2002						
2003	2	2	3	3	0	2

Tri-state

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	1	0-1	0	0	0	
2000	2	2-3	2-3	2	0	
2001				2-4	1	
2002	3	2	3	3	2	
2003	3	2	3	3	4	1

Oklahoma

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	1	0-1	0	1	0	
2000	2	2	0	2	0	
2001				3-4	0	
2002	4	4	*	3	1	
2003	5	4	*	4-5	2	5

* Were not able to apply the rubric

SW Pennsylvania

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	*	*	*	*	0	
2000	3	1	3	0-3 **	0	
2001						
2002						
2003	1	3	1	4	0	1

* Were not able to apply the rubric ** Counties/consortia at different levels

Rhode Island

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	0	0	0	0	0	
2000	2	2-3	2	2-3	0-1	
2001				1-3	0	
2002						
2003	2	3	2	3	1	3

California

	Regional Partnership	Building Support	Strategic Planning	Building Regional Capacity	Evaluating Impact	Leveraging Resources
1999	1	0	0	0	0	
2000	3-4	2-3	3	3	1-3	
2001						
2002						
2003						

LASER PRODUCTS

While the LASER products proved successful in developing regional capacity at some sites, they did not allow regional leaders to meet the needs of all districts for several reasons:

- **Local history of science reform: districts' pre-LASER work**
  The Phase I LASER events were designed to meet the needs of districts embarking on science reform. In most regions, however, a number of districts were committed to the adoption of inquiry-based science curriculum materials before the start of LASER, and/or already had an inquiry-based curriculum in place. Alternative ways to support these districts were needed.
- **Comprehensive science curriculum**
  The Tri-State SSI director needed to offer districts K–12, science *and* math Strategic Planning Institutes in order to meet the NSF mandate in her state. The NSRC model concentrated on K–8, with most expertise at the elementary level.
- **Middle schools**
  Some districts were ready to focus on middle school science but found that the SPI, with its elementary school emphasis, was not sufficient.
- **Structure of the SPI for rural districts**
  The SPI design did not work effectively for most small rural districts because of the cost of attending, their inability to field a team as prescribed that could be absent for an entire week's time.
- **The SPI format**
  One site, RI, proposed splitting the SPI into several shorter meetings over a course of a year, but the NSRC did not endorse the change and leaders were unable to proceed.

RECOMMENDATIONS

In conclusion, we offer the following recommendations with the assumption that the NSRC will continue its regional work.

- **Education policies and programs**
  The NSRC should lead a collaborative effort to advocate for policies and resources that place science on a par with literacy and mathematics.
- **Corporate resources for science education**
  The NSRC should work with its established corporate partners to secure new

corporate and business leaders to establish a pool of resources for regions where no corporations are headquartered.

- **Refine products and services**
  The NSRC should redesign and/or refine their existing products and services to more effectively address the needs of rural and urban districts, and design new products and services for districts at different levels of reform.
- **Structures and strategies for assisting districts**
  The NSRC, in collaboration with the regional site leaders, should develop structures and strategies to assist districts as they develop and sustain their local programs.
- **Site leaders' network**
  The NSRC should strengthen the network of regional leaders through the development of a substantive annual meeting, an updated Web site, and a moderated listserv.

APPENDICES

APPENDIX A

REGIONAL SITE DEVELOPMENT RUBRICS (11/15/99)

DEVELOPING A REGIONAL PARTNERSHIP

Establishing a formal regional organization of leaders -- representing diverse institutions such as corporations, museums, universities, foundations, and state agencies -- who are committed to the improvement of K-8 science education and have agreed to spearhead the effort to improve science education programs in the region's school districts.

BUILDING A BROAD BASE OF SUPPORT

Developing a broad base of support within the region, the districts, and their respective communities for initiating, implementing, and sustaining quality science programs in the region.

DEVELOPING A STRATEGIC PLANNING PROCESS

Using a strategic planning process to engage client school districts in the design and implementation of effective science programs.

BUILDING REGIONAL CAPACITY

Using quality products and services -- such as conferences, institutes, technical assistance programs, access to models of best practice, and networking forums -- to build capacity within the region for initiating, implementing, and sustaining effective science programs in local school districts.

LEVERAGING RESOURCES**

Developing the capacity to identify and obtain human and fiscal resources needed to implement and sustain effective science programs in the region.

**** This rubric is still being developed by the NSRC. It will be sent to you as soon as it is completed.**

EVALUATING IMPACT

Establishing a process to evaluate and communicate the impact of regional products and services on client school districts' progress in implementing the five elements of an effective science program identified in the NSRC model.

Version: 11/15/99

DEVELOPING A REGIONAL PARTNERSHIP

Establishing a formal regional organization of leaders -- representing diverse institutions such as corporations, museums, universities, foundations, and state agencies -- who are committed to the improvement of K-8 science education and have agreed to spearhead the effort to improve science education programs in the region's school districts.

LEVELS FOR DEVELOPING A REGIONAL PARTNERSHIP

Level 0	No formal organization of leaders exists for the purpose of improving K-8 science education in the region. The lack of a formal organization means no group exists with a defined membership, shared vision, articulated goals, a plan of action, and a formal communication structure between and among the members. (Although one or more institutions involved in K-8 science education might exist in the region, a coordinated approach among the institutions is lacking.)
Level 1	One or more key leaders recognize the need for a formal organization of leaders to coordinate efforts to improve K-8 science education in the region's schools. They have identified and contacted other leaders in the region for the purpose of discussing the creation of a regional partnership.
Level 2	Steps to create a formal regional partnership have been initiated. Representatives from critical and diverse institutions committed to the improvement of K-8 science education have met to discuss the creation of a regional partnership and have agreed to participate in the formation of a regional leadership team or other working group to represent that partnership. Missing groups have been identified and contacted.
Level 3	A formal regional partnership exists and a regional leadership team or other working group representing the partnership has been constituted. The leadership team has begun to establish procedures and processes for how the group conducts its work, and how it supports and maintains its membership.
Level 4	A formal regional partnership exists and through the work of the regional leadership team, the group has a defined membership, a shared vision of effective science teaching and learning, well articulated goals, and a plan of action for the region. Effective communication strategies are in place among members.
Level 5	A formal regional organization of leaders exists and members are implementing a well-defined plan to ensure the organization remains focused on the continued improvement of K-8 science education in the region. The plan includes how the organization develops and maintains a membership that is representative of the needs of the region, defines its work, and obtains needed resources. The organization continually educates and renews itself.

BUILDING A BROAD BASE OF SUPPORT

Developing a broad base of support within the region, the districts, and their respective communities for initiating, implementing, and sustaining quality science programs in the region.

LEVELS FOR BUILDING A BROAD BASE OF SUPPORT

Level 0	No broad base of support exists among school district administrators, teachers, and community leaders for the inclusion of science as a core subject in the elementary and middle school curriculum. In areas where science is supported, there may not be an emphasis on an inquiry-centered approach to science teaching and learning. The majority of community and district leaders may support policies and resources for programs different from that which is being advocated.
Level 1	Regional leaders recognize that a broad base of support is needed within the region, the districts, and their respective communities if significant and wide-scale change is to occur in the region. They have identified key leaders at the district level among principal stakeholder groups -- such as (teachers, parents, school district administrators, school board members) and within the larger community (business and industry leaders, government officials, representatives of academic institutions and museums) -- who may help in building support for the implementation of quality K-8 science programs within the districts, and are considering ways to engage them.
Level 2	Regional leaders are engaged in activities to secure the support and involvement of the various stakeholder groups in one-third of the districts. Through communication strategies, they are raising awareness among these stakeholder groups of the need for initiating and implementing quality K-8 science programs in the region. As a result, new leaders may have been brought into the regional partnership, and positive relationships are being initiated among district and community leaders.
Level 3	There is greater awareness among the various stakeholder groups of the need for quality K-8 science programs in the districts, and a broad base of support for the implementation of effective inquiry-centered programs is beginning to emerge as evidenced by growing membership and participation in the regional partnership. Resources in the form of knowledge, experience, expertise, willingness to work, influence, and access to the resources available from the various stakeholder groups are being brought to the effort. Some school districts are beginning to support the development of district leadership teams and the participation of these teams and other personnel in events such as a Building Awareness Conference, a Strategic Planning Institute, or a Curriculum Showcase.

Level 4	A broad base of support exists within the region, the districts and their respective communities for initiating, implementing, and sustaining quality K-8 science programs. School districts continue to support the development of district leadership teams and the participation of these teams and other district personnel in LASER programs and events. More than half of the client school districts are committing the human and fiscal resources needed to implement 5-year strategic plans developed by their district leadership teams, and a majority of their community and district leaders support policies and the commitment of resources for an inquiry-centered approach to science teaching and learning. Effective communication strategies have been established between the regional leadership and the client school districts to sustain this support.
Level 5	A broad base of support has been sustained for the implementation of effective inquiry-centered programs for all K-8 students in the region. The support is representative of critical stakeholder groups including (but not limited to) teachers, parents, school district administrators, school boards, business and industry, academic institutions, museums and government officials. Their support is evidenced by (1) the commitment of human and fiscal resources for implementing, enriching, and sustaining K-8 inquiry-centered science programs for all students in the region and (2) the existence of state and local policies that align with inquiry-centered science teaching and learning.

DEVELOPING A STRATEGIC PLANNING PROCESS

Using a strategic planning process to engage client school districts in the design and implementation of effective science programs.

LEVELS FOR DEVELOPING A STRATEGIC PLANNING PROCESS

Level 0	The regional organization of leaders is not using a strategic planning process to systematically engage client school districts in the design and implementation of effective science programs, or no organization yet exists to develop a strategic plan.
Level 1	The regional leaders have a broad sense of mission and purpose for improving science education in the region and recognize the need to develop a 5-year strategic plan to systematically engage client school districts in the design and implementation of effective K-8 science programs. They have initiated the planning process by constituting a regional leadership development team or other working group, and by defining and describing the area to be served by county, school district, geographical, or other demarcation, including the number of school districts and the number of K-8 students served by those districts.
Level 2	A regional leadership team or other working group representing the regional partnership is developing a 5-year strategic plan for the region. To inform this process, regional leaders have been engaged in conversations with the targeted school districts to determine the current status of K-8 science programs in the individual districts, and to identify the driving forces within these districts. The regional leaders have used this information to assess whether a particular district might benefit from participation in this effort, to determine the district's level of interest in participating, to evaluate the potential technical assistance needs of the district, and to formulate specific strategies for engaging and supporting the district.
Level 3	A 5-year strategic plan to systematically engage client school districts in the design and implementation of effective K-8 science programs has been developed, and progress has been made on implementing this plan. In accordance with the plan, client school districts have been identified, district leadership teams are being formed, and a first cohort of districts is participating in initiation activities such as a Building Awareness Conference, a Curriculum Showcase, or a Strategic Planning Institute. Some of the districts have developed a district strategic plan based on the five elements of the NSRC model for school districts, and are beginning to implement that plan. The regional organization is developing strong relationships with key leaders in these districts, and communication structures and feedback loops are in place to inform their strategic planning process for the region.

Level 4	There is evidence of significant progress on implementing the region's strategic 5-year plan. The plan is being continually updated and revised based on interactions with client districts and critical events in the region. In accordance with the regional plan, members of the first cohort of client districts have a plan in place for initiating and implementing effective K-8 science programs in their respective districts, and are making progress on implementing their plans. Some of the districts are participating in implementation activities such an Advanced Implementation Conference or a Networking Forum. The regional leaders are providing technical assistance to these districts as needed. Second and third cohorts of client districts are participating in initiation activities such as a Building Awareness Conference, a Curriculum Showcase, or a Strategic Planning Institute and developing plans for initiating and implementing effective K-8 science programs in their districts.
Level 5	The regional organization has implemented an effective strategic planning process resulting in the development of a well-defined vision for K-8 science education in the region, the identification of specific goals and a plan of action for engaging and supporting client school districts, and a process for monitoring and assessing the region's progress. The planning process has (1) served as a strategy to stimulate regional change in K-8 science education; (2) facilitated the implementation of effective K-8 science programs in the client school districts; and (3) provided a common basis for communication between and among the regional organization of leaders and the client school districts.

BUILDING REGIONAL CAPACITY

Using quality products and services -- such as conferences, institutes, technical assistance programs, access to models of best practice, and networking forums -- to build capacity within the region for initiating, implementing, and sustaining effective science programs in local school districts.

LEVELS FOR BUILDING REGIONAL CAPACITY

Level 0	There is no comprehensive regional plan, strategy, or program to build local districts' capacity to initiate and sustain quality inquiry based K-8 science programs in the region. [Where science education reform is being supported, the delivery of products and services may not be contributing to capacity building at the regional level.]
Level 1	As part of its strategic planning process, the regional leadership team has identified a range of products and services to build capacity for initiating, implementing, and sustaining quality inquiry-based K-8 science programs within the region. The regional leadership team has evaluated the resources and expertise currently available to initiate their reform efforts, and identified the additional resources and expertise needed to meet current and future demands of the districts in the region.
Level 2	The regional leadership team is developing a plan to obtain the additional resources and expertise needed for building capacity in the region. The plan includes strategies and criteria for selecting and working with teachers, school administrators, community officials, and others to develop the knowledge, skills, and expertise for designing, developing, and delivering quality products and services.
Level 3	Members of the regional leadership team are working to design and deliver products and services districts need to initiate and implement quality inquiry-based K-8 science programs. They are involved in recruitment, registration, planning and logistical arrangements for events such as Building Awareness Conferences, Curriculum Showcases, or Strategic Planning Institutes. Members of the regional leadership team understand the relationship of these products and services to the five elements of an effective science program and are selecting or tailoring these services based on their knowledge of the particular needs of participating districts. They are beginning to respond to client school districts' requests for follow-up technical assistance.

Level 4	Regional leadership team members are now designing and delivering initiation phase events and are working with national and regional experts to develop the next level of products and services for the region. Teachers, school district, and community leaders value an inquiry- centered approach to science teaching and learning as evidenced by their use of quality inquiry-based science programs. An increasing number of people in the region are able to address the technical assistance needs of client school districts and, as a result, the region is providing different levels of technical assistance simultaneously.
Level 5	A comprehensive program of quality products and services -- designed to help districts initiate, implement, and sustain effective K-8 science programs that are based on the five critical elements of the NSRC model -- have been established in the region. The region has developed the infrastructure and the broad base of support needed to maintain a focus on quality K-8 science programs, ensure momentum, and allow regional and district leaders to plan and act strategically. Regional and district leaders are mentoring new cohorts of people on an ongoing basis, and regional and district leaders are engaged in national and regional networking activities.

LEVERAGING RESOURCES**

Developing the capacity to identify and obtain human and fiscal resources needed to implement and sustain effective science programs in the region.

LEVELS FOR LEVERAGING RESOURCES

Level 0	
Level 1	
Level 2	
Level 3	
Level 4	
Level 5	

Context for Leveraging Resources Rubric

Identify the quality and quantity of resources available, or potentially available, to realize the goals for the region. Thoughtful consideration has been given to the formulated goals and the resources dictated by these goals, and members of the regional leadership have agreed to devote time to locating and developing resources.

Consideration has been given to the most efficient use of resources, such as:
1) how resources might be combined for greater impact,
2) matching resources to needs,
3) tapping unused human resources for activities such as training, consulting, mentoring, etc., and
4) considering the implications of fiscal resources on the quality and quantity of human resources.

There is a focus on constituency building -- seeking and obtaining the support and involvement of individuals and groups with access to resources or the power or influence to leverage resources. The regional leaders recognize the value of resources in the form of knowledge, experience, expertise, and a willingness to work, and are using these resources to build local capacity through the development of structures such as the regional leadership team, coordinating committees, or cadres of local trainers. The resources available through the various stakeholder groups are being brought to the effort.

**** This rubric is still being developed by the NSRC. It will be sent to you as soon as it is completed.**

EVALUATING IMPACT

Establishing a process to evaluate and communicate the impact of regional products and services on client school districts' progress in implementing the five elements of an effective science program identified in the NSRC model.

LEVELS FOR EVALUATING IMPACT

Level 0	Although the regional leadership team may recognize the need to document the progress of the client school districts, no process for evaluating or communicating the impact of regional products and services on client school districts' progress exists.
Level 1	The regional leadership team or other working group has developed a plan to evaluate client school districts' progress in implementing the five elements of an effective science program identified in the NSRC model. The team members understand the goals and purposes of data collection and have identified the types of data to be collected and potential data sources. Some data collection instruments have been developed, and the roles of regional and district leaders in collecting, communicating, and analyzing data have been defined.
Level 2	Regional leaders and representatives of the client school district leadership teams have discussed the evaluation plan and have agreed on a process and timeline for evaluating each district's progress. Baseline information has been collected for each client school district attending a Strategic Planning Institute, such as the district's 5-year strategic plan, data gathered through discussions with LASER resource team members and the district leadership team attending the Institute, or other data sources identified in the plan.
Level 3	An evaluation process is being implemented. Regional leaders are using baseline information from the first cohort of school districts to inform regional program activities, provide feedback to client school districts, and identify technical assistance needs of the districts. The districts are benefiting from the technical assistance available as evidenced by progress on the NSRC School District Rubrics in two or more areas.
Level 4	Regional leaders are using evaluation data from the districts to inform the region's strategic plan for the design and delivery of products and services. As additional cohorts of districts are added, regional leaders are providing different levels of technical assistance simultaneously, and evaluating the effectiveness of this support based on districts' progress on the NSRC School District Rubrics.
Level 5	The evaluation process has become routine and valued as evidenced by both the nature and content of the communication between client school districts and the regional leaders. The regional leadership team and client school districts are working together to collect and use this information to (1) assess districts' progress, (2) inform both regional and district strategic plans, and (3) identify technical assistance needs of the districts in relationship to their progress on the NSRC School District Rubrics.

APPENDIX B

FINDINGS ABOUT THE REGIONAL SITE DEVELOPMENT FRAMEWORK

Developing a Regional Partnership

Partnerships that made the most progress had:

- A small decision-making core of leaders
- Time and resources to coordinate the efforts
- An advisory group that represented critical/diverse institutions
- Established procedures for how the group would conduct it's work

Building a Broad Base of Support

Site leaders focused on building support at the regional/state levels, among partners, and with potential funders. Building support included integrating LASER with education policy-makers, political leaders, corporate leaders, existing technical assistance providers, and universities.

Developing a Strategic Planning Process

Instead of writing and implementing a plan of action for work with the districts, the regional leaders found that:

- The planning process proved more important than the plan; some sites never developed a strategic plan; many plans remained fluid and opportunistic
- Site leaders found they needed to plan at both subregional and district levels
- Available support/funds determined implementation steps; planning occurred around these steps

Leveraging Resources

Site leaders found that it was difficult to leverage resources, and some only secured sufficient funds to provide LASER events. Others secured funds to begin establishing technical assistance infrastructures. All needed to develop the expertise to do this work.

Building Regional Capacity

As regions increased in size, the site leaders focused on building capacity on the subregional level. There was less implementation at the district level than anticipated.

Evaluating Impact

Most sites lacked regional plans, common methods, and funds for evaluating district progress.