



Washington Office of Superintendent of **PUBLIC INSTRUCTION**

Equitable STEM Access

1. **Purpose:**

The purpose of this Proviso is to develop a system of science educational programming, specifically for migrant and bilingual students. The system includes teacher professional development, culturally responsive classroom resources aligned with Washington state science and environmental sustainability learning standards, and implementation support.

2. **Description of services provided:**

EarthGen's Bilingual Environmental Education (BEE) initiative is a two-year project that seeks to increase access to high quality, standards-based, environmental education (EE) for bilingual, migrant, American Indian and Alaska Native learners.

The EarthGen team made important progress on several project activities:

- Further developed frameworks and activities for building partnerships, connections, and gathering advice, both from an Advisory Committee and with other groups in bilingual and migrant education statewide.
- Developed culturally sustaining science units and the accompanying professional development supports that effectively meet the needs of bilingual and migrant students and their teachers.
- Gathered feedback and data from teachers, students, experts, and partners that then informed revisions, updates, and emerging frameworks for engaging the broader statewide community in bilingual EE.

3. **Criteria for receiving services and/or grants:**

At least 50 percent of the funding must serve schools and school districts in eastern Washington. Intended to support historically underserved students and communities; specifically migrant and bilingual students.

Beneficiaries in 2021-22 School Year:

Number of School Districts:	9
Number of Schools:	39
Number of Students:	2,800
Number of Educators:	112

Other: N/A

Number of OSPI staff associated with this funding (FTEs): .36

Number of contractors/other staff associated with this funding: 0

FY22 Funding: State Appropriation: \$500,000
Federal Appropriation: \$0
Other Fund Sources: \$0
TOTAL (FY22) \$500,000

4. Are federal or other funds contingent on state funding?

No

5. State funding history:

Fiscal Year	Amount Funded	Actual Expenditures
2022	\$500,000	\$497,073

6. Number of beneficiaries (e.g., school districts, schools, students, educators, other) history:

Fiscal Year	Number of Schools
N/A	N/A

7. Programmatic changes since inception (if any):

EarthGen has sought to fill a Bilingual Education Coordinator position and while progress has been made in identifying qualified applicants, the position remains open. The start of the contract was delayed and began on December 13, 2021, causing asynchronicity with the school year and subsequent delays in programmatic implementation. The inclusion of Native Education in the curriculum development process created valuable depth and complexity to the work while also slowing programmatic progress. OSPI and EarthGen are still seeking Indigenous representation on the Advisory Committee.

8. Evaluations of program/major findings:

EarthGen prioritized program evaluation that provides opportunities to learn how to best support teachers, students, and community partners in justice-focused EE. This includes critical reflection using evaluation as a strategy to address conditions creating educational inequities. External evaluation of the initiative addressed:

1. The effectiveness of EarthGen programs and initiative activities and their impact on participants,
2. The development of initiative innovations (e.g., partnerships, professional development, curriculum), and
3. Outputs (e.g., participant numbers, districts served, demographic information).

The most important lesson learned from partners, teachers, and students is that this move to support bilingual, migrant, and native students more effectively in EE is a value and priority for Washington. During Year 1, EarthGen developed three curricular units and accompanying professional development, serving 112 teachers. Teachers were positive about professional development and implementation.

"This was a fantastic workshop. The lessons and activities are well thought out and easy to teach. I love the dual language aspect of this curriculum and how the story intertwines throughout the entire unit for students..."

Teachers felt more prepared to support students to lead environmental action. Ninety percent or more of teachers reported feeling prepared to support students to develop interest in taking action in their schools and communities, work collaboratively to define and complete action projects, and get involved in making decisions about action projects. Three-quarters of teachers said they were prepared to engage the broader school community to complete action projects.

Teachers were more prepared to support students to build environmental knowledge (approximate increases of 30%), including learning important content making connections to ecology and human impacts. More than 90% of teachers felt prepared to support students to understand how humans are in relationship with the environment and the complexity of the impact of an environmental issue on a system. Eighty-eight percent of teachers felt prepared to support students to design and evaluate solutions to environmental issues and 82% felt prepared to support students to understand the causes and impacts of climate change.

During implementation teachers reported important outcomes in their preparation to support students in racial equity and social justice and described powerful moments in their classrooms where they and their students shared personal stories. All teachers reported supporting their students to draw on personal interests and experiences in their home cultural communities as they engaged with environmental issues and 87% supported students to identify themselves as contributors to equitable and just solutions in their schools and community. More than 70% supported students to take restorative action and more than 80% helped students build knowledge of systemic inequities and environmental disparities.

Teachers supported students to build environmental knowledge. All teachers reported supporting students to understand how humans are in relationship with the environment and 97% reported supporting students to understand the complexity of the impact of an environmental issue on a system. More than 80% of teachers supported students to understand the causes and impacts of climate change and design and evaluate solutions to environmental issues.

One of the units, Monarch Mystery, was effective in connecting ecological concepts to the everyday lives of students who have experiences with migration and language learning:

- *"Our students have parents who are orchard workers, and this allowed them to see themselves as potential scientists. You included academic Spanish and made it clear that migrant farmers are also intelligent."*
- *"My students were able to clearly see the relationship they have with their environment and specifically with the Monarch butterfly... [and a] relationship between cultures and ecosystems and how they are linked closely together."*
- *"It was great to have some discussions about culture and family backgrounds."*
- *"Reading about Violeta encouraged students to share their own family stories."*

Advisory Committee activities elicited advice from educational leaders and supported the scaling and sustainability of this work by developing relationships with decision-makers in Washington's bilingual and migrant education communities.

Committee members:

- Helped identify shared goals and indicators of success that might define a framework for bilingual EE.
- Provided expertise on best practices for partnering with families and communities in meaningful, non-extractive ways.
- Invited EarthGen to participate in events, work with teachers, and learn more about their regions.

9. Major challenges faced by the program:

EarthGen has stated that the true scope of the work as requested by the Proviso became more clarified over time and is significant in its scale and complexity. EarthGen strives to do this work with the utmost care and professionalism, which requires time, thoughtfulness, and humility to get right. The development of learning materials for BEE is multifaceted, as the goal is to meaningfully address NGSS, the WIDA Framework (language development standards for English and Spanish), a storyline approach, culturally sustaining practices, and best practices for ADA compliance and accommodations for a variety of student needs.

EarthGen has aimed to incorporate a science social focus on consequential concerns, reaching families through curriculum by situating lessons in ways that are

meaningful to families' local and everyday experiences. The team elicited and incorporated curriculum analysis from external experts such as Anastasia Sanchez, PhD candidate and Rae Jing Han, Ph.D., both of University of Washington. This resulted in the project adoption of a science social framework (presented by Anastasia Sanchez) that addresses NGSS but also takes a critical, restorative stance in education to focus on anti-racism, anti-colonialism, and activism (in contrast to continual victimization of students from groups that have been historically and continue to be marginalized in science education).

EarthGen noted that while some components that need to be incorporated into these units are not necessarily in conflict, they are difficult to hold in the same curricular space. For example, Anastasia Sanchez's curriculum analysis and professional development sessions for EarthGen raised team awareness of the complexity of incorporating culturally sustaining practices while also addressing NGSS performance expectations and integrating indigenous ways of knowing, to meet initiative goals and reflect statewide values in education.

Advisory Committee: EarthGen will address logistical challenges of scheduling meetings and the subsequent rotating combinations of attendees at each meeting. Building relationships and gaining input from Tribal communities, including a representative from the Office of Native Education in the Advisory Committee.

10. Future opportunities:

Lessons learned will carry forward into Year 2 as EarthGen

1. Clarifies and deepens engagement with families, students, and community,
2. Further develops effective and consequential curriculum and professional development resources, and
3. Continues developing a framework and adequate infrastructure to sustain EE for bilingual, migrant, and native students statewide.

In Year 2, connecting with families is a major priority. The Advisory Committee shared a variety of ideas about typical family engagement strategies. The Committee reminded the EarthGen team that without being a part of the community directly, they are potentially doing a disservice to families by showing up without building real relationships. The challenge is to develop a framework for engaging with families in meaningful ways at scale. Solutions may include partnerships centering existing advocates for bilingual EE and expanding EarthGen staffing.

11. Statutory and/or budget language:

ESSB 5693, Sec. 522(17) - \$500,000 of the general fund—state appropriation for fiscal year 2022 and \$500,000 of the general fund—state appropriation for fiscal year 2023 are provided solely for the office of the superintendent of public instruction to

contract with a Washington based nonprofit organization to promote equitable access in science, technology, engineering, and math education for historically underserved students and communities. The nonprofit shall provide a system of science educational programming specifically for migrant and bilingual students, including teacher professional development, culturally responsive classroom resources that are aligned with Washington state science and environmental and sustainability learning standards, and implementation support. At least 50 percent of the funding provided in this subsection must serve schools and school districts in eastern Washington. The nonprofit organization must have experience developing and implementing science and environmental science programming and resources for migrant and bilingual students.

12. Other relevant information:

N/A

13. Schools/districts receiving assistance:

See [OSPI's grantee list](#).

14. Program Contact Information:

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