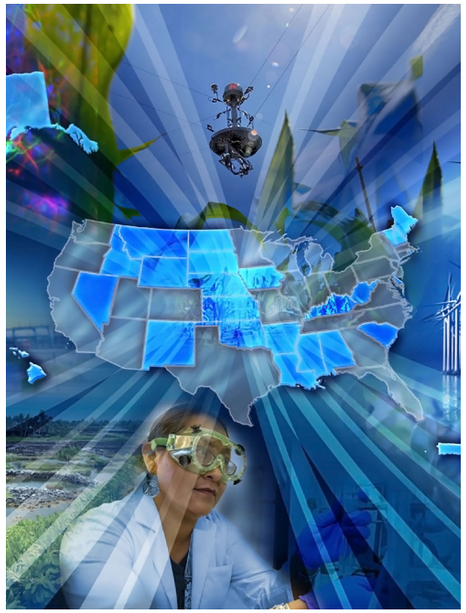
An EPSCoR Framework: Key Outcomes and Indicators in Building STEM Capacity

Short-Term	Mid-Term	Long-Term
GOAL #1: Catalyze research capability across and among jurisdictions		
• Increased number of proposal submissions in jurisdiction science priority area(s) • Increased number highly cited articles • Patents awarded and cited • Increased collaboration nationally and internationally	• Increased federal and other research funding across jurisdictions • State science, technology and innovation (STI) policy for competitiveness • Increased citation rates of funded research • Increased human capital base (proportion of population with advanced degrees) • Leadership in knowledge production in discipline and field	• Increased jurisdictional proposals/awards (NSF) • Location preference for major national investments • Increased federal research funding across jurisdictions • Increased grant/foundation funding, proposal awards • Broader awareness of quality S&T workforce • Jurisdiction ranking in STEM degrees granted (BS, MS, PhD) • Globally recognized research centers and degree programs • State ranking in grant/foundation funding • New/sustained National Research Council (NRC) members • New/sustained Association of American Universities (AAU) members
GOAL #2: Establish STEM professional development pathways		
• Increased engagement of students in research knowledge production	• Increased # of STEM undergraduate degrees • STEM graduates hired in research, technology, and other comparable organization types within the jurisdiction	• Increased # of STEM graduate degrees • Higher quality S&T student, faculty, and workforce • Sustained research engagement of a diverse set of institutions • Improved network position of faculty researchers
GOAL #3: Broaden participation of diverse groups and institutions in STEM		
• New, diverse, and high-quality students produced • New, diverse, and high-quality faculty recruited	• Scholarships/fellowships awarded to attract and retain groups underrepresented • Increased STEM interest and efficacy for individuals underrepresented in STEM • Higher quality S&T student body, faculty, and workforce • Increased number of nationally-recognized scientists • Increased retention rates for students and faculty • Improved racial and gender equality and inclusiveness • Increased STEM faculty retention, satisfaction, and perceived quality of life	• Improved DEIA efforts in state law, business, government, universities • Improved research culture
GOAL #4: Effect engagement in STEM at national and global levels		
• Increased STEM graduate school acceptance and enrollment	• Increased STEM graduation rates • Inclusion of undergraduate research experiences • Enhanced statewide support and allocability of resources for higher education • Increased retention rates for students and faculty	• Improved STEM pipeline in jurisdictions • Increased Carnegie ranking status across jurisdictions • Sustainable STEM graduation rates • Increased proportion of state institutions attracting new high-quality faculty and students • Higher education level of population in jurisdictions
GOAL #5: Impact jurisdictional economic development		
• New partnerships, including stakeholders • Increased university/college engagement with industry	• Degree-relevant job acquisition • Increased industry investment in university equipment and facilities • Active role of STI organization in facilitating university-institution partnerships and outcomes • Public support of universities and the public understanding of science • Increased federal and industry research funding • Carnegie ranking representations • New/proposed policies supporting STEM and academic research • Expansion of broadband access	• Sustainable technology transfer offices at institutions • Stable/increased budgets for education, research, university facilities • Growth of technology clusters • Alignment of state S&T plan to reinforce university-institution synergies • New businesses, products, and S&T services • Long-term R&D partnership with industry • Accelerated innovation and commercialization cycles • Industry spinoffs • Venture capital investment • Industry shift to knowledge, science intensive, high technology • Improved economic productivity and stability

About NSF EPSCoR



EPSCoR's hybrid theory of change and logic model outlines the various contextual factors that help to build STEM capacity and competitiveness in alignment with the program's mission and goals. The comprehensive set of outcome indicators enhances the logic model by describing what types of measurable products and effects seen over time as a result of EPSCoR's focused activities.

Learn more about funding opportunities through NSF EPSCoR at nsf.gov/epscor.

NSF EPSCoR
ADVANCING GEOGRAPHIC DIVERSITY IN STEM

EPSCoR Hybrid Theory of Change and Logic Model

Strategic implementation of federal-state partnership to increase academic research competitiveness

EPSCoR

- Invest in RII, Co-funding and Outreach/Workshops
- Provide strategic direction, programmatic guidance, and oversight to grantees across 28 jurisdictions

Jurisdictions

- Develop state S&T Plan and coordinate RII activities to align with it
- Commit jurisdictional investment to enhance RII activities
- Engage public/private industry partners
- Establish EPSCoR Advisory Committee

Institutions

- Bring expertise and conduct research
- Leverage university resources
- Access students and postdocs

PIs

- Support research conducted under the grants

EPSCoR engages in focused strategies to carry out the program objectives

Activities

- Conduct merit review and oversight activities to ensure projects' progress & program success. Include Reverse Site Visits (SVs), SVs, Strategic Planning, Annual PI Meeting, and biannual Conference
- Engage with stakeholders to provide outreach and enrichment opportunities & Feedback
- Work with cross-agency working group to coordinate cross-agency activities. Include eligibility discussions, new RFPs, and other relevant business
- Hire and maintains skilled program and administrative staff

Continued investment catalyzes jurisdictional STEM research enterprise

EPSCoR Outputs

- Investment strategies:
  - Research Infrastructure Improvement
  - Co-funding
  - Workshops and Outreach
- Oversight
- Data collection/ analyses
- PO Engagement
- Approved Strategic Plans
- Congressional Reporting/ Interaction
- Stakeholder Communication (e.g., Reports, Workshops,...)

Jurisdictional Outcomes

- Research products:
  - Publications
  - Patents
  - Proposals (# and $)
  - Awards (# and $)
- Workforce Development:
  - New Faculty Hires
  - Post docs
  - Graduate and Undergraduate Student Researchers
- Collaborations:
  - Inter & Intra Jurisdiction
  - External, Domestic & International
  - Industry & Government
- External Engagement:
  - Primarily Undergraduate Institutions, Minority-Serving Institutions, K-12 and Teacher Preparation
  - Community

EPSCoR enhances research competitiveness of targeted jurisdictions (states, territories, commonwealth) by strengthening STEM capacity and capability

EPSCoR Goals/Jurisdictional Outcomes

Catalyze research capability across and among jurisdictions

EPSCoR provides deliberate investments in S&E research and capacity-building in states and territories that receive a disproportionate share of NSF funds. EPSCoR investments infuse support for cutting-edge research and education programs, stimulating an environment for discovery, innovation, and STEM workforce training across its jurisdictions.

Establish STEM professional development pathways

EPSCoR builds faculty capacity to prepare students/ postdocs and provide them with training and job opportunities that led to retention in the STEM workforce.

Broaden participation of diverse groups and institutions in STEM

EPSCoR emphasizes equity and inclusion across activities to help broaden participation of individuals and institutions underrepresented in STEM.

Effect engagement in STEM at national and global levels

EPSCoR coordinates collaboration both within and among jurisdictions and at national and international levels. Partnerships and collaboration allow leveraging of resources and promote sustainability.

Impact jurisdictional economic development

EPSCoR creates an environmental infrastructure that encourages jurisdictions to leverage their investments and build sustainable avenues for capacity building, including tech transfer.