

Bridging the Gap between Users and Earth Observations: The NASA Capacity Building Program's Approach to Engagement

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ABSTRACT

NASA's Capacity Building Program (CBP) works to empower communities around the globe to use Earth observation data and products in their decision making. Working through program and element activities, CBP developed a theoretical framework for engagement focused around user needs which then identifies the appropriate path for engagement based on geography, discipline, data needs and availability, depth of support required, partnerships involved, length of engagement, and desired outcomes. These decision factors would determine which CBP element to take on the effort – ARSET, DEVELOP, or SERVIR, and which approach would be implemented – trainings or co-development. Each approach offers participants different benefits and leads to outcomes that fall on a spectrum of increased awareness to sustained use of Earth observations. However, implementation of this framework across multiple programs with differing constraints has been challenging. This presentation will highlight the CBP framework and its user-centric approach, capacity building methods and incentives, metrics and tracking indicators, challenges, and lessons learned.

ABOUT NASA'S CAPACITY BUILDING PROGRAM

- ▶ The Applied Sciences' Capacity Building Program (CBP) improves the skills and capabilities of individuals and institutions to access and apply Earth observation and geospatial data to decision making.
- ▶ CBP strives to expand the Earth-observations user base and increase awareness within non-traditional audiences of NASA Earth observations data and products through trainings, collaborative feasibility projects, and product co-development.
- ▶ Supports three elements:

ARSET

ARSET empowers the global community through remote-sensing trainings. Through online and in-person trainings, participants learn how to use NASA Earth data, applications, and models. Trainings are free and open to the public. To access training materials, join the listserv, and learn about upcoming activities, visit:
<http://arset.gsfc.nasa.gov/>

DEVELOP

DEVELOP addresses environmental and public policy issues by conducting interdisciplinary feasibility projects that apply the lens of NASA Earth observations to community concerns. To learn more about DEVELOP, view previous projects, apply to an upcoming term, or propose a project idea, visit:
<http://develop.larc.nasa.gov/>

SERVIR

SERVIR, a joint development initiative of NASA and the USAID, partners with leading regional organizations around the globe to help developing countries apply Earth observations and geospatial technologies for environmental management. For more information about SERVIR and its network of regional hubs, visit:
www.servirglobal.net/

CO-DEVELOPMENT APPROACHES

Co-development is central to multiple of the CBP's approaches to user engagement and capacity building activities:

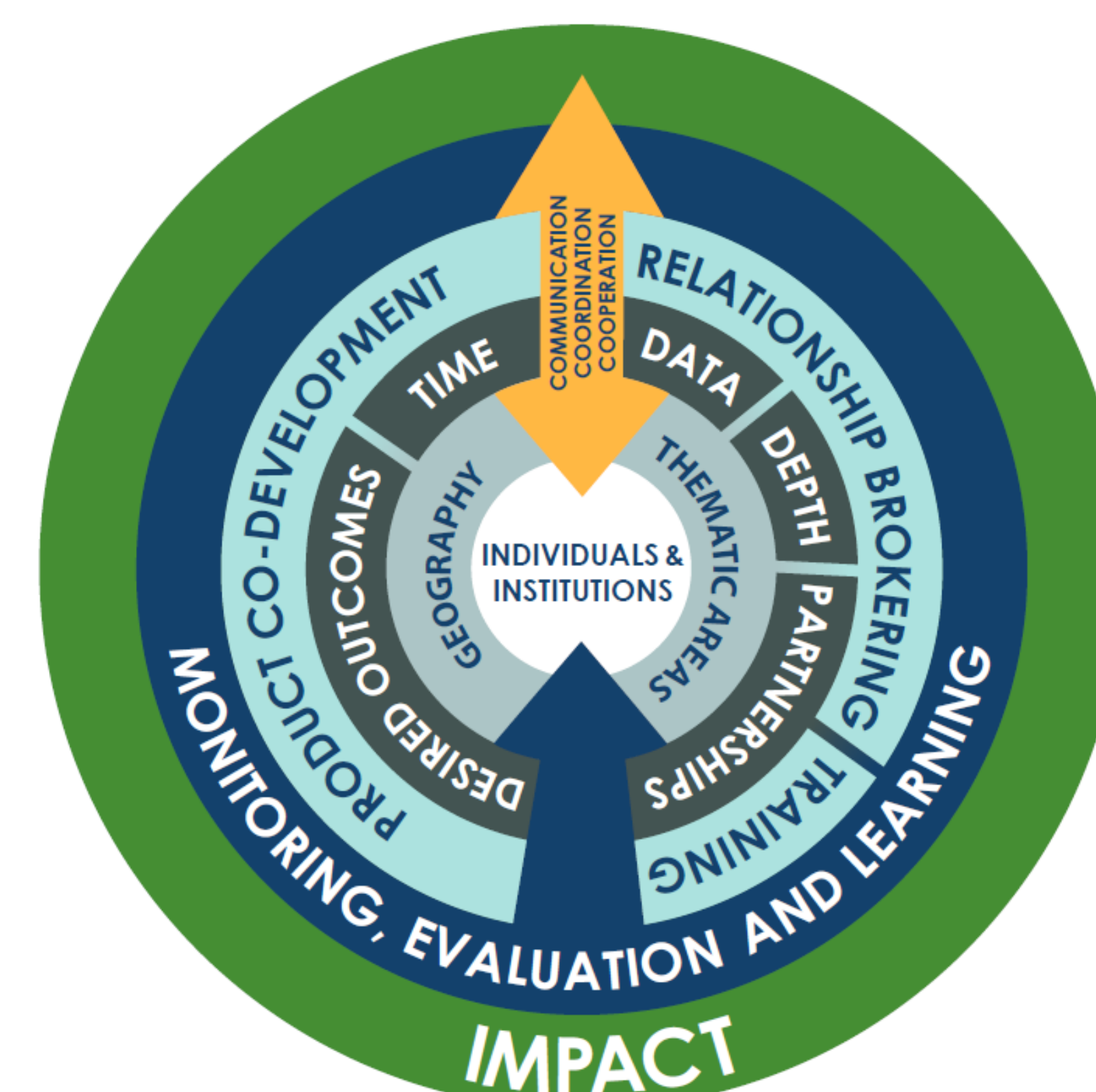
- ▶ **SERVIR:** The SERVIR model is focused on co-creation and employs a service planning approach that is centered around a collaborative, results-oriented process to help address development problems. SERVIR's service planning approach brings partners, stakeholders, and end users into the service design process from the beginning before solutions are discussed. SERVIR's Science Coordination Office engages in co-creation with a network of hubs on services production in partnership with local governments in the SERVIR region. SERVIR also supports an Applied Science Team (AST) that develops science applications for international development through the use of Earth observations. Team members conduct applications research, development, and testing, and participate in capacity building and Tiger Team activities in response to the needs of governmental and non-governmental institutions.

- SERVIR Service Planning Toolkit: www.servirglobal.net/Portals/0/Documents/ServicePlanningToolkit_2017-09-19.pdf



- ▶ **DEVELOP:** The DEVELOP model focuses on the empowerment of young professionals to take ownership of 10-week feasibility studies that are built around partner organization needs. After an initial needs assessment with the partner, the team identifies Earth observations and methodologies to address partner decision making needs iterating on a project proposal. Once finalized and approved by NASA Headquarters, these projects take place during 10 week terms where a small team conducts the project and presents progress and results throughout the term, culminating in a full handoff of methods and results to the partner at the end.

- DEVELOP Project Request Form:
https://develop.larc.nasa.gov/pdfs/NASADEVELOP_ProjectRequestForm.docx

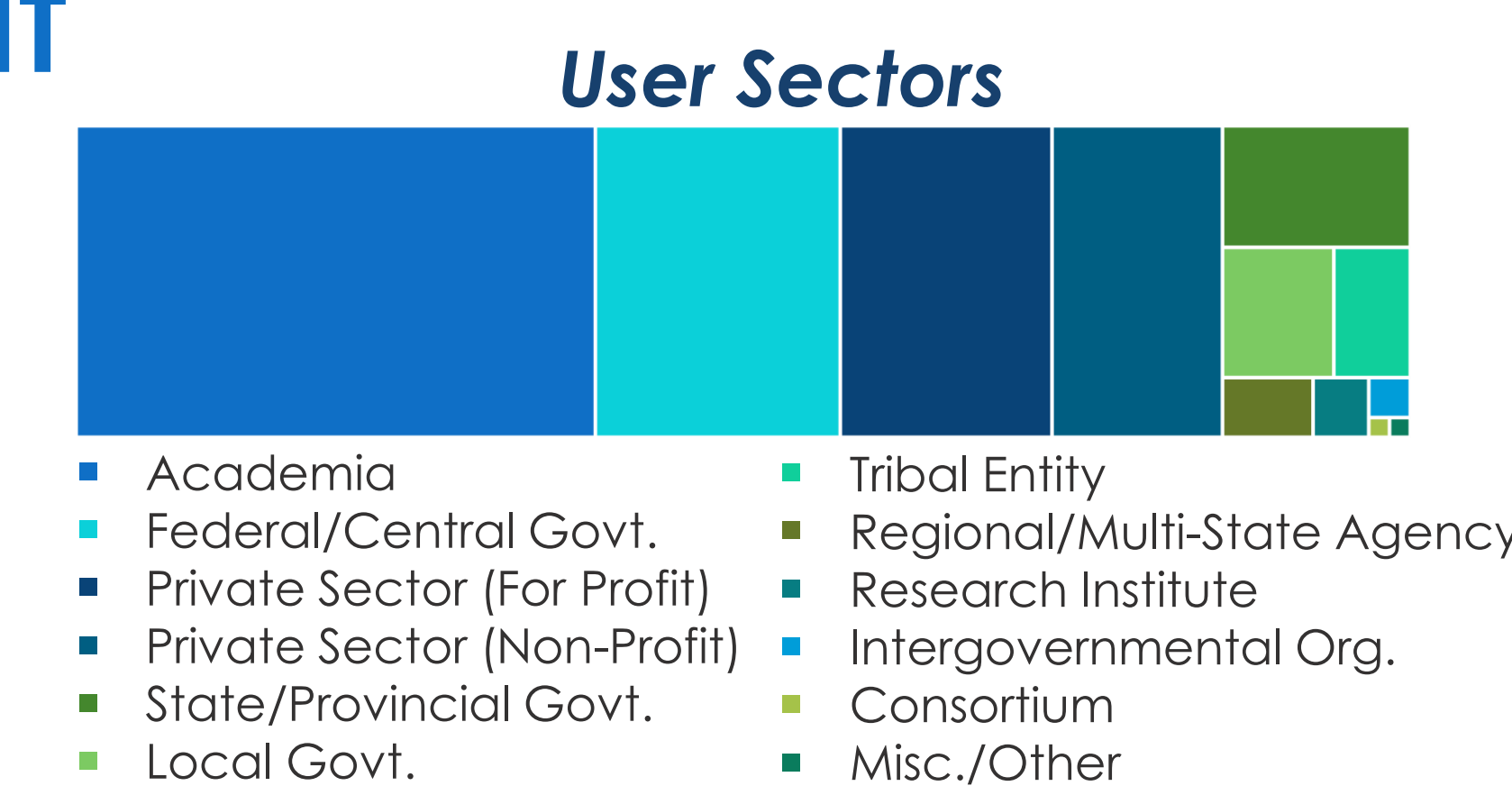


NASA Capacity Building Framework

CAPACITY BUILDING FRAMEWORK

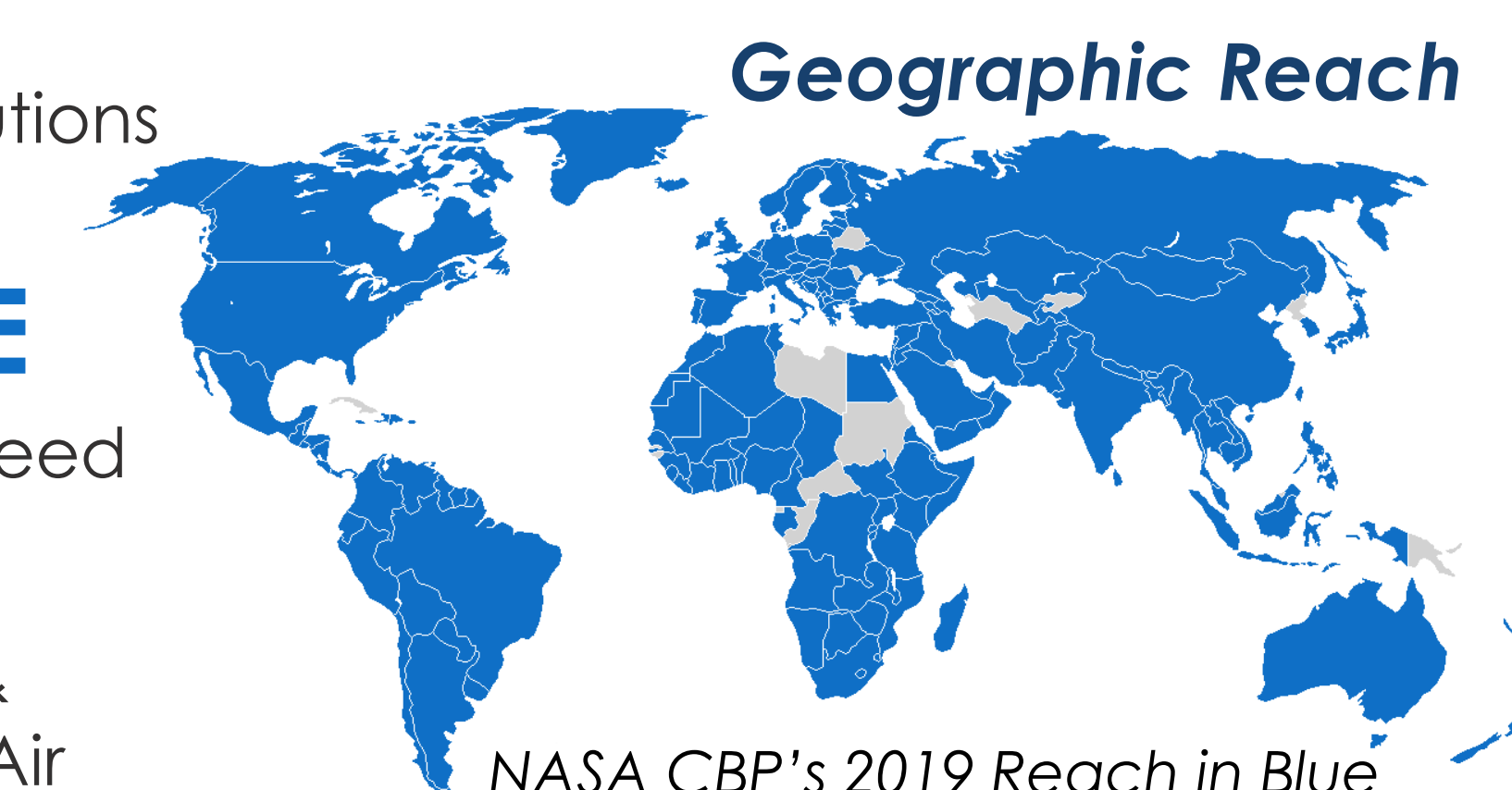
1. STAKEHOLDER MAPPING: NEEDS ASSESSMENT

- ▶ Users (individuals and institutions) are at the core of the framework
- ▶ Initial engagement identifies the "who" – stakeholder sector and the "why" – needs and priorities
- ▶ Users are classified into one of 12 sectors: Academia, Local Government, State/Provincial Government, Federal/Central Government, Intergovernmental Organization, Consortium, Private Sector (For Profit), Private Sector (Non-Profit), State/Provincial Govt., Tribal Entity, Regional/Multi-State Agency, Research Institute, Intergovernmental Org., Consortium, Misc./Other
- ▶ In 2019 (January to September), 10,642 individuals and 3,897 institutions were engaged

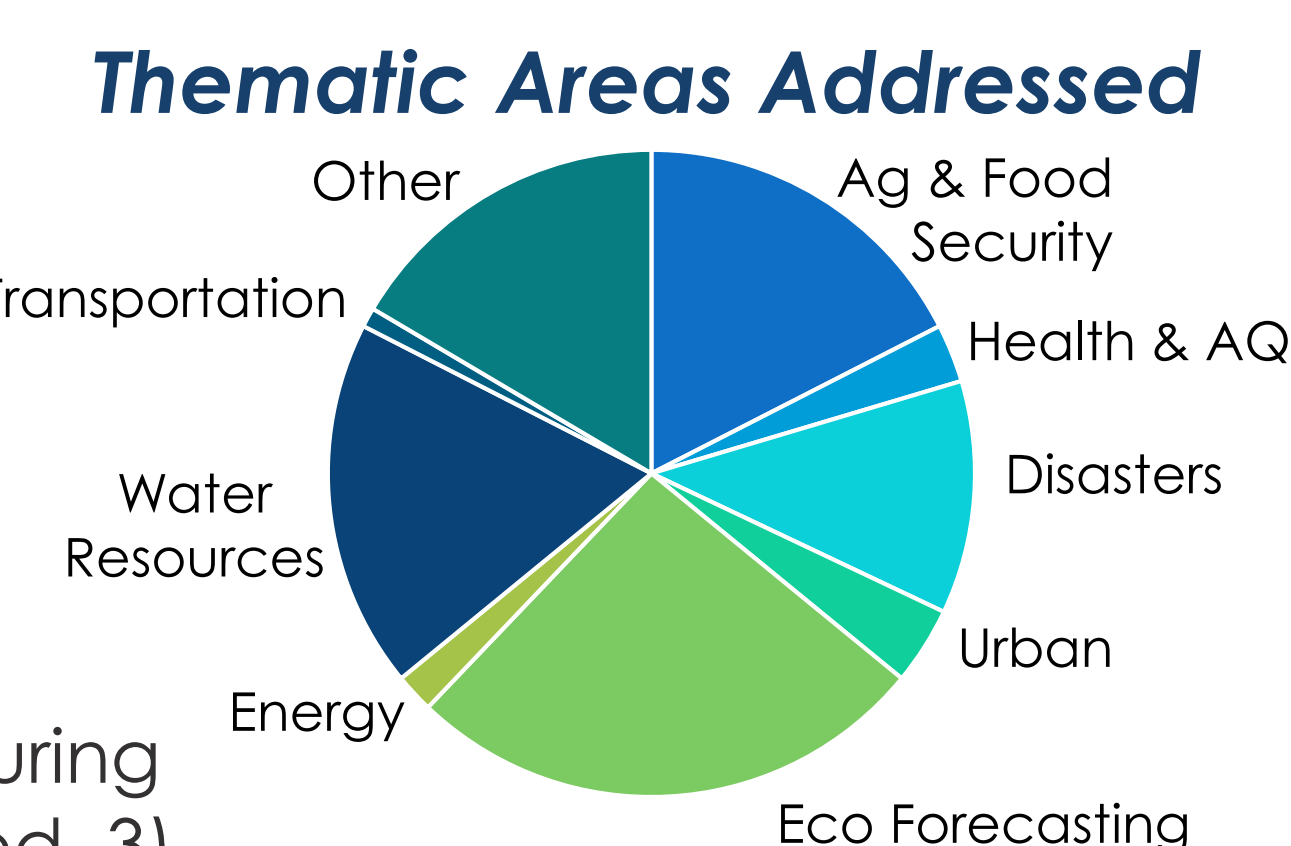


2. CATEGORIZATION: GEOGRAPHY & THEME

- ▶ Users are categorized based on the "where" and theme of their need
- ▶ Geography of the need is mapped by country and region
- ▶ Needs are categorized into one of 8 thematic areas: Agriculture & Food Security, Disasters, Ecological Forecasting, Energy, Health & Air Quality, Transportation & Infrastructure, Urban Development, and Water Resources
- ▶ In 2019, 153 countries and 50 U.S. states were impacted by trainings and projects



NASA CBP's 2019 Reach in Blue



3. SERVICE DESIGN

- ▶ Service design focuses on the "how" the capacity building will take place
- ▶ Service design begins after considering the following characteristics and ensuring they align with CBP resources and goals: 1) desired outcomes, 2) time required, 3) data needed / fitting to the problem, 4) depth of effort, and 5) partnerships involved

4. SERVICE DELIVERY

- ▶ Service design focuses on the "what" will be provided
- ▶ The Capacity Building Program has three services it provides: training, product co-development, and relationship brokering
- ▶ In 2019, 107 product co-development projects and 96 trainings



96

Trainings



107

Projects

5. MONITORING, EVALUATION, AND LEARNING

- ▶ Throughout the user engagement, assessment and evaluation activities provide opportunities to learn and provide feedback and lessons learned
- ▶ Assessment and evaluation takes place through a variety of efforts: pre- and post-capacity building activity surveys, project strength and progress assessments, and trainee skill development
- ▶ The Capacity Building Program uses multiple methods for planning and evaluation such as a Results Framework, Theory of Change, and a broad set of tracking indicators

6. IMPACT: RESULTS

- ▶ Identify outcomes of activities, assess level of success, ascertain appropriate audience with which to share, and find opportunities to communicate the impact
- ▶ Share feedback with appropriate audiences, present lessons learned, and publish best practices

CHALLENGES

- ▶ Difficulty lies in implementing this framework across multiple programs that use different approaches and language, and have different timelines of engagement.
- ▶ Some facets have not been realized – "Relationship Brokering" has not been tracked or monitored within CBP.
- ▶ Using an umbrella term of "Product Co-development" for all project work hides a level of detail and treats 10-week feasibility studies as the same as multi-year co-production projects.
- ▶ The bullseye format can confuse some viewers on where to begin.

FUTURE PLANS

- ▶ Revisit the format, language, and flow of the framework
- ▶ Create a simplified framework with a template that can be used more easily by CBP elements and shared publicly for others interested in using the framework for capacity building activity design

