

Welcome to the quarterly NICE Evaluator Webinar

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JUNE 14, 2012
3 P.M. EASTERN

We'll begin shortly!

PLEASE NOTE: To control the amount of background sound, **please mute your telephone** after dialing in by pressing *6 or by using a manual mute button on your telephone. To unmute, press *6 again. Thank you!

Agenda

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- Announcements & information
- Presentation from Kimberle Kelly on the 2012 Tri-Agency Climate Change Education PI Meeting evaluation strand, and how the work there has influenced the evaluation of her NICE project
- Q&A and community discussion

Next Evaluator Webinar

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- September 20th, 2012 at 3 p.m. Eastern
- Need 2 or 3 volunteer presenters
 - 10 minute presentation with 5 minutes Q&A
 - Sharing your NICE evaluation experiences, lessons learned, and resources with the community
 - Contact me at ann.m.martin@nasa.gov or use the WebEx chat box

NASA Earth & Space Science Education Product Review

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- Education products are reviewed by scientists and educators; product developers receive revision recommendations.
- Summer 2012 review cycle will start soon: Notice of Intent (*strongly encouraged*) due June 18, 2012; products due to Institute for Global Environmental Strategies (IGES) by July 9, 2012.
- Review cycle re-starts every quarter (Fall NOI is due September 17th, 2012)
- See **<http://nasareviews.strategies.org/>** for info, tutorials & examples; contact John Ensworth (john_ensworth@strategies.org) to submit an NOI.

NICE Workspace Repository of Evaluation Resources

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- “Reference library” of draft or final evaluation resources (instruments, tools, approaches, methods) being used within NICE
- *Not public*: would be private, behind a website login, visible only within the NICE project
- Response has been low: is the group interested in pursuing this?

2012 Tri-Agency CCE PI Meeting: Evaluation Strand & Draft Tri- Agency Logic Model

Presented by Kim Kelly, PhD
akimkelly@gmail.com



Create a common evaluation
framework in order to:

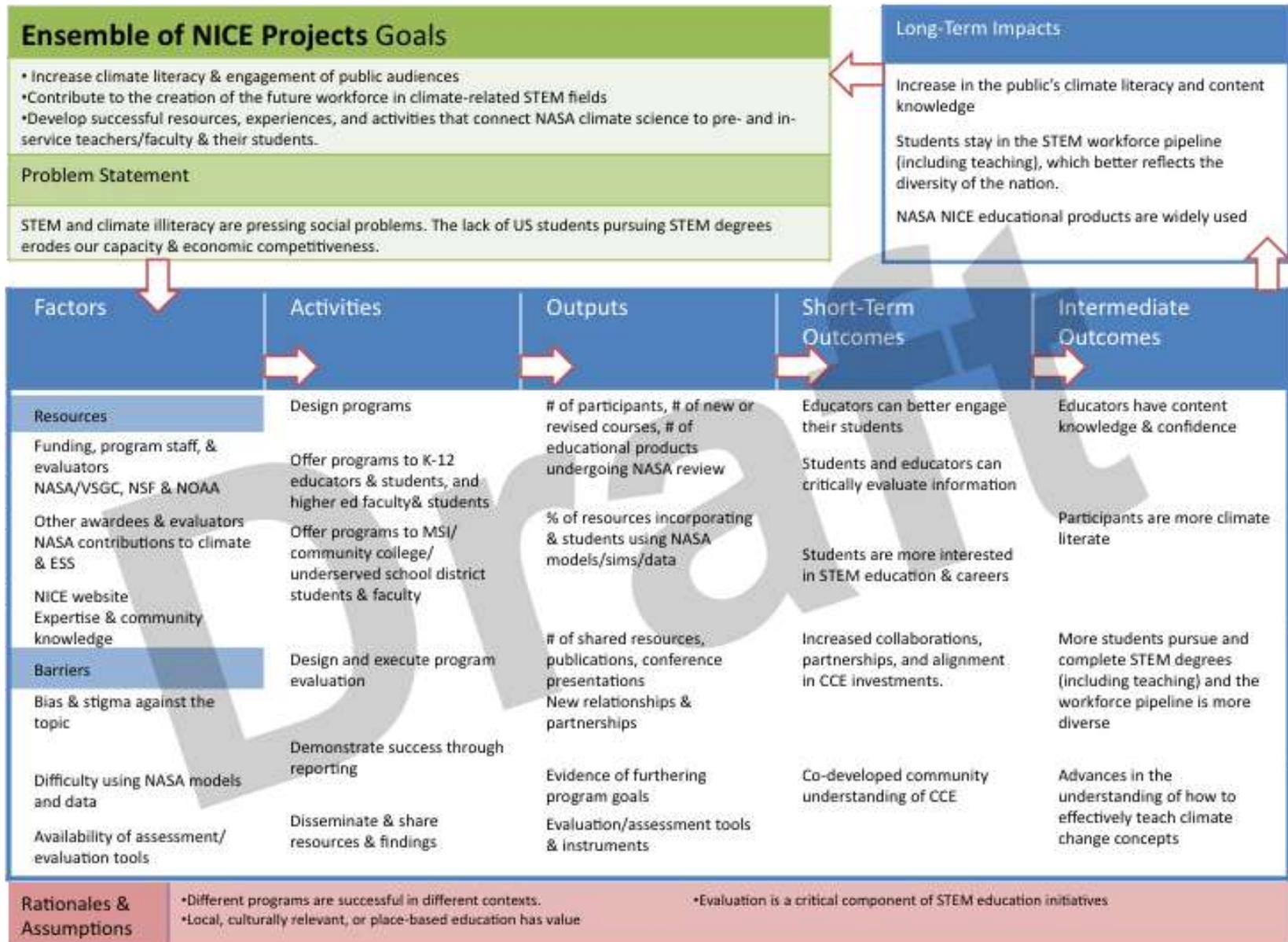
Create a framework to:

Articulate relationships across CCE portfolio

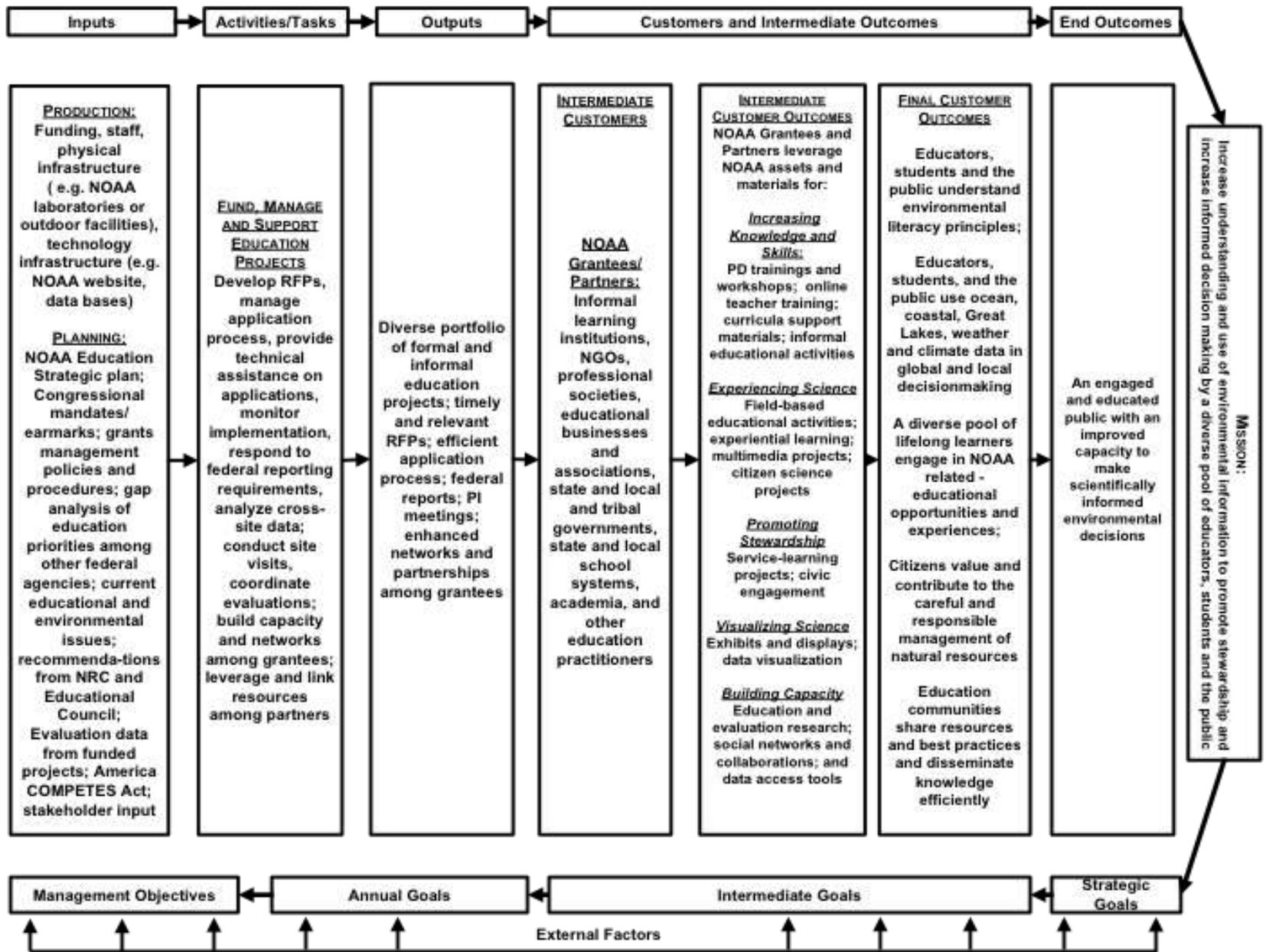
Provides guidance for reporting and coordinating the tri-agency collaboration

Help PI's situate their work in the larger CCE landscape

NASA Logic Model



NOAA Logic Model



NSF Logic Model

Climate Change Education Partnership Phase II (CCEP-II) Program – Draft Logic Model

[Specific details will be adjusted once specific awards have been determined]

Program Goals	Inputs	Activities	Outputs	Customers & Intermediate Outcomes	End Outcomes
<ul style="list-style-type: none"> * To foster in learners of all ages a deeper understanding of & engagement with the complex scientific processes of climate change and the impacts of a changing climate. * To foster the development of an innovative scientific and technical climate workforce for the future. 	<p>Production:</p> <ul style="list-style-type: none"> * NSF funding * Interdisciplinary expertise * Strategic partnerships * Shared concerns by region or theme * Tri-agency cooperation & coordination * Leveraged funding from other sources <p>Planning:</p> <ul style="list-style-type: none"> * Partnership strategic plans * External advisory boards * NSF site visits * Project & program evaluation * Tri-agency PI meetings 	<p>Phase I:</p> <ul style="list-style-type: none"> * Establish regional/thematic focus * Identify stakeholders * Conduct community workshops * Design & conduct needs analysis * Conduct resource inventory * Pilot-test new resources * Complete strategic planning <p>Phase II:</p> <ul style="list-style-type: none"> * Implement strategic plan (e.g., curriculum & pedagogy R&D; informal education activities; educator training; community outreach; local collaborations) * Convene annual PI meetings * Build & maintain web-based tools, resources & services * Convene CCEP Alliance * Plan & conduct educational research & evaluation 	<p>Plans:</p> <ul style="list-style-type: none"> * Strategic plans * Program evaluation * Tri-agency PI meetings <p>Tools, Resources & Services:</p> <ul style="list-style-type: none"> * Tri-agency PI matrix * Resource inventories * Portfolio of partnerships * Portfolio of professional development workshops * Portfolio of community events * Portfolio of development models/learning resources * CCEP-II web sites * CCEP Alliance web site * Community outreach events * Research publication <p>Networks:</p> <ul style="list-style-type: none"> * Partnership-based networks * CCEP Alliance (CCEPA) * CCEPA Office * Tri-agency PI networks 	<p>Learners:</p> <ul style="list-style-type: none"> * Use CCEP-developed materials * Gain deeper understanding & engagement with climate change concepts <p>Scientists:</p> <ul style="list-style-type: none"> * Use & generate new research (both climate & learning science) that is integrated into educational & community-focused products & events * Continue interdisciplinary collaboration with practitioners * Communicate the results of their research to public audiences * Gain insight on effective climate pedagogy <p>Educators:</p> <ul style="list-style-type: none"> * Use & integrate CCEP-developed materials and modules in curriculum and community events * Facilitate local & global collaborations based on the partnership focus 	<ul style="list-style-type: none"> * Increase access and exposure to effective climate education resources * Improve student, educator, and public climate literacy * Sustain interest in knowing about climate change * Sustain collaborations between learning and climate scientists * Continue to catalyze sustainable educational practices * Improve local communities through scientifically informed decision-making * Sustain engagement and training of climate workforce <p>Other long-term outcomes:</p> <ul style="list-style-type: none"> * Coordinated national network of regionally or thematically based partnerships devoted to increasing the adoption of effective high quality educational programs and resources related to the science of climate change and its impacts. * A society that can effectively weigh the



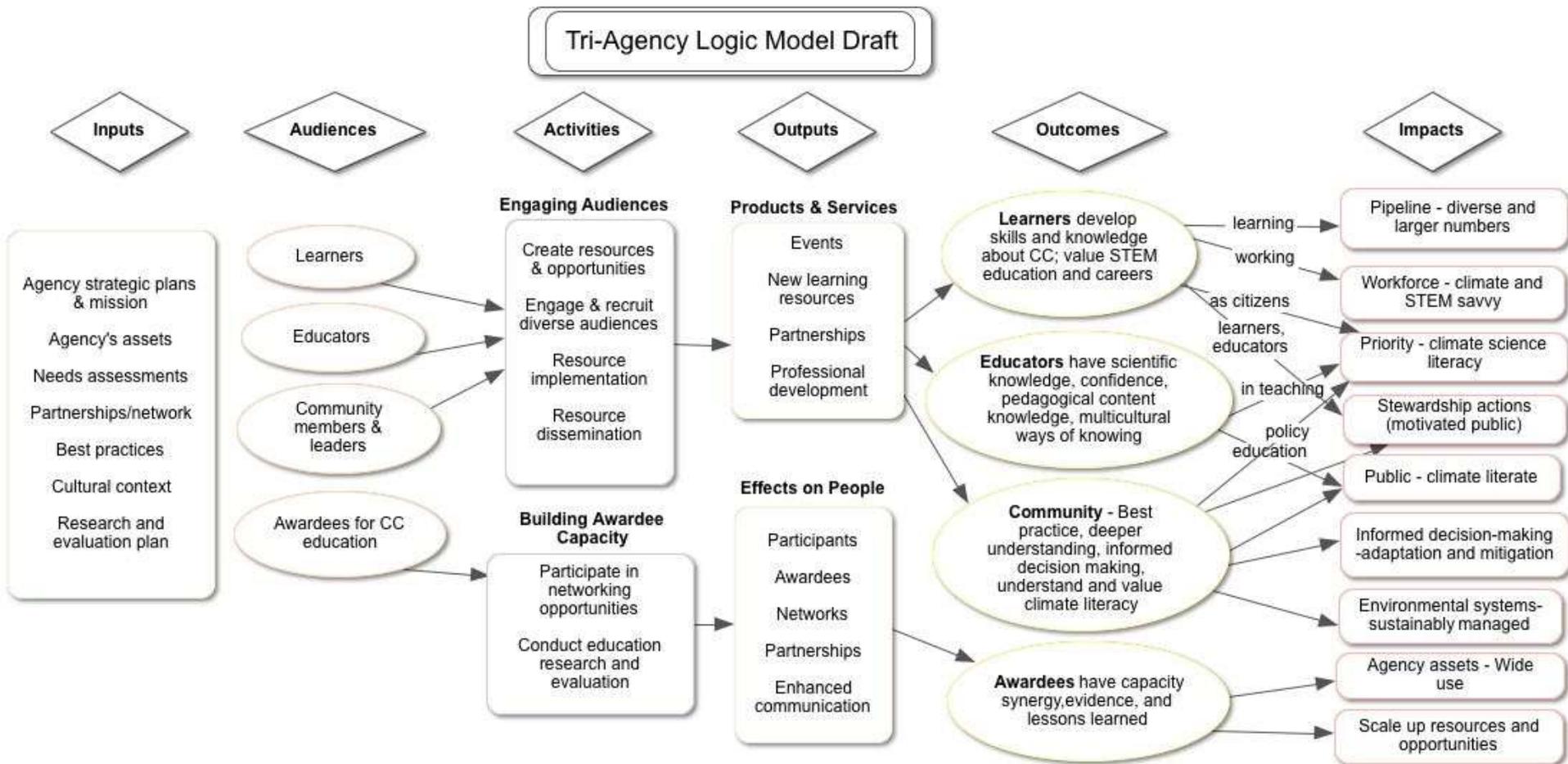
What should
I do?
I should do
I should do

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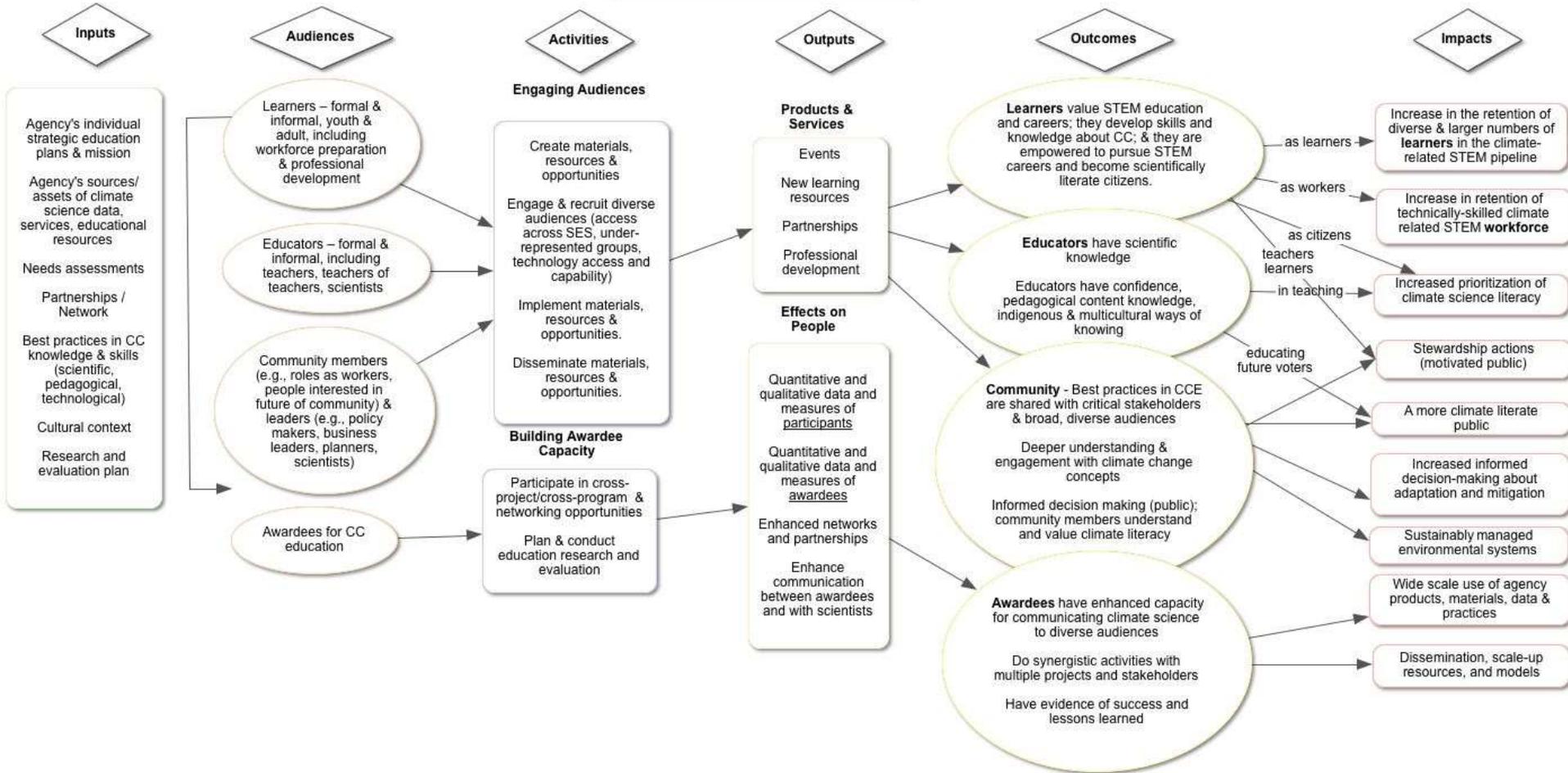


The model

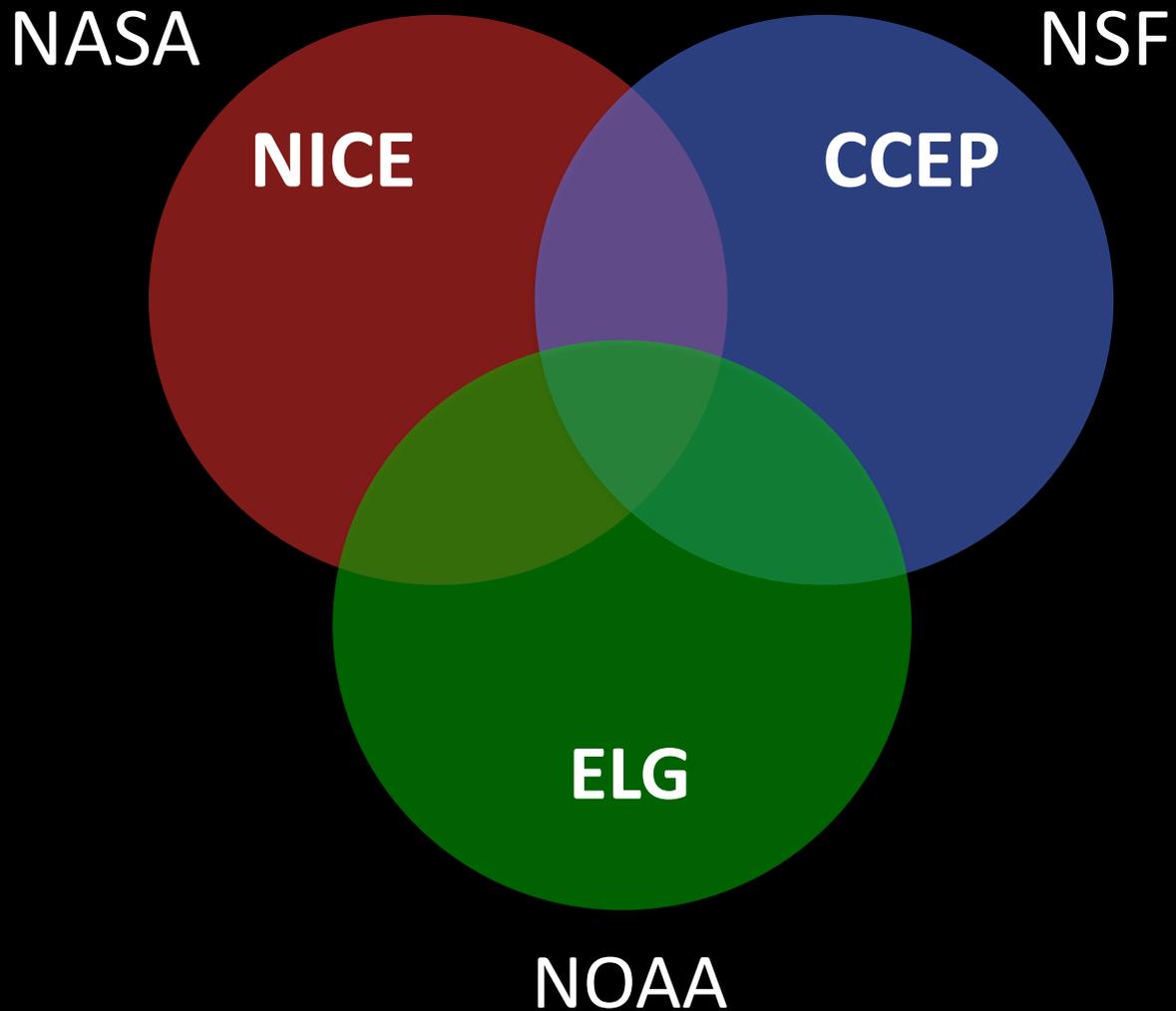


The model

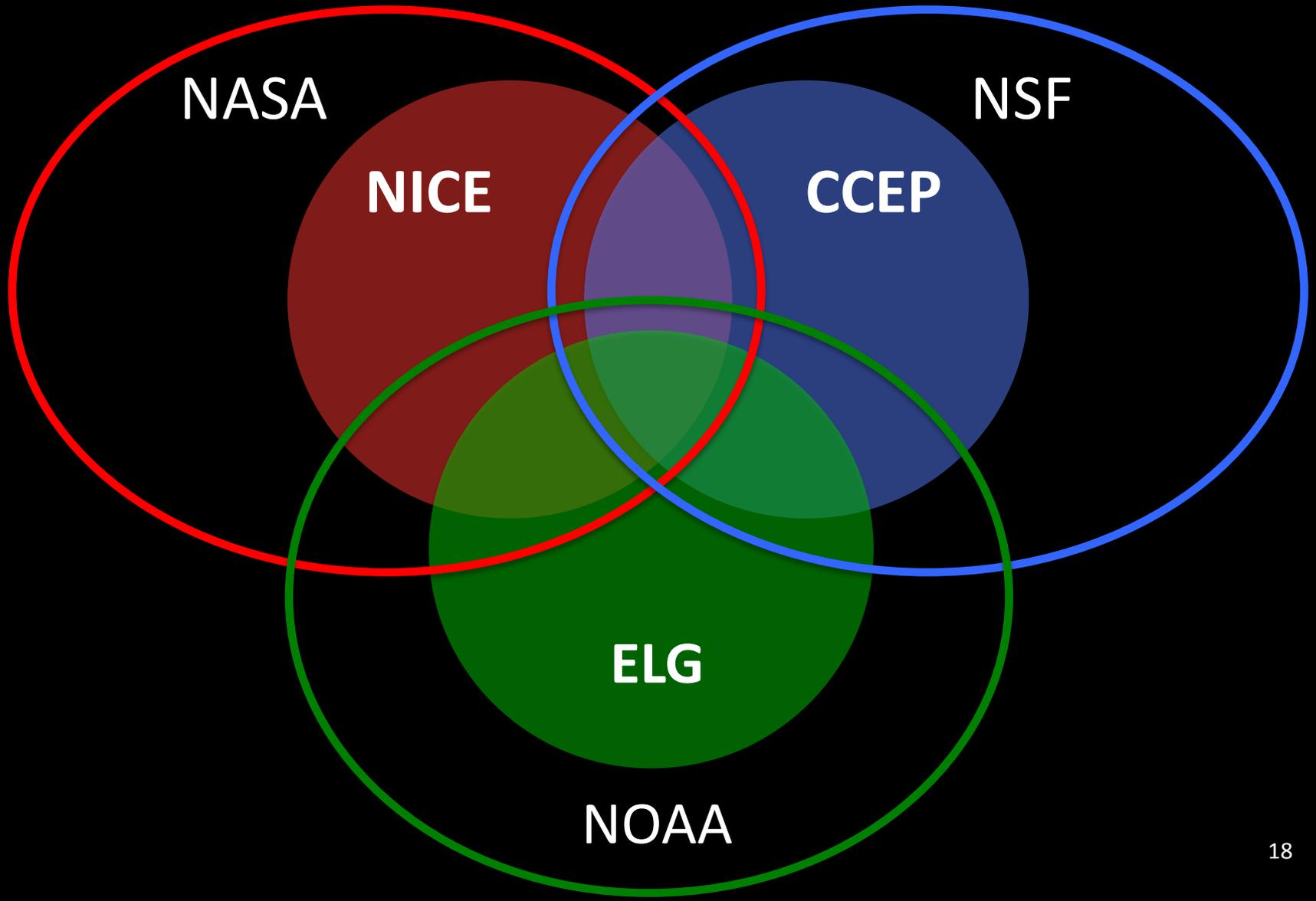
Tri-Agency Logic Model Draft



Opportunities



Opportunities



Working Groups for Next Steps

Working Groups for Next Steps

Agency Input and Feedback

Community Input and Feedback

Indicators and Instruments

Agency Input and Feedback

Elaborate the logic model for each program

Identify overlaps, synergies, and distinctions

Align and coordinate future opportunities
based on CCE logic model

Identify common and useful evaluation
approaches

Community Input and Feedback

Understanding

Applications

Utility

Gaps

Indicators and Instruments

Identify and share key common indicators and measures

Prioritize a manageable, common set of indicators or measures

Identify strategies for comparative and additive assessment

Comments and Discussion

Work in Progress

What outputs or products from this effort will help you achieve your goals?

What information will be most helpful?



Tri-Agency Logic Model Working Group

Thank you

Thanks to:

- The Presentation Team
 - Kimberle Kelly, John Fraser, Hilarie Davis, Eugene Maurakis, Carol Haden, & Rachel Becker-Klein
- The Common Evaluation Working Group
 - Ruth Anderson, John Baek, Elisabeth Barnett, Bob Bleicher, John Burgette, Beth Cady, Ellen Guisti, Jim Hammerman, Kathy Haynie, Sue Henderson, Joan LaFrance, Shirley Lee, Teresa Lloro-Bidart, Carole Mandryk, Ann Martin, Gerry Meisels, Jim Minstrell, Laura Munski, Mike Odell, Frank Rack, Texas Gail Raymond, Christa Smith, Martin Storksdieck, Sarah Yue, Dan Zalles
 - . . . And more!

Next Steps: Testing the Hypothesis

Recall that we articulated the purpose of the tri-agency logic model as including:

- Provides guidance for reporting and coordinating the tri-agency collaboration
- Help PI's situate their work in the larger CCE landscape

Logic Model for CSUN NICE Project based on Tri-Agency Common Logic Model



Guiding Questions for CSUN NICE Evaluation

1. What was the curriculum development and implementation process? Is it documented in a way that can be effectively utilized by others?
2. What is the quality of the instructional materials generated through the curriculum development process? Do the new courses provide effective instruction on the mathematics of global climate change for students underrepresented in science?
3. What type of preparation do students in the program (courses and internships) have for graduate programs and careers?
4. What is the effect of program activities (course sequence, JPL internship, climate seminar, student online social network) on student academic performance and career goals? Are underrepresented students motivated to pursue careers in climate science?
5. How does the CSUN NICE project create a professional learning community of faculty and students around program design and implementation?

Activity 1, Course Development: Logic Model for CSUN NICE Project



Activity 4, Summer Internship Program: Logic Model for CSUN NICE Project



CSUN NICE Instruments and Acquisition

Activity 1: Undergraduate and graduate courses embedded in a mathematics degree program concentration

Instrument / Protocol	Description of Instrument/Protocol	Data Acquired by May 31, 2012
Course documentation from course moodle or course web page	Course documents such as official course description, requirements, SLOs, syllabi, texts, lesson plans, and assignments will be reviewed. The instructors will be particularly sensitive to the need to use the course moodle to present as complete a picture of the course as possible for institutionalization activities of the grant.	Course moodle or website finalized for each course offered in Spring 2012 (PHYS 595, GEOG 690), ready for evaluation audit
Observations of climate science course lessons	The evaluator and one of the Co-Investigators of this study, will observe a representative sample of courselessons each semester, no less than 3 class meetings for each course spaced out over the course of the semester (beginning, middle, end). Observers will use narrative note-taking strategies, which may be accompanied by audio recordings of lecture content. The goal is to document the content and pedagogy of all courses in the climate sequence.	3 audio-recoded with accompanying narrative observations complete in each course offered in Spring 2012 (PHYS 595, GEOG 690), ready for content and pedagogy assessment
Graded course assignments	Grades and actual samples of student work will be collected when possible for all course assignments at the end of the semester. This will verify exactly what content the students are mastering in relation to the objectives of the course. Ideally, we will obtain class sets of samples that have been graded, along with the written class instructions and the grading criteria employed by the instructor.	Course grades finalized, ready to compile exam score spreadsheets for PHYS 595, and obtain graded course presentations for GEOG 690
Pre- and post-course surveys of students participating in climate science courses	During instructional time during the first and last week of regular class meetings, short surveys (15 to 30 minutes) will be requested from all students who provide informed consent. Questions address student familiarity and experience with climate science concepts, climate science coursework or research in preparation for advanced studies, and the role of NASA missions, data sets and analysis tools in modern climate science research. Questions will also address motivation and confidence to pursue advanced studies or careers in climate science. Post-course surveys will request student feedback about the course. The surveys will be confidential, but not anonymous.	PHYS595: Originally 18 enrolled or attending, 3 dropped or stopped attending, one incomplete, so 14 completed, 14 consented, 16 pre-course surveys and 14 post-course surveys; GEOG690: Originally 19 enrolled or attending, 17 completed, 1 dropped or 1 audited, 18 consented, 17 pre-course surveys and 17 post-course surveys
Institutional data	Request student information for all students who have participated in any grant activities (courses, climate seminar, internship, social networking) each semester from the institutional data office(s) that maintain(s) degree program information about students. This includes transcripts of courses enrolled in and completed, grades received, degrees granted, age, gender, ethnicity, major, zip code. Blinded information for all other degree-seeking students in the departments of Mathematics, Physics, and Geography to use for comparison. In addition, request blinded baseline comparison data for the past two academic years (2009-10, 2010-11).	Annual request for institutional data to be made and determine timetable of availability

Outputs of CSUN NICE Activities

Activity 1: Undergraduate and graduate courses
embedded in a mathematics degree program concentration

Performance Target Year 1

2 courses (PHYS 595, GEOG 690)

15 enrolled and completed students per
course

Leadership team and institutional
partners collaborate on content

Evidence of Implementation

2 courses delivered; evaluation data
confirmed relevance of course content

14 completed in PHYS 595 and 17
completed in GEOG 690

4 key faculty and evaluator; 3
institutional partners (JPL, UCLA,
SMC)

Outcomes of CSUN NICE Activities

Activity 1: Undergraduate and graduate courses embedded in a mathematics degree program concentration

Outcomes

1. *Participants value and are empowered to pursue climate science education and careers; develop skills and knowledge for advanced studies in climate science*
2. *Leaders and educators develop the confidence, content knowledge and pedagogical skills to deliver high quality workshop or academic courses or internship content and research mentoring*
3. *Best practices in CCE generated as part of the CSUN NICE grant are shared virtually with broad and diverse audiences so that replications and expansions of the program are ensured*

Impacts

- A. *Increase retention of diverse and larger numbers of learners in the climate-science pipeline*
- B. *Increase in technically- skilled climate science workforce*
- D. *Disseminate, scale-up resources and models*
- E. *Wide scale use of NASA products, materials, data and practices*

Analytic Strategies for Year 1, Project Activity 1, Outcome 1 and Associated Impacts

Outcome 1;
Impact A, B

Impact of the program over time includes estimating the number and characteristics of CSUN students exposed to program activities over time as well as comparing academic outcomes in this group to other similar CSUN students without such exposure. These analyses utilize enrollment and participation records as well as longitudinal institutional data for mathematics, geography and physics departments--such as transcripts of courses enrolled in and completed, grades received, degrees granted, age, gender, ethnicity, major, zip code

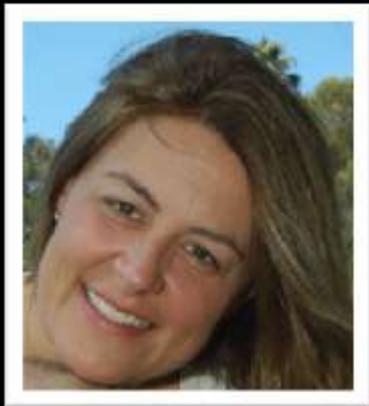
Outcome 1;
Impact A, B

Compare student pre and post survey questions regarding motivation and confidence to pursue additional or advanced studies or careers in climate science, familiarity and experience with climate science concepts, climate science coursework or research in preparation for advanced studies, and the role of NASA missions, data sets and analysis tools in modern climate science research

Outcome 1;
Impact B

Graded course assignments provide a summary of student content mastery. Content analysis of assessment data includes employing structured rating protocols to characterize coverage of climate science concepts as well as the cognitive demand of the instructional prompts

Questions & Discussion



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