

NARA

Community and Social Elements of Sustainable Biofuel Systems: Assessment and Application

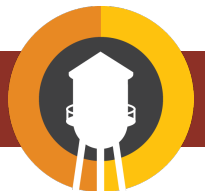
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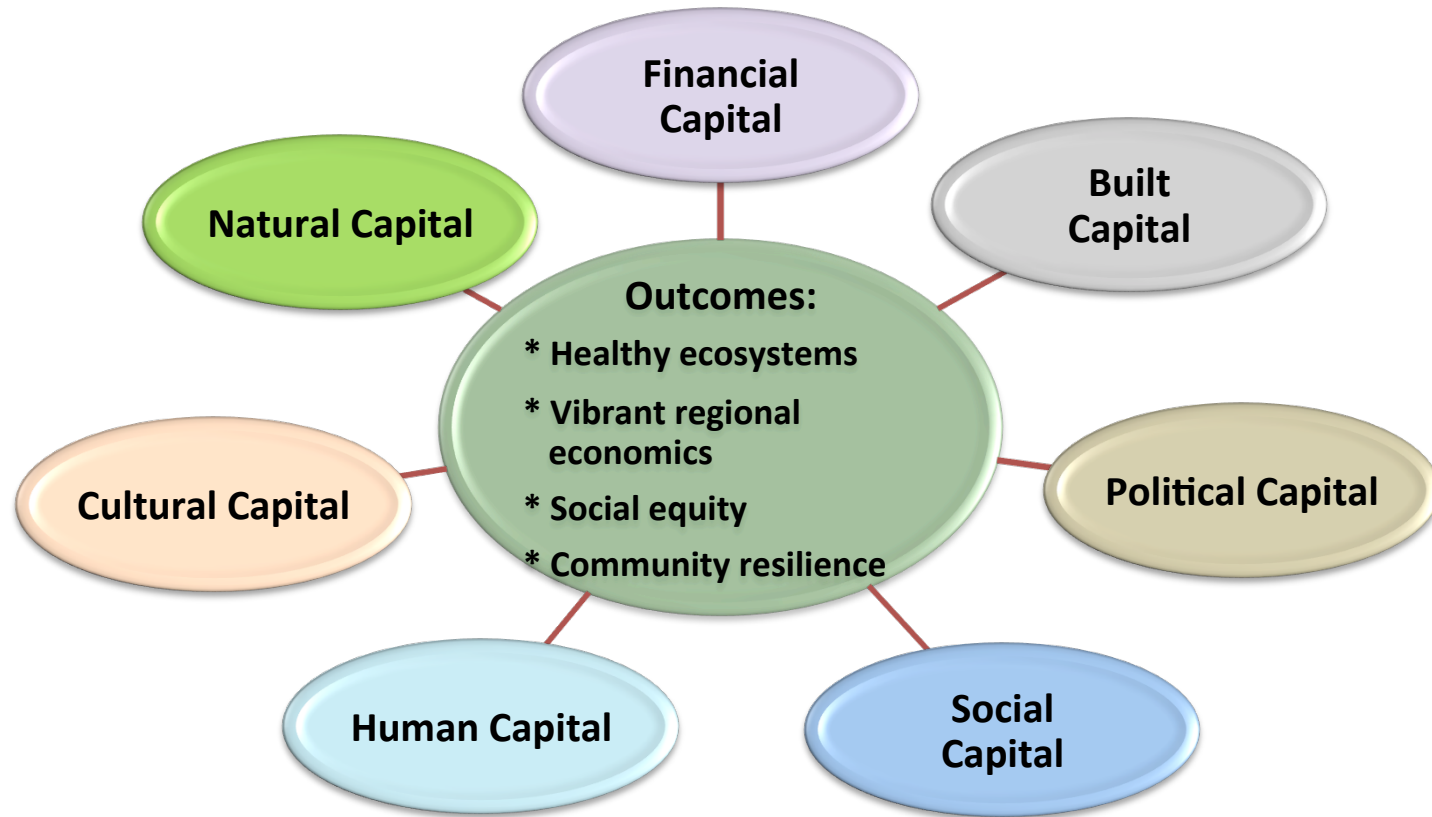
Washington State University

Northwest Advanced Renewables Alliance





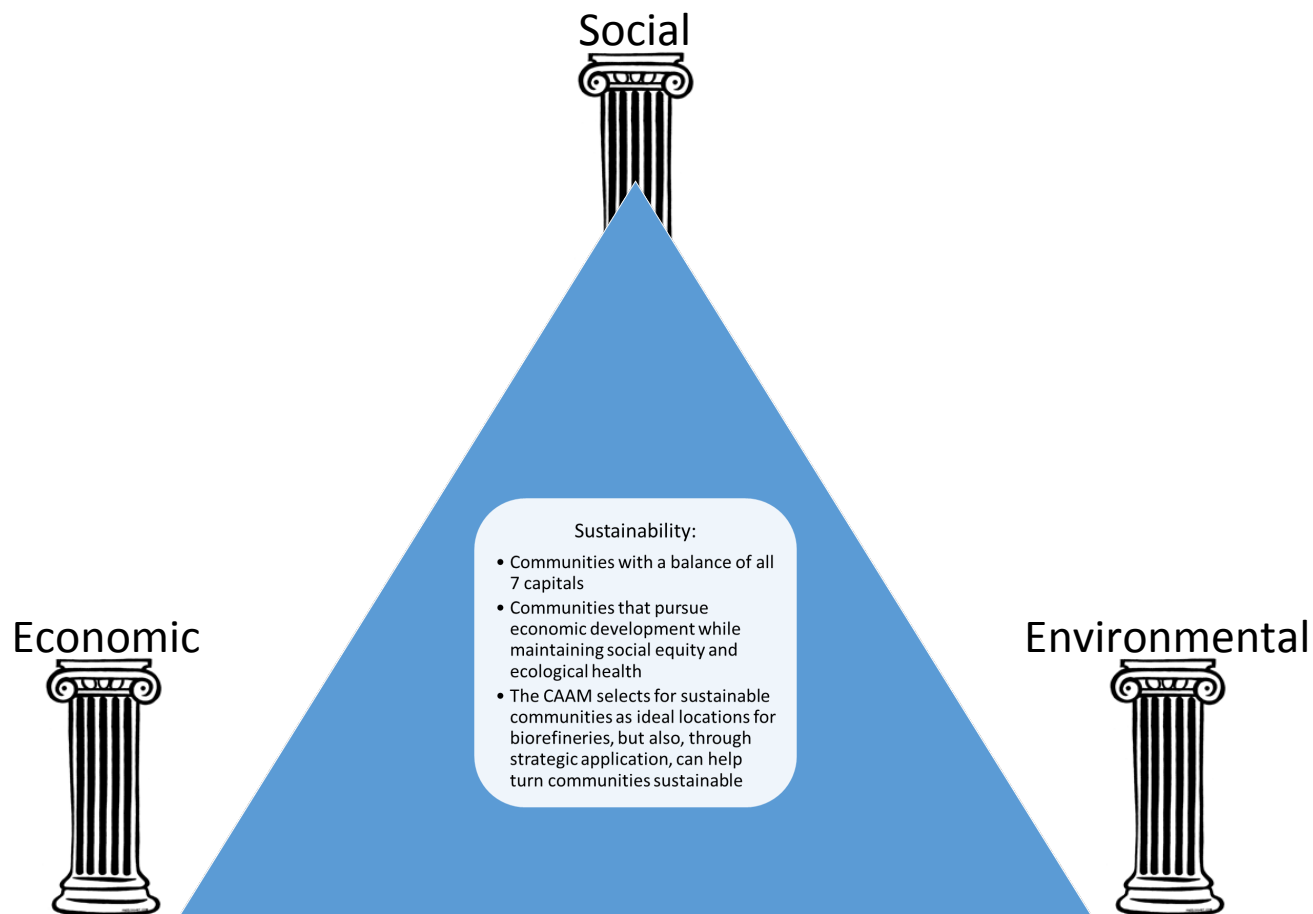
The Community Capitals Framework



Drawn from: Emery, Mary and Cornelia Flora. 2006. "Spiraling Up: Mapping Community Transformation with the Community Capitals Framework." *Journal of the Community Development Society*, Vol. 37, p. 22.



Sustainability



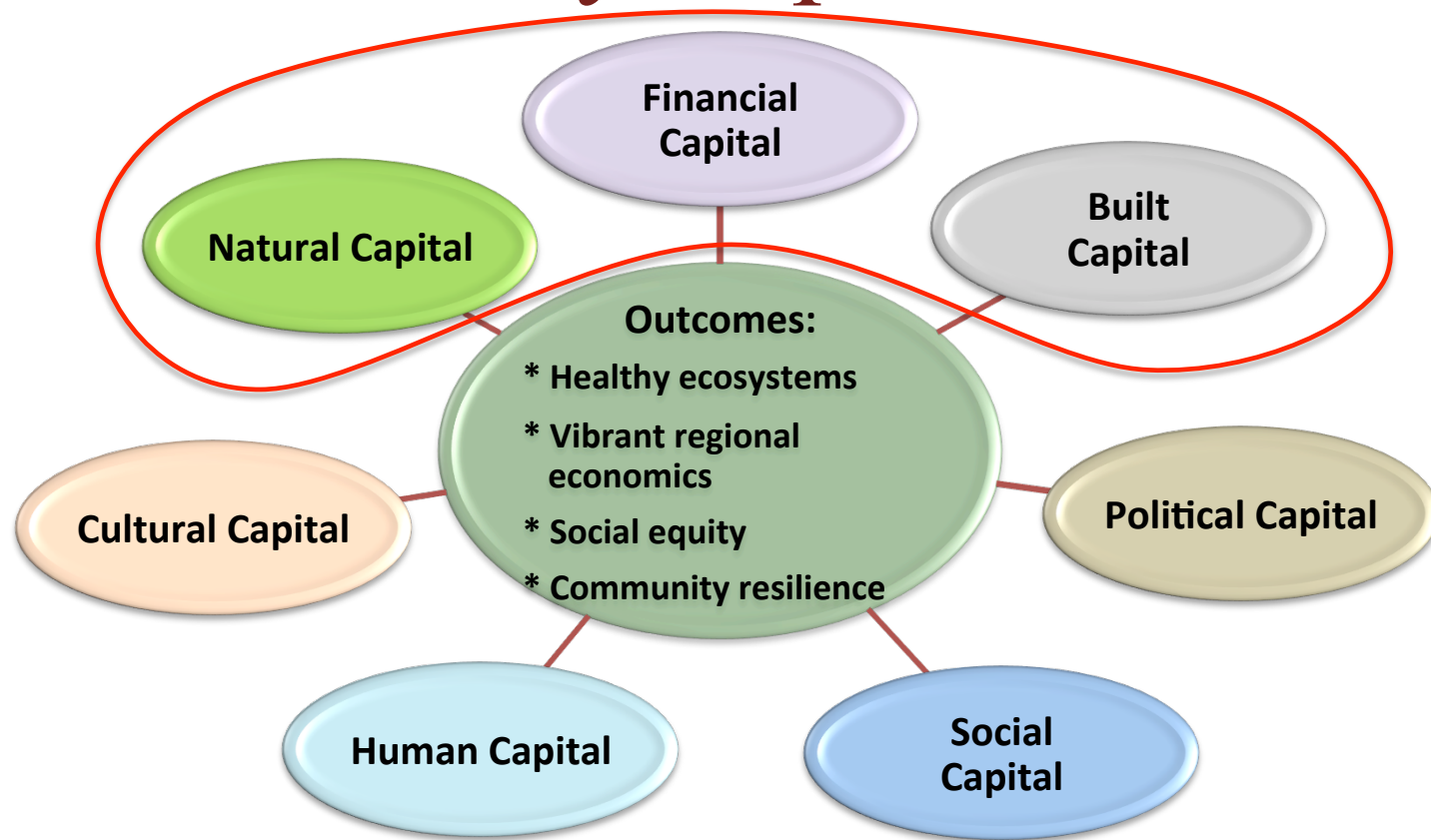


Project Applications

- CAAM: Community Attribute & Asset Model
 - Site Selection
 - (Later) Implementation
- (FAA) Refinery-to-Wing Stakeholder Assessment
 - Barriers & Opportunities for Implementation



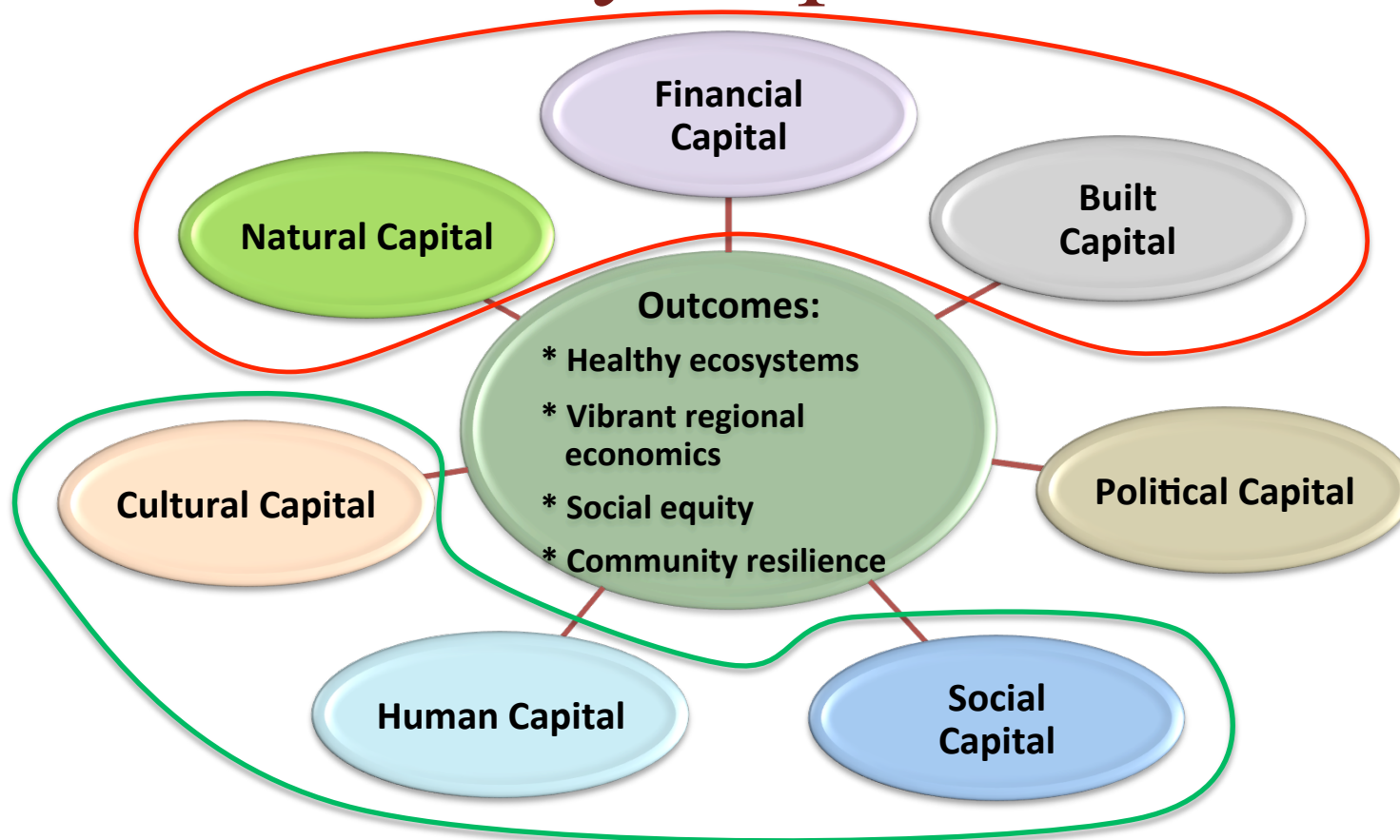
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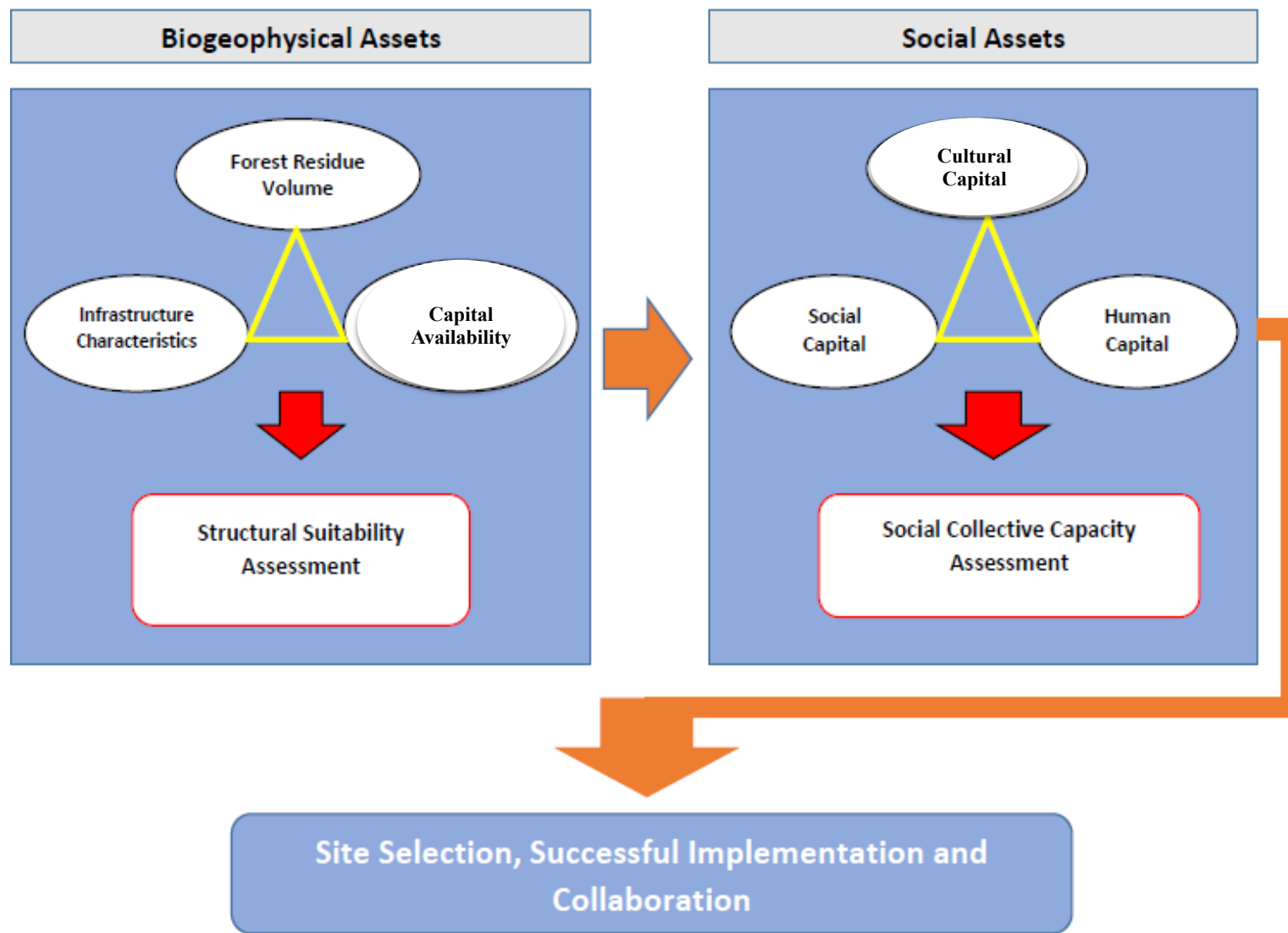


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Site Selection

2015 Annual Meeting
Spokane, WA





According to the World Bank (2012):

“Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together.”

- Little research has quantitatively addressed the social aspect of sustainability for biofuel project implementation.
- The importance of community resistance or enthusiasm for the biofuels industry may be a key to success.



CAAM Development Process

Step 1: Obtain, update, aggregate 3 national data sets

- WESTAF (Creative Vitality)
- Rupasingha (Social Capital)
- R. Wood Johnson (County Health Rankings)

Step 2: Initial selection of representative variables

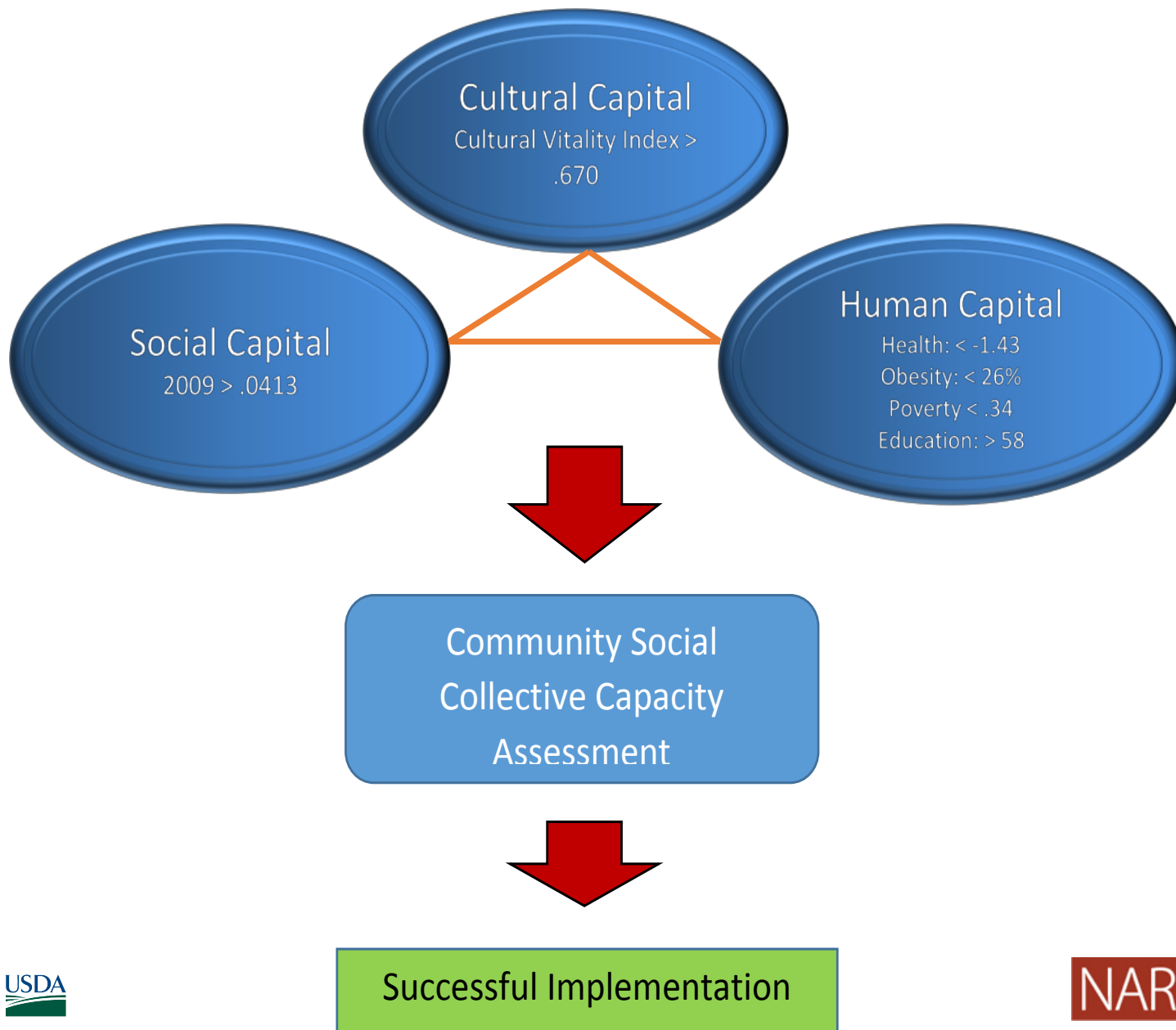
- Social Capital
- Cultural Capital
- Human Capital

Step 3: Validate and Refine Model

- Ground-truthing with previous work in the region
- New Primary Research
- Case Studies

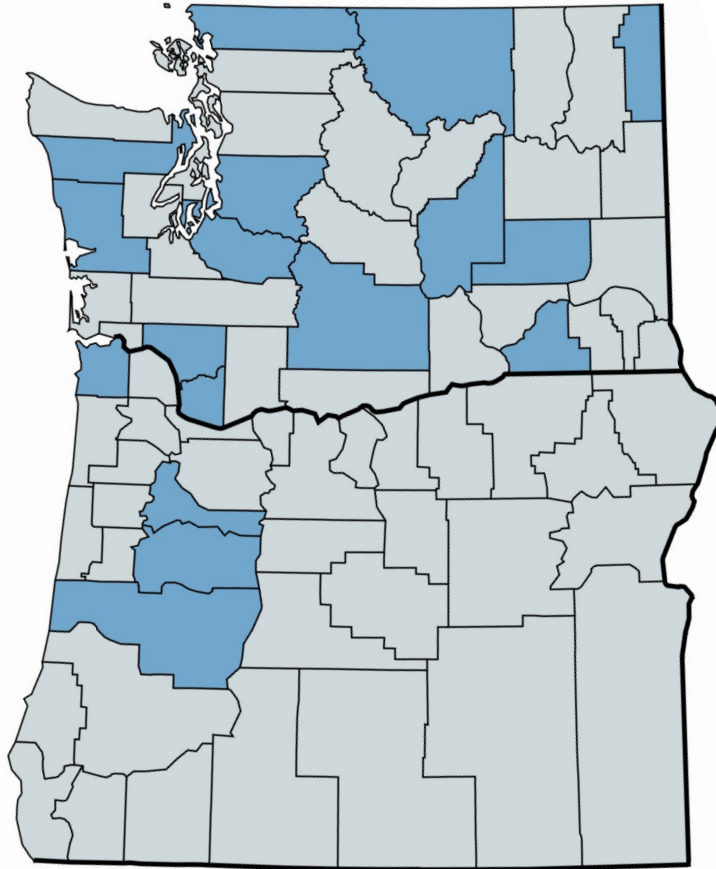


Social Assets





County-Level Comparison





Model Application: Western Montana Corridor

2015 Annual Meeting
Spokane, WA

Case analysis of community capitals in western Montana corridor - differences

		Bonner Idaho	Kootenai Idaho	Boundary Idaho	Spokane Washington	Lincoln Montana	Lake Montana	Flathead Montana	Missoula Montana
<i>Variable</i>	<i>Cut-off</i>								
Soc. Cap. 1997	> .3730	-0.243	-0.903	-0.513	-0.763	0.437	-0.063	0.887	1.167
Soc. Cap. 2005	> .1099	-0.4099	-0.8899	-0.8399	-0.5099	0.6201	-0.2199	0.8701	2.0701
Soc. Cap. 2009	> .0413	-0.2413	-0.8413	-0.0813	-0.6313	0.7287	0.0687	0.6587	1.8387
CVI 2006	> .673	0.034	-0.103	-0.282	0.074	-0.253	-0.094	0.261	0.915
CVI 2007	> .689	0.305	-0.067	-0.389	0.069	-0.245	-0.181	0.347	0.894
CVI 2008	> .699	0.009	-0.07	-0.411	0.074	-0.16	-0.207	0.504	0.921
CVI 2009	> .705	-0.029	-0.147	-0.428	0.051	-0.177	-0.218	0.425	0.956
CVI 2010	> .686	0.064	-0.072	-0.403	0.056	-0.171	-0.236	0.560	0.946
Health 2013	< -1.4247	-0.4753	-1.6953	-1.5153	-0.0253	1.0947	1.2247	-1.6953	-2.3753
Obesity 2013	< 25.8	-3.1	-0.2	-2.1	2.2	-0.2	1.8	-4	-5.3
Poverty 2013	< .3337	1.4263	0.0663	2.0863	-1.0037	3.2563	2.0663	0.1963	-0.9537
Education 2013	> 58	-2.1	7.8	-22.8	12.1	-10.7	3.6	3.1	16
Language 2013	< 3.2	-2.9	-2.8	-3.2	-1.7	-3.2	-3	-3.1	-2.9
Population 1997		34771	98767	9882	404650	18772	25341	71705	88818
Population 2005		39925	126843	10388	440488	18704	27933	82601	102239
Population 2009		41403	139390	10951	468684	18717	28605	89624	108623
Population 2013		40808	141132	10804	473761	19566	28947	91301	110138

Note: Numbers indicate the difference between the score per capital per county and the applicable cut-off score. Shaded cells represent scores that are better than the cut-off points. Cut-off scores are based on averages for the respective years and variables for the region West (US census region) over 446 counties.



- Demonstrates the predictive power of Social Assets to assess a community's capacity for collective action
 - **social capital, cultural capital (creative vitality), & human capital (health and education).**
- More robust model is being applied to complex projects in the NARA region (and others) to support implementation potential.
 - Already applied in NARA WMC, currently being applied in MC2P and Columbia Plateau.
 - Next steps: apply to Midwest and other regions in the United States
- Data & methods move beyond binary siting decisions to analyze implementation potential & strategy for highly complex projects in the United States.



Acknowledgements:

- *This effort, as part of the Northwest Advanced Renewables Alliance (NARA), was funded by the Agriculture and Food Research Initiative Competitive Grant no. 2011-68005-30416 from the USDA National Institute of Food and Agriculture.*
- *Follow-up work has been supported by the FAA-funded ASCENT project. (COE-2014-01)*