

IGC

INTERNATIONAL GEODESIGN COLLABORATION

Changing Geography by Design

The focus of the universities that comprise the IGC is to understand how geodesign can be applied to addressing globally-relevant design challenges in settings that are widely dispersed, differ widely in scale and in the extent of resources available to find geodesign solutions.

We are driven by a specific and exceptionally complex problem: How do we identify and share the lessons and practices developed by a globally-dispersed array of experts so that the resulting knowledge can be leveraged to solve our most pressing societal needs? We know that the solutions will call for deep integration across the traditional expertise in the physical, natural and social sciences, but they will be articulated through the landscape- and city-shaping of planners, designers, engineers and diverse scientists.

We are interested in how multi-disciplinary teams in multi-institutional and multi-national groups consider and respond to the environmental, economic, and social impacts of development and change in natural and increasingly engineered systems. These include structural components such as cultural and governmental differences, but also the leadership skills of individuals, team construction, and communication.



GEODESIGN HUB

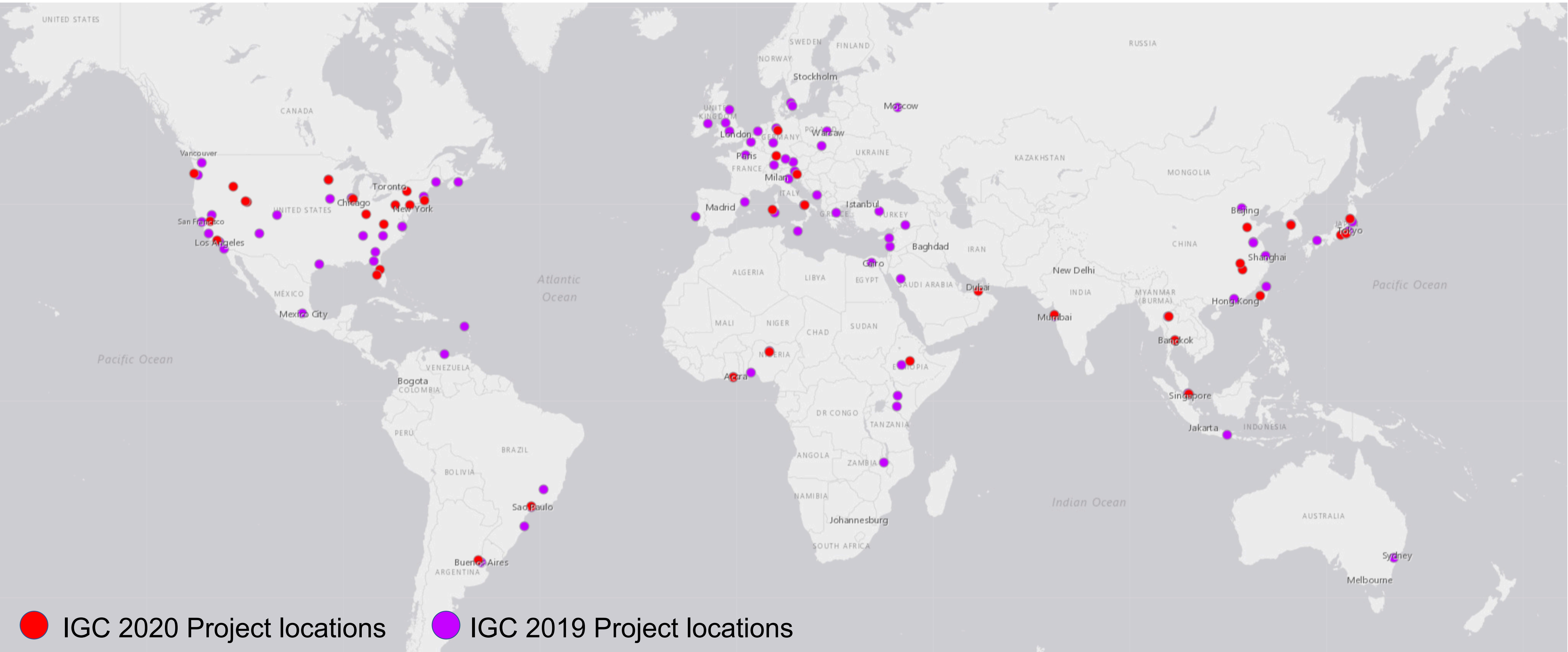
GEODESIGN
College of Environment + Design
UNIVERSITY OF GEORGIA

MINNESOTA DESIGN CENTER
COLLEGE OF DESIGN UNIVERSITY OF MINNESOTA

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Geodesignhub and Hrishi Ballal,
and all the participating people,
schools and organizations.

<http://www.igc-geodesign.org/>

IGC PROJECT LOCATIONS



IGC PARTICIPANT ORGANIZATIONS

University/Organization	Country	University/Organization	Country	University/Organization	Country
1 Universidad de Buenos Aires	Argentina	49 Jomo Kenyatta University of Agriculture and tec	Kenya	97 Colorado College	United States
2 Curtin University	Australia	50 Taita Taveta University	Kenya	98 Cornell University	United States
3 University of Canberra	Australia	51 The Technical University of Kenya	Kenya	99 Design Workshop	United States
4 University of New South Wales	Australia	52 American University of Beirut	Lebanon	100 Esri (Redlands, CA)	United States
5 Research Studio Austria Forschungsgesellschaft	Austria	53 Liechtenstein Institute for Strategic Developmen	Leichtenstein	101 Geodesigntech	United States
6 University of Salzburg	Austria	54 University of Malta	Malta	102 Georgia Institute of Technology	United States
7 University College Gent	Belgium	55 Universidad Autonoma Metropolitana	Mexico	103 Harvard University GSD	United States
8 Universidad Mayor de San Andres	Bolivia	56 Geodan	Netherlands	104 Iowa State University	United States
9 Federal University of Minas Gerais	Brazil	57 Vrije Universiteit	Netherlands	105 JeffCity Geo+Media+Design	United States
10 Santa Catarina State University	Brazil	58 Lincoln University	New Zealand	106 MIT	United States
11 University of Sao Paulo	Brazil	59 University of Canterbury	New Zealand	107 North Carolina State University	United States
12 Dalhousie University	Canada	60 Ahmadu Bello University	Nigeria	108 Ohio University	United States
13 U British Columbia	Canada	61 University of Lagos	Nigeria	109 Old Dominion University	United States
14 Beijing Forestry University	China	62 Norwegian University of Life Sciences	Norway	110 Oregon State University	United States
15 Chinese University of Hong Kong	China	63 Cracow University of Technology	Poland	111 Pennsylvania State University	United States
16 Jiangxi Normal University	China	64 Warsaw University of Life Sciences	Poland	112 Portland State University	United States
17 Peking University	China	65 University of Lisbon	Portugal	113 Purdue University	United States
18 Tongji University	China	66 University of Puerto Rico Mayaguez	Puerto Rico	114 Rhode Island School of Design	United States
19 University of Hong Kong	China	67 People's Friendship University of Russia	Russia	115 Rutgers University	United States
20 University Technical Particular de Loja	Ecuador	68 National University of Singapore	Singapore	116 San Diego State University	United States
21 Addis Ababa University/EIABC	Ethiopia	69 University of Ljubljana	Slovenia	117 Texas A&M University	United States
22 Ethiopian Institute of Architecture	Ethiopia	70 University of Pretoria	South Africa	118 The Institute for Conscious Global Change/Antic	United States
23 Ministry of Culture and Communication	France	71 Seoul National University	South Korea	119 Thomas Jefferson University	United States
24 Universite Omar Bongo	Gabon	72 University of Seoul	South Korea	120 University of California Berkeley	United States
25 Anhalt University	Germany	73 Universitat Autonoma de Barcelona	Spain	121 University of California, Santa Barbara	United States
26 Laubwerk	Germany	74 Blekinge Institute of Technology	Sweden	122 University of Cincinnati	United States
27 Leibniz Universität Hannover	Germany	75 Swedish University of Agricultural Science	Sweden	123 University of Florida	United States
28 TU Kaiserslautern	Germany	76 ETH Zurich	Switzerland	124 University of Georgia	United States
29 Weihenstephan-Triesdorf University of Applied	Germany	77 Hochschule für Technik Rapperswil	Switzerland	125 University of Idaho, Center for Resilient Commu	United States
30 University of Thessaly	Greece	78 National Sun Yat-sen University	Taiwan	126 University of Illinois at Urbana-Champaign	United States
31 Amity University Mumbai	India	79 Chulalongkorn University	Thailand	127 University of Illinois Chicago	United States
32 School of Environment and Architecture	India	80 King Mongkut's University of Technology Thonb	Thailand	128 University of Maryland	United States
33 Spatial Decisions	India	81 Ankara University	Turkey	129 University of Minnesota	United States
34 Geodesignhub	Ireland	82 Harran University	Turkey	130 University of Nebraska-Lincoln	United States
35 University College Dublin	Ireland	83 Esri, Abu Dhabi	United Arab Emirates	131 University of North Carolina at Charlotte	United States
36 Bar-Ilan university	Israel	84 United Arab Emirates University	United Arab Emirates	132 University of Redlands	United States
37 Ram Eisenberg Environmental Design	Israel	85 Birmingham City University	United Kingdom	133 University of Southern California	United States
38 Technion - Israel Institute of Technology	Israel	86 Lancaster University	United Kingdom	134 University of Tennessee Chattanooga	United States
39 Politecnico di Milano	Italy	87 Newcastle University	United Kingdom	135 University of Texas Austin	United States
40 Politecnico di Torino	Italy	88 University College London	United Kingdom	136 University of Virginia	United States
41 Università di Cagliari	Italy	89 University of Manchester	United Kingdom	137 University of Washington	United States
42 University of Basilicata	Italy	90 University of Sheffield	United Kingdom	138 University of Wisconsin-Madison	United States
43 Hiroshima University	Japan	91 Arizona State University	United States	139 University of Wyoming	United States
44 National Institute for Environmental Studies	Japan	92 Ball State University	United States	140 Utah State University	United States
45 Ritsumeikan University	Japan	93 California Polytechnic State University Pomona	United States	141 Virginia Tech	United States
46 Tohoku University	Japan	94 California Polytechnic State University, San Luis	United States	142 wrmdesign	United States
47 University of Tokyo	Japan	95 Cambridge College	United States	143 Universidad Simon Bolivar	Venezuela
48 University of Tsukuba	Japan	96 College of the Atlantic	United States		

IGC GLOBAL ASSUMPTIONS AND SYSTEM INNOVATIONS

We identified systems that are fundamental to geodesign. Participants were assigned to nine systems groups and a tenth group focusing on assumptions about global change.

GLOBAL ASSUMPTIONS

The global assumptions and the associated specific concerns addressed on the following displays were identified by teams of IGC participants and reflect current projections, forecasts, and predictions.

In order to guide, but not overwhelm, conversations across the geodesign projects, the number of assumptions and innovations has been limited.

The global assumptions describe issues that may be relevant to particular projects, but they are not relevant for all projects.

Recommendations for specific outcomes or goals are not included; however, each assumption is written with the knowledge that individual nations and municipalities do have such goals.

SYSTEM INNOVATIONS

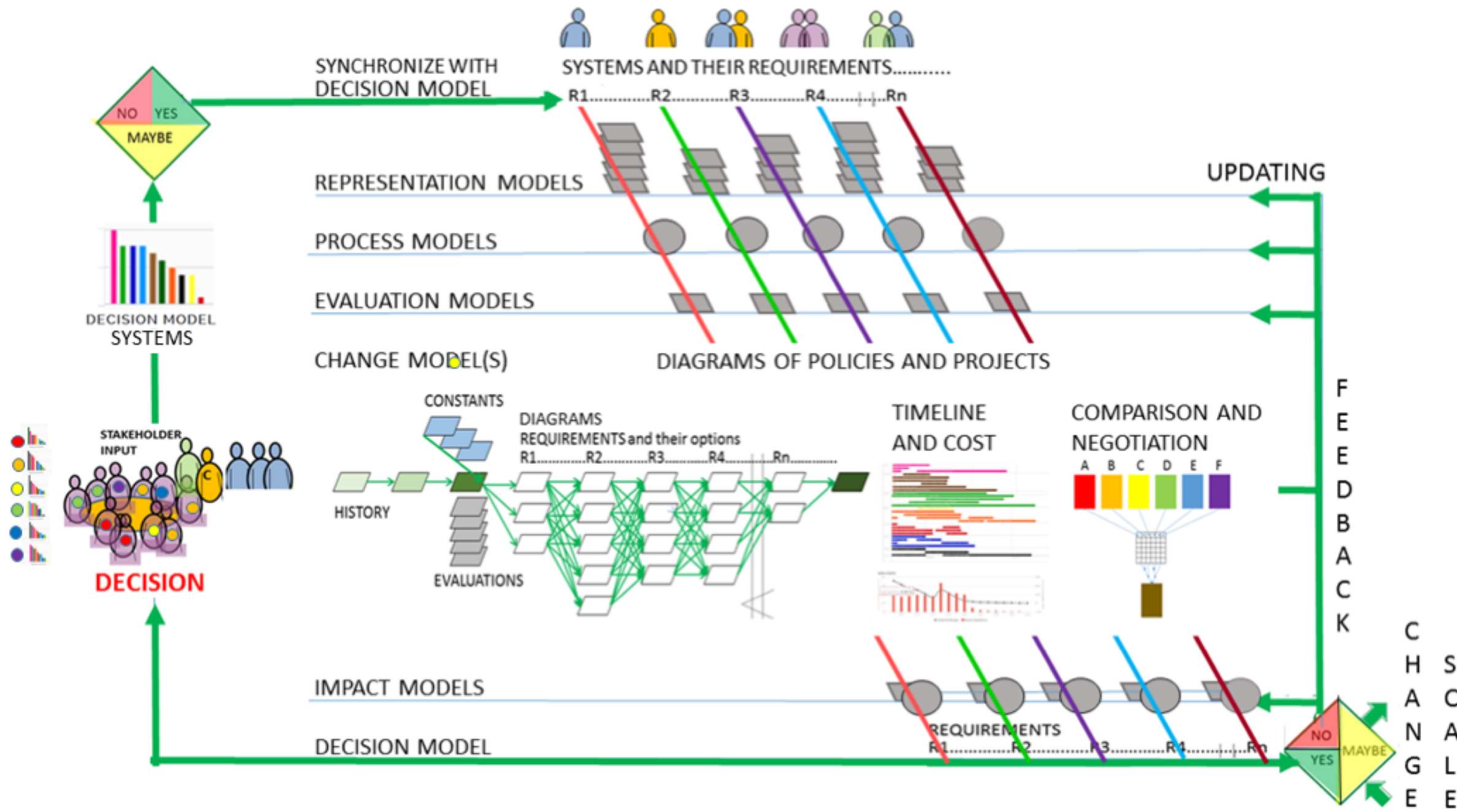
The study groups were asked to identify system innovations that will occur by 2035, and others by 2050, that identify useful design and planning response strategies to address anticipated system changes.

The following posters illustrate and share ideas; the key elements of an innovation description are a brief description, key website URLs and illustrations. Participants chose whether to adopt a particular innovation for their project, and how to design or plan for it. Project posters indicate the Innovations that were adopted in the designs.

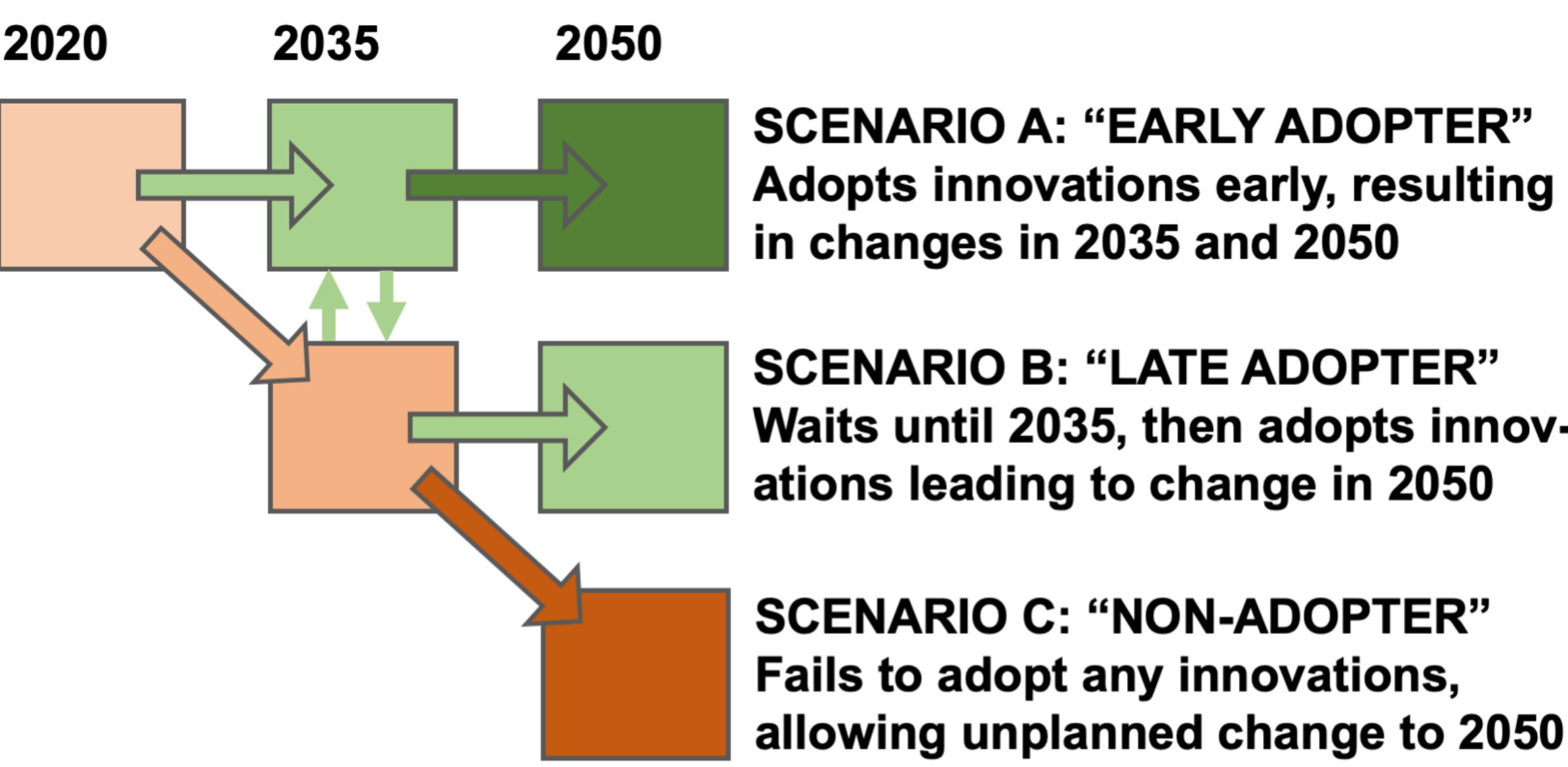
IGC SYSTEMS, SCENARIOS, WORKFLOW AND SCHEDULE



A WORKFLOW FOR GEODESIGN



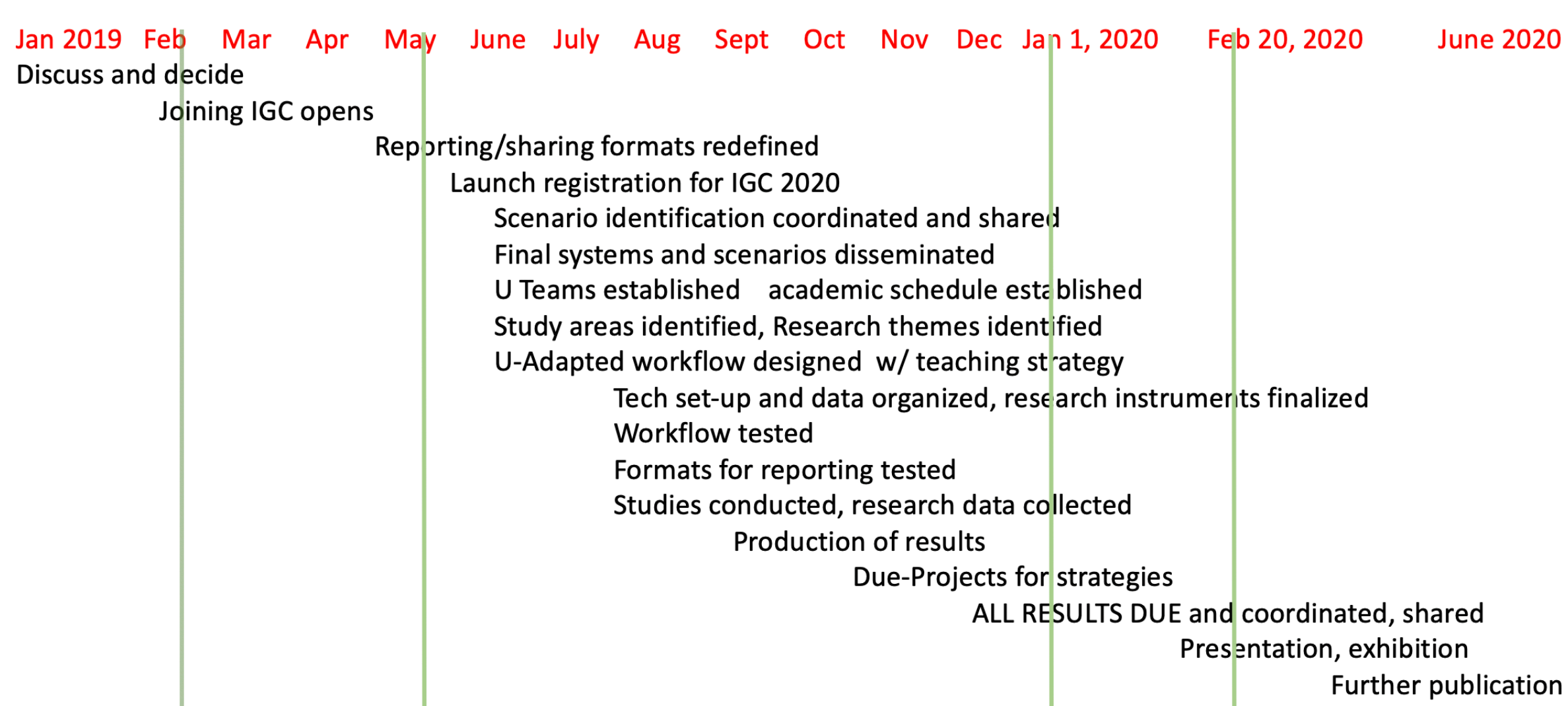
IGC SCENARIOS AND TIME STAGES



TEN GEODESIGN SYSTEMS – EIGHT REQUIRED, TWO OPTIONAL

Water Infrastructure	RGB: 113 184 255	RGB: 175 215 255	Ocean, Rivers and Lakes
		RGB: 113 184 255	Water supply, treatment, recycling
Agriculture	RGB: 194 230 153	RGB: 194 230 153	Agriculture
		RGB: 120 198 121	Forestry
Green Infrastructure	RGB: 49 163 84	RGB: 49 163 84	Recreation
		RGB: 0 104 55	Conservation landscape
Energy Infrastructure	RGB: 205 50 155	RGB: 225 140 200	Energy production
		RGB: 205 50 155	Energy distribution
Transport Infrastructure	RGB: 90 90 90	RGB: 90 90 90	Rail, airport, ship port transport
		RGB: 55 55 55	Road transport
Industry and Commerce	RGB: 116 45 159	RGB: 175 111 215	Industry – light, and Commerce
		RGB: 116 45 159	Industry – heavy
Institutional	RGB: 36 73 110	RGB: 255 230 153	Residential - Rural
		RGB: 255 204 0	Residential - Low Density
Residential, mixed	RGB: 218 128 28	RGB: 218 128 28	Residential - Medium Density, Mixed
		RGB: 132 60 12	Residential - High Density, Mixed
		RGB: 59 119 179	Institutional - Government, Military
		RGB: 36 73 110	Institutional - Education, Healthcare
		RGB: 235 130 125	Commercial, Offices
		RGB: 222 45 38	Commercial, Shopping
		RGB: 0 166 162	Tourism, Cultural
		RGB: 0 102 102	Tourism, Historical
		RGB: 225 182 113	Special landscape e.g. Desert,
		RGB: 115 155 50	Special landscape e.g. Mangrove

THE IGC SCHEDULE



GEODESIGN PERFORMANCE VS. U.N. SUSTAINABLE DEVELOPMENT GOALS

Sustainable Development Goals	Early adopter										SUM
	WAT	AGR	GRN	ENE	TRAN	IND	INST	RES	flex	flex	
1: No Poverty	0	3	3	1	1	1	0	0	0	0	9
2: Zero Hunger	0	3	1	1	3	1	0	1	1	1	12
3: Good Health and Well-being	3	1	3	0	0	0	1	1	0	1	10
4: Quality Education											
5: Gender Equality											
6: Clean Water and Sanitation	3	-1	3	3	0	1	-1	3	0	3	14
7: Affordable and Clean Energy	0	0	1	3	1	0	0	3	0	3	11
8: Decent Work and Economic Growth	-1	1	0	1	3	3	0	3	3	3	16
9: Industry, Innovation and Infrastructure	1	1	0	3	3	3	1	3	0	0	15
10: Reduced Inequality											
11: Sustainable Cities and Communities	3	3	3	3	1	3	0	3	3	1	23
12: Responsible Consumption and Production	0	1	1	1	0	0	0	3	0	3	9
13: Climate Action	0	0	3	3	0	1	1	1	0	1	10
14: Life Below Water	3	-1	1	0	0	0	-1	-1	0	-1	0
15: Life on Land	1	1	3	1	-1	-1	3	-3	-1	-3	0
16: Peace and Justice Strong Institutions											
17: Partnerships to achieve the Goal											
Most beneficial	3	1	0	-1	-3						129

IGC 2020 WORKFLOW

