



Arctic Foresight Simulator

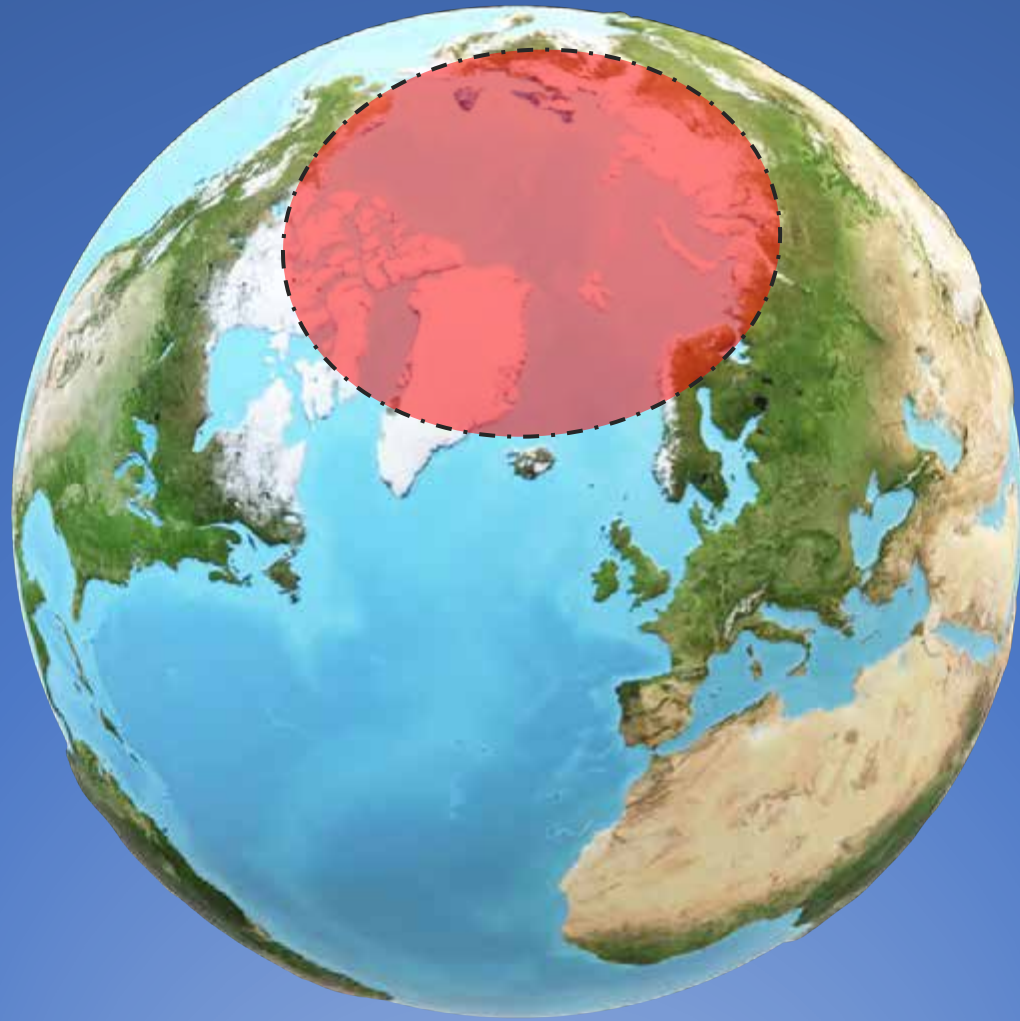
2023 International System Dynamics Conference

Chicago Illinois, USA. July 23 – 27.

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Ivan Taylor, Policy Dynamics Inc. (ivan@policydynamics.ca)









Gas



Oil



Shipping Routes





The Arctic is at Risk



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Dynamic Hypothesis

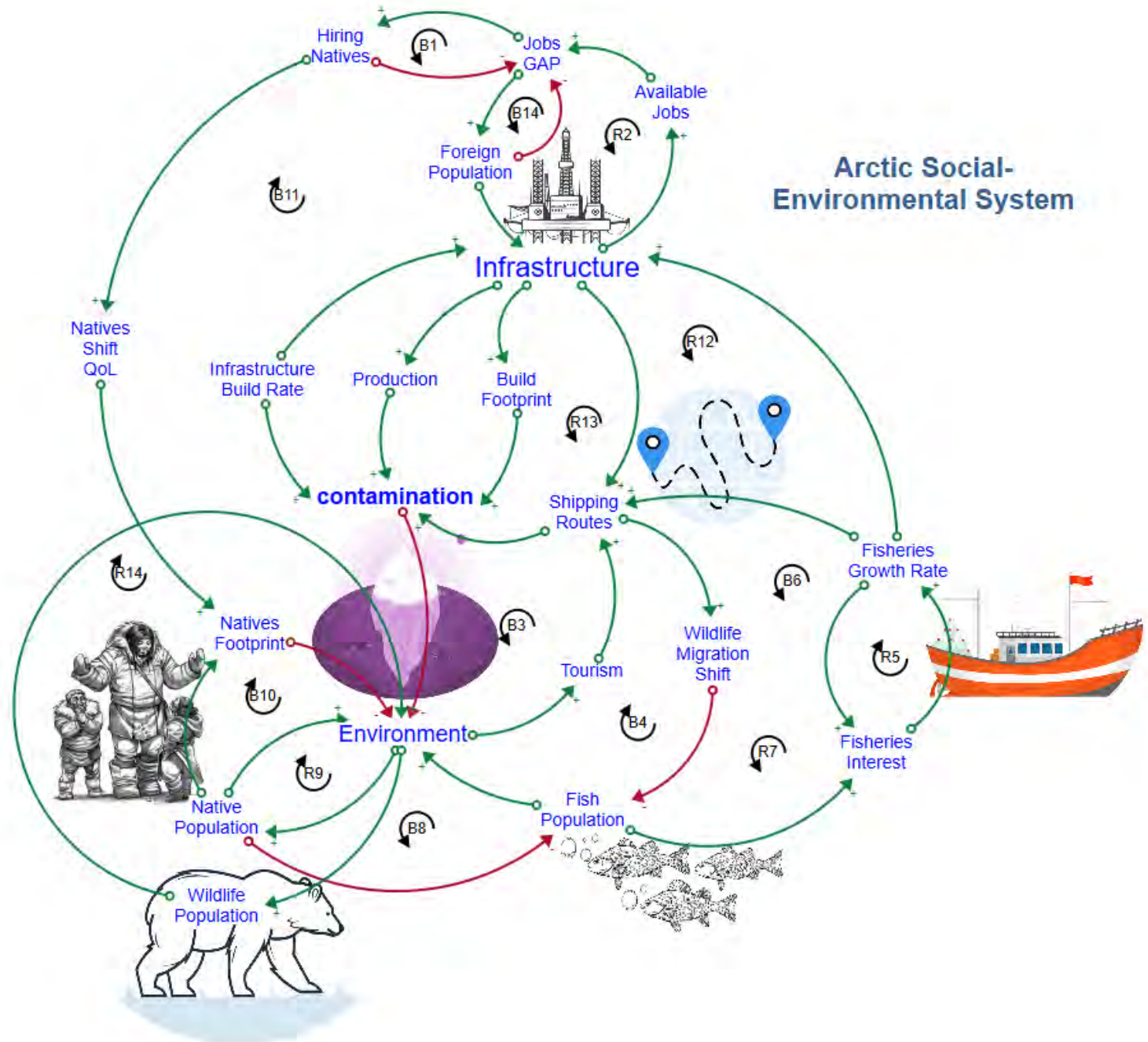
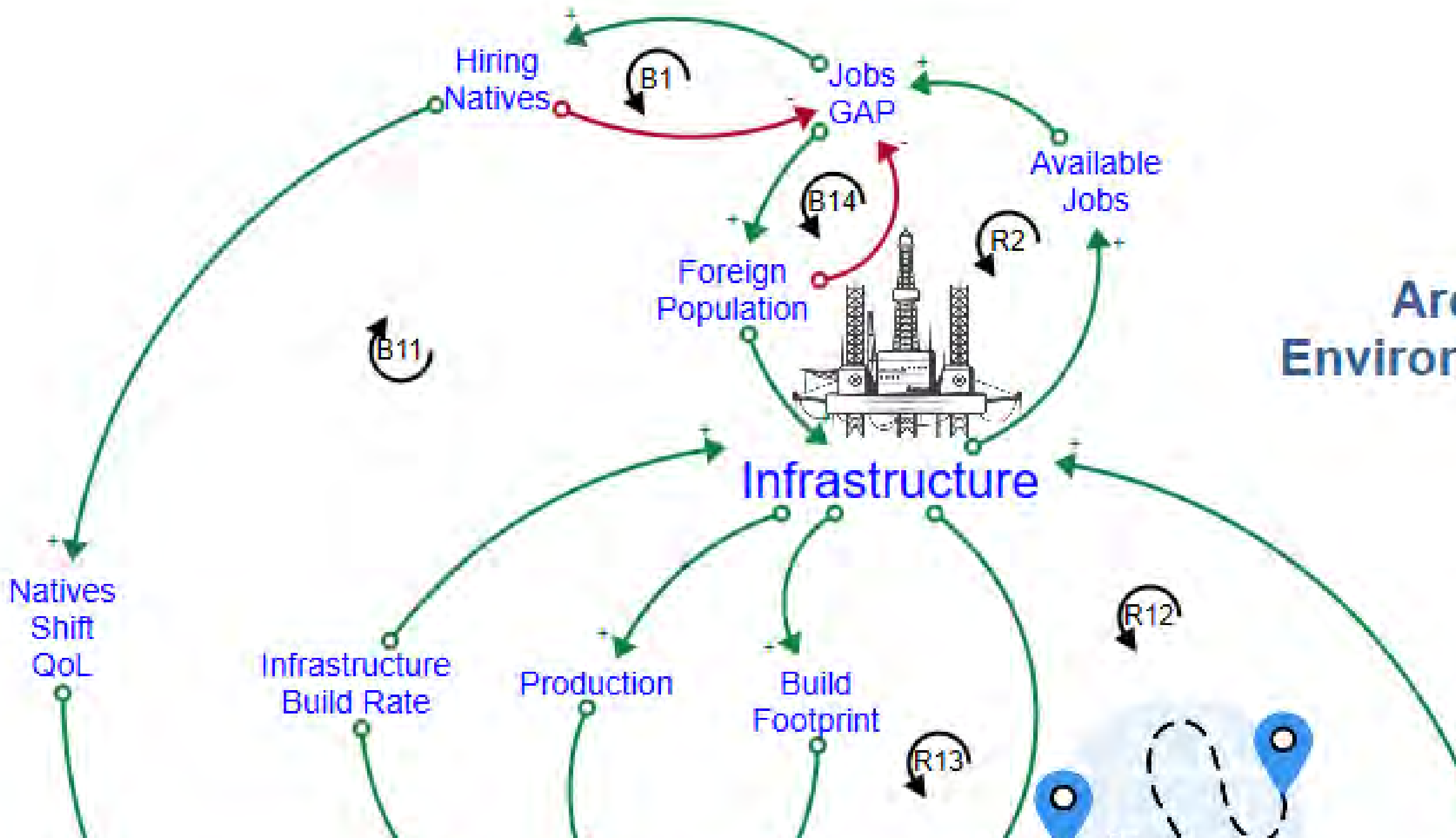
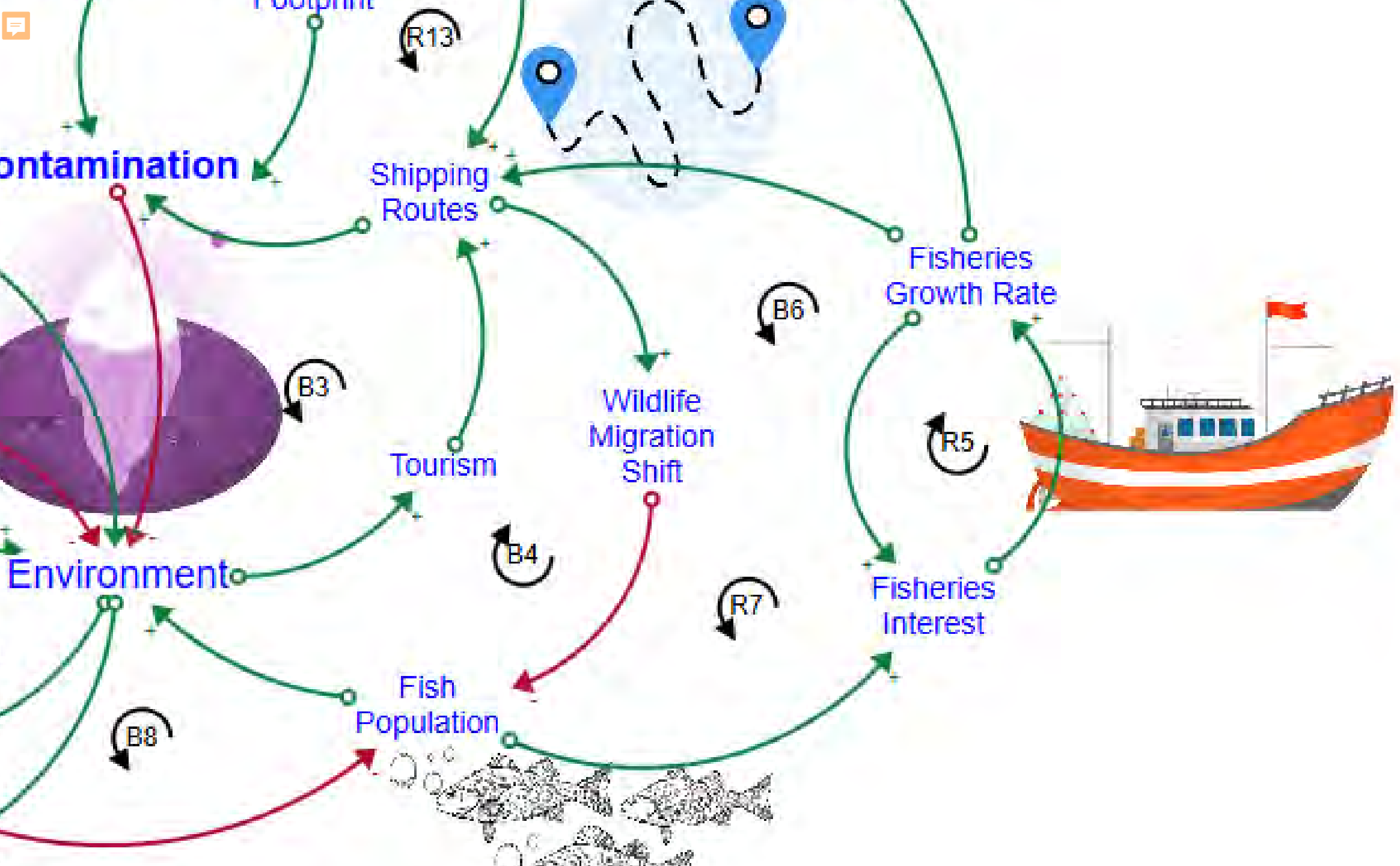
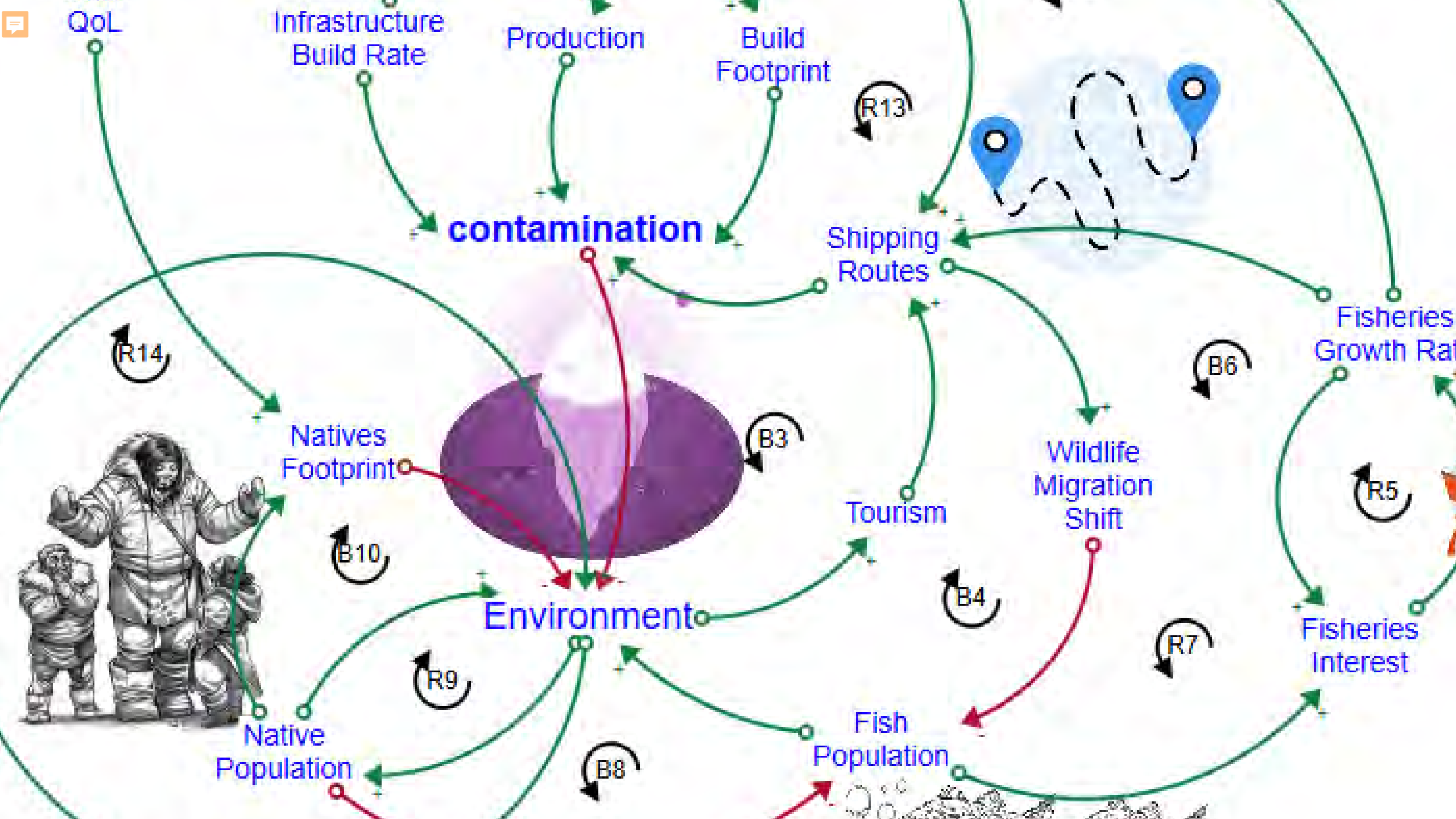


Image 1: Arctic So-Env Causal Loop Diagram, Own Elaboration.



Ar
Environ





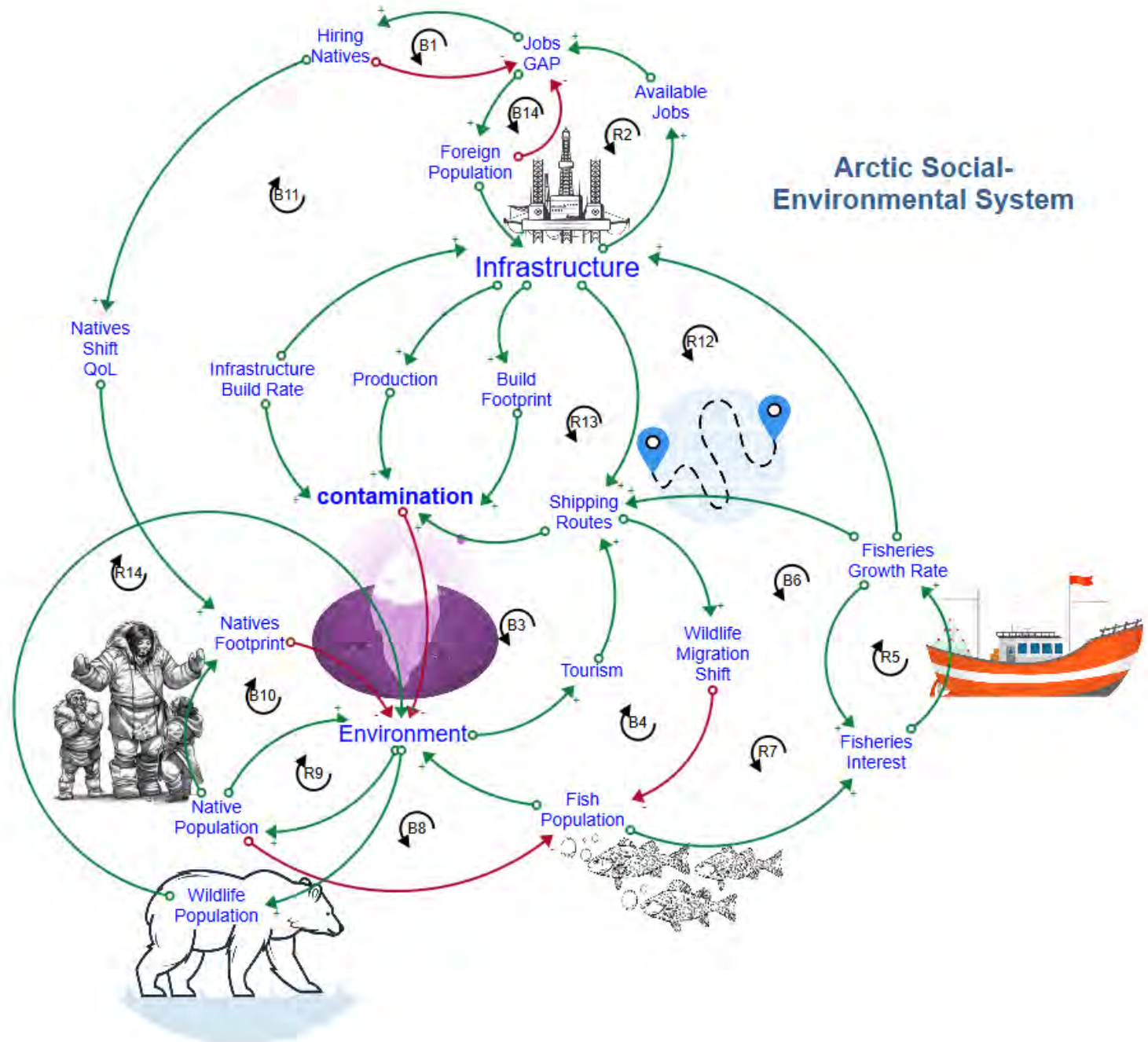


Image 1: Arctic So-Env Causal Loop Diagram, Own Elaboration.



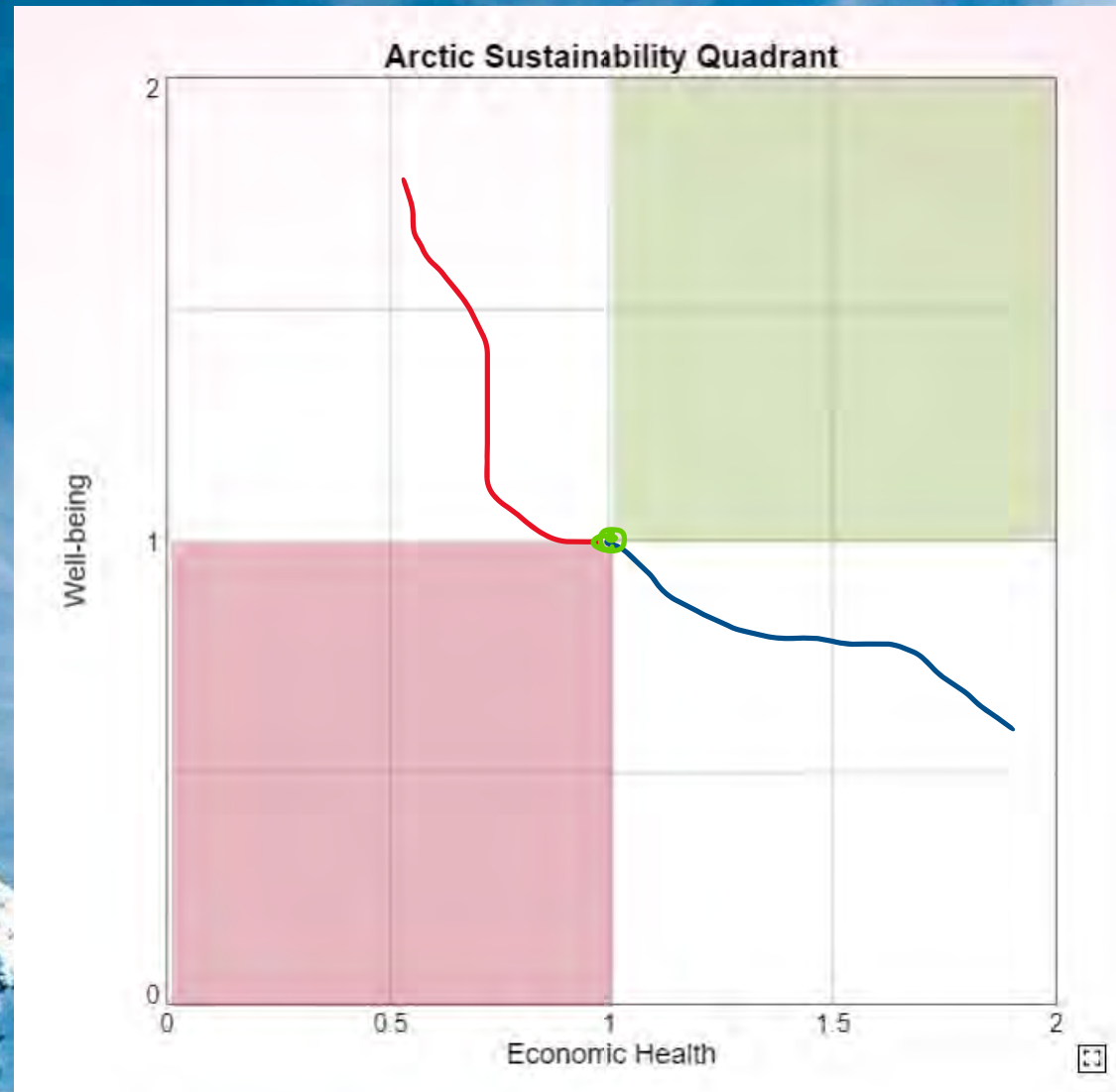
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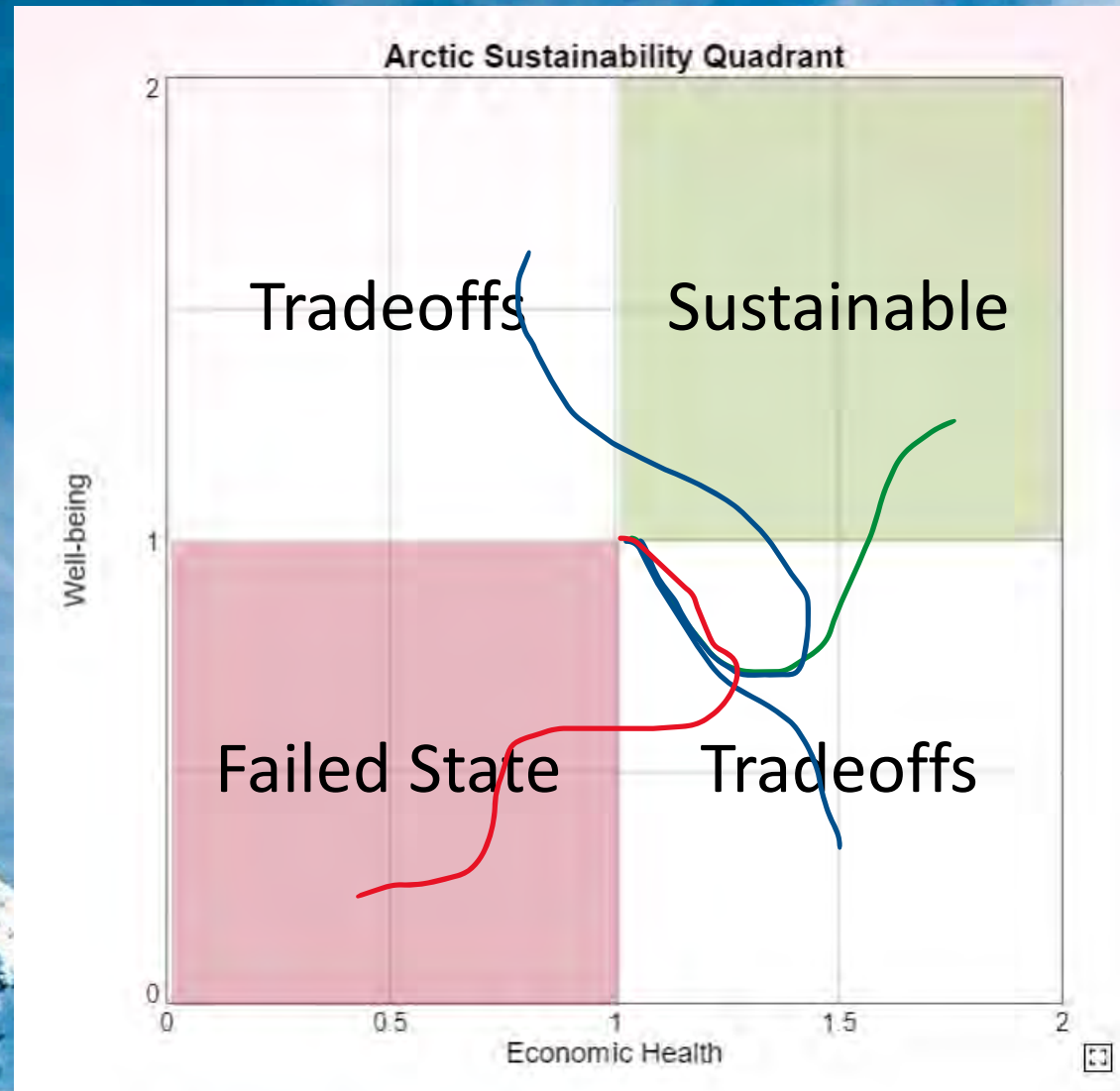
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Designed Policies











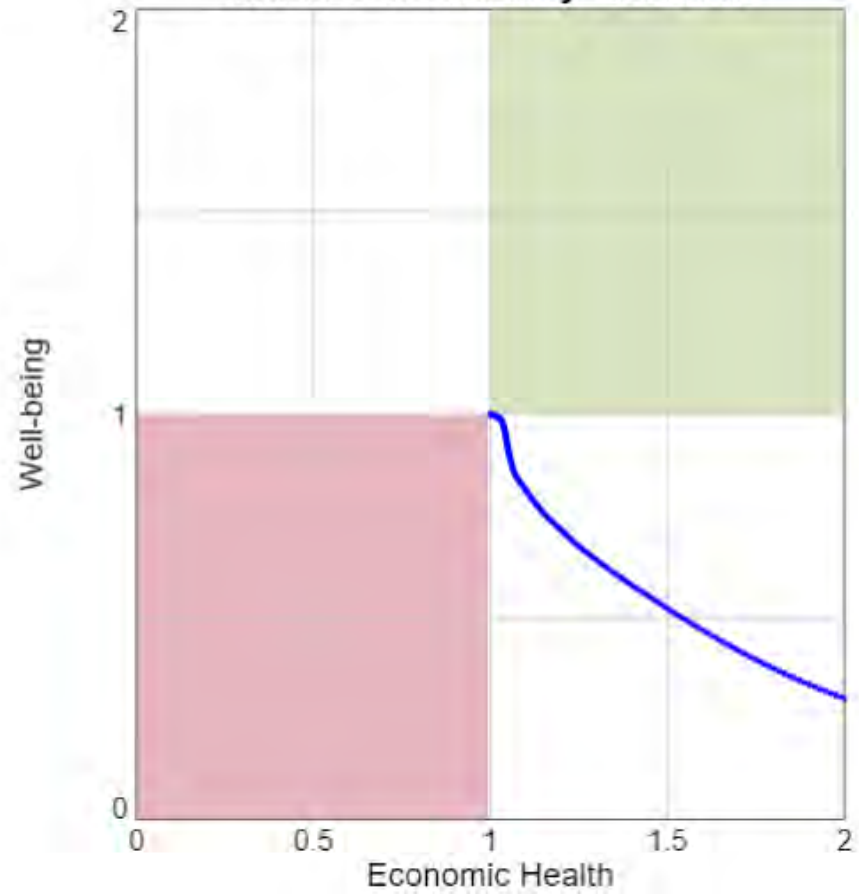
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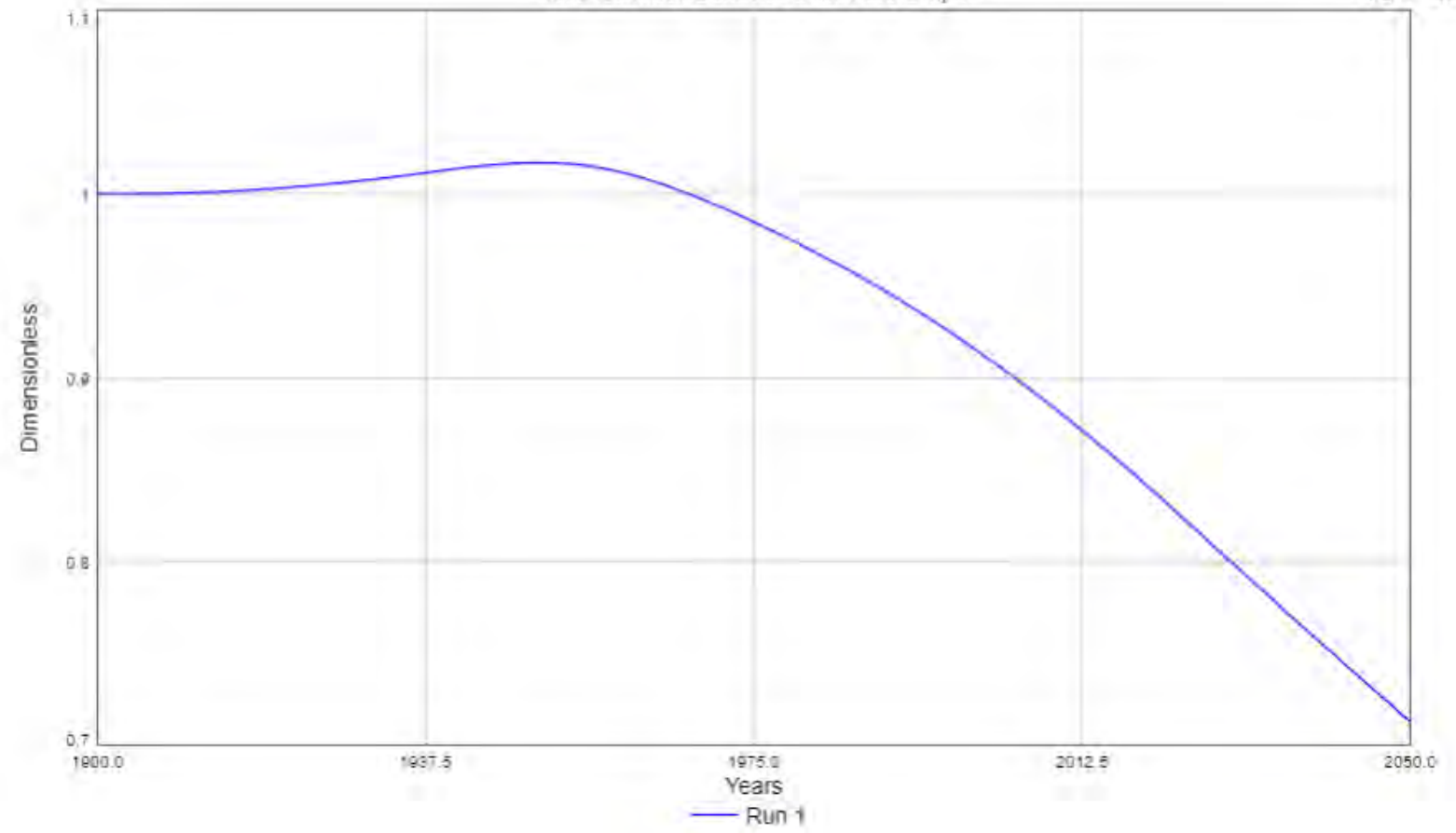
Designed Policies



Arctic Sustainability Quadrant



Total Ice Index Behavior Over Time Graph



Continental
Ice
Regeneration
Rate

Environment
Regeneration
Rate

Ice Lifespan

Ice
Regeneration
Rate

Environment
Lifespan

Infrastructure
Build Rate

Foreign
Population
Arrival Rate

New Shipping
Routes Design
Rate

New Ship
Launch Rate

Infrastructure
Lifespan

Foreign
Population
Residency
Time

Shipping
Routes
Lifespan

Ship Lifespan

Wildlife Birth
Rate

Wildlife
Migration Rate

Fish Birth Rate

Native
Population Birth
Rate

Wildlife
Lifespan

Wildlife
Poaching

Fish Lifespan

Fish Migration
Rate

Native
Population
Lifespan



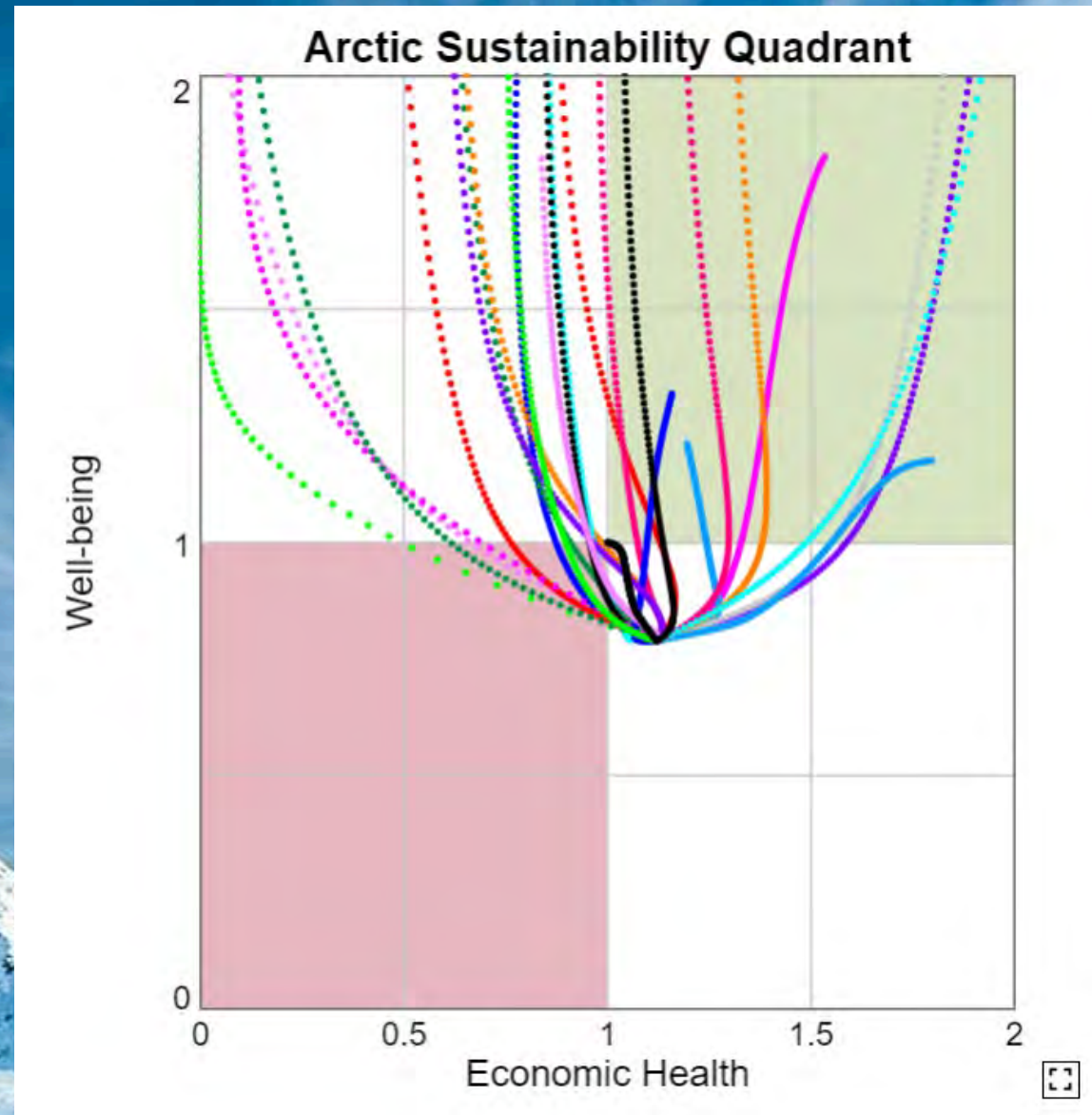
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Environment
Policies

Industry Policies

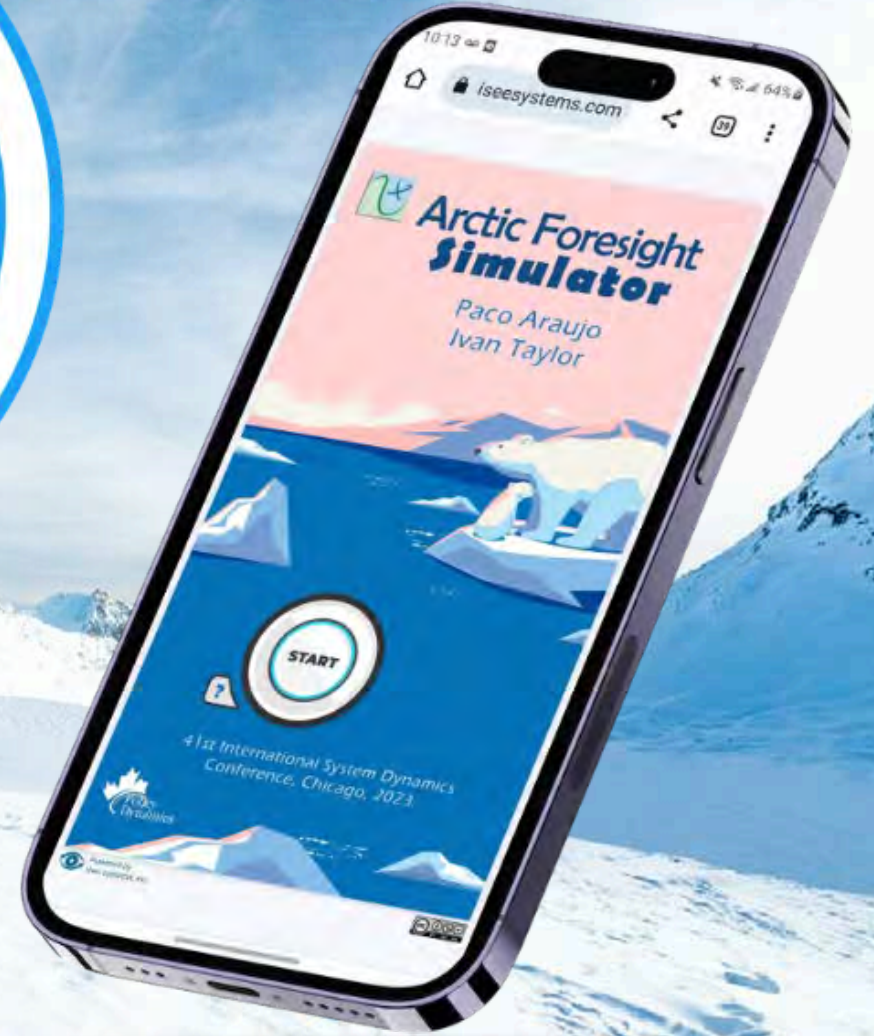
Native Policies





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Gracias!