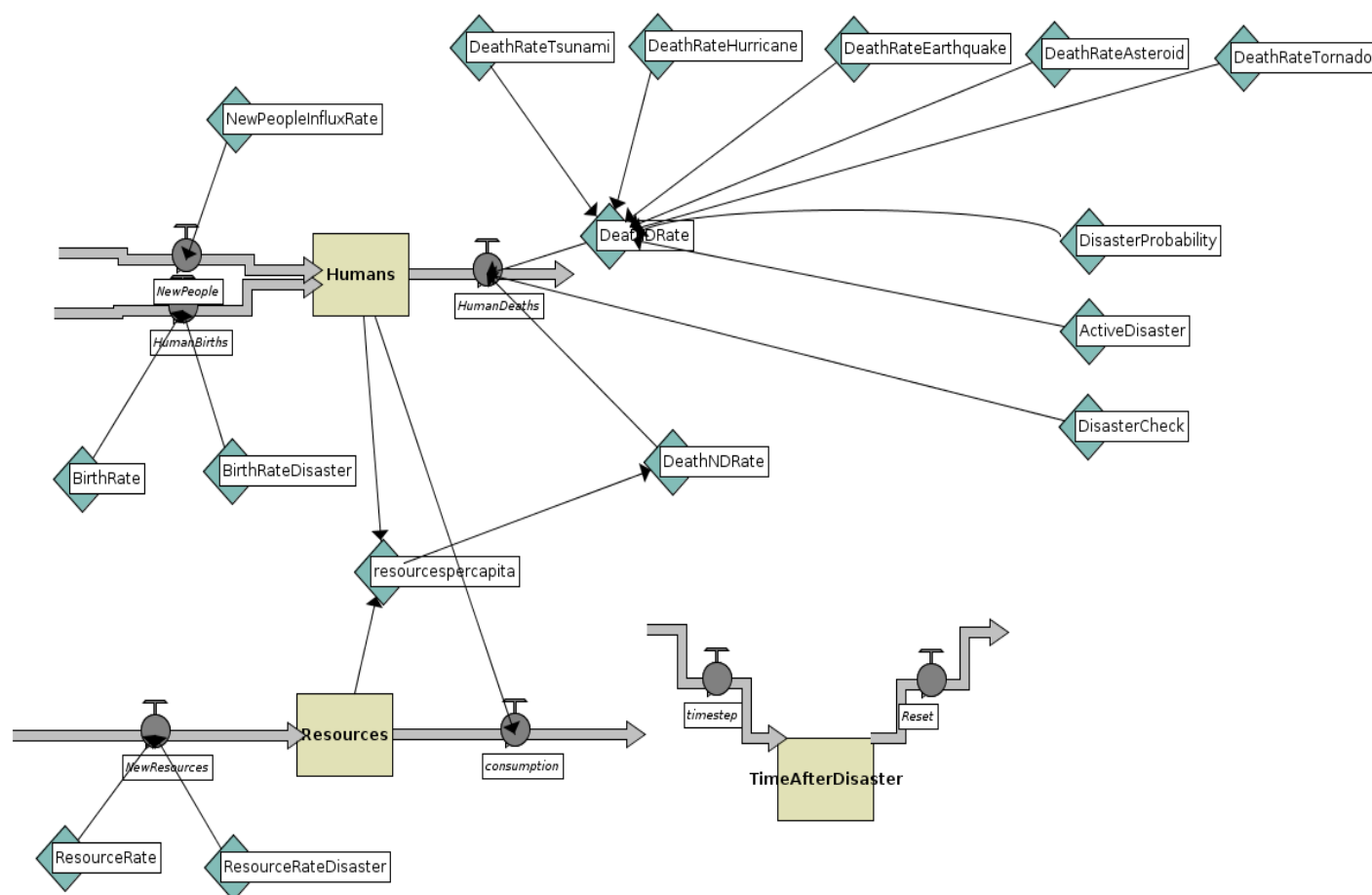


Modeling the Effects of Disasters on a Human Population and Resources

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Introduction

Recently, over the past decades, numerous disasters have struck all over the world, and this project is an attempt to not only to model these effects of disasters on human populations accurately, but also to extrapolate the effects of future disasters on a nearby human population using System Dynamics.



The System Dynamics Approach

How would a disaster affect a human population, the resources it uses, and the recovery of a population? These questions can best be answered using System Dynamics. By making an interconnected web of relationships, as shown to the right, data can be simulated accurately and later extrapolated.

Development / Methodology

The whole basis of this project is in a language called NetLogo. NetLogo offers two coding interfaces: Agent-based modeling, and system dynamics. System dynamics is preferably used here because a disaster is a large event, which affects a population as a whole, as opposed to individuals like in agent-based modeling. To create such things like the logistical population curve on the right, and the recovery curve as shown below, relationships among variables are created in a flow chart as shown above. The creation of relationships offers the option of creating dynamic behavior without "hard coding" behavior. Currently, the human population grows and behaves as a normal disaster free should function and regrows at a reduced rate after a disaster.

