ECHO Screen: A spatial assessment tool for quantifying cumulative effects to environment, community and health

Nicholas Yarmey[1], Dr. Lars Hallstrom[1]
[1]*Prentice Institute for Global Population and Economy, University of Lethbridge, Canada*

Introduction

Resource extraction and associated land uses impact both humans and the environment in complex ways, but the corresponding **costs and benefits are not distributed equally across space**.

Objective

Identify communities **where environmental degradation and social deprivation intersect**, indicating heightened burden of cumulative effects (CE).

Methods

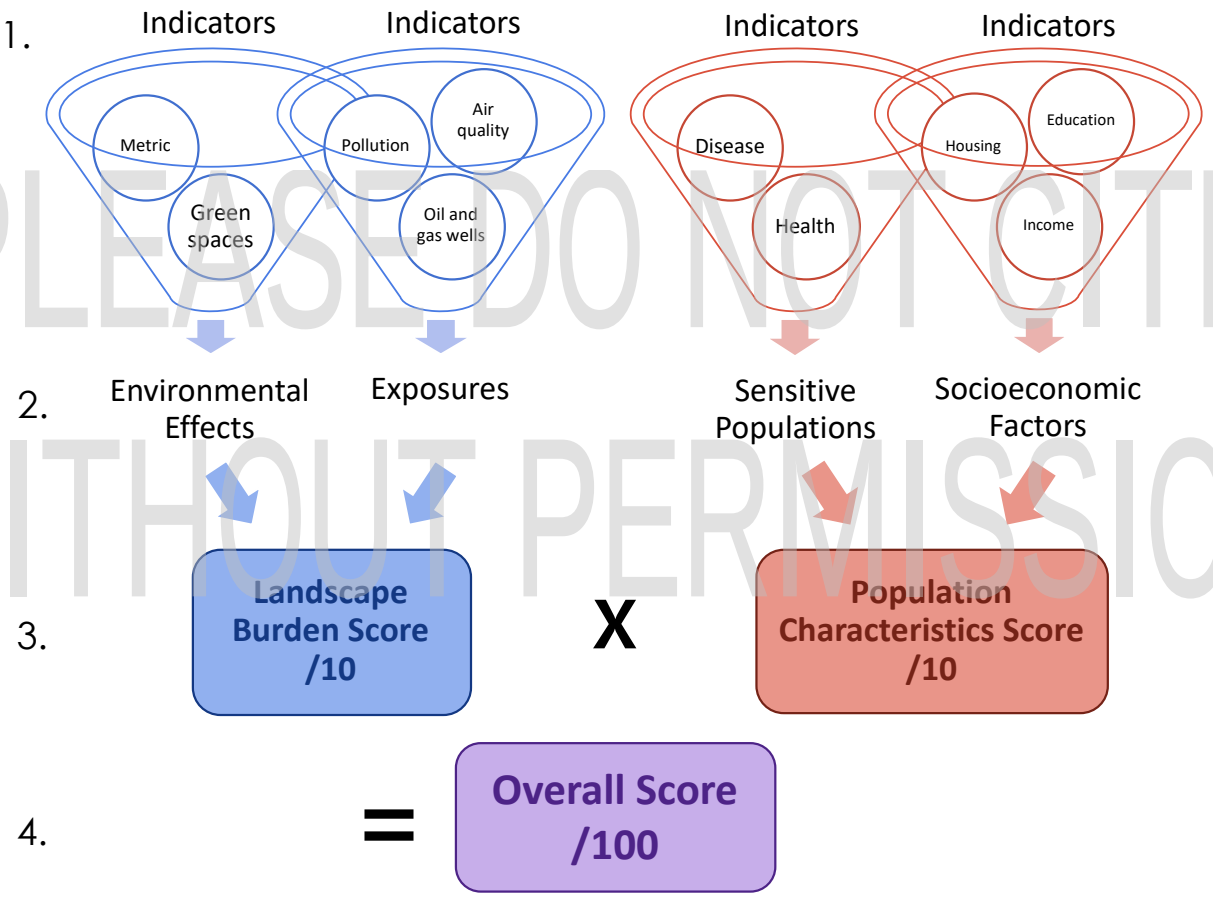

Fig 1. **Data reduction steps** to calculate vulnerability scores. Indicators were standardized creating percentile ranks (1), then averaged to create four sub-indices (2), which aggregated up to two indices (3). The Landscape and Population indices were multiplied to create the Overall Score (4).

Results

Final scores were mapped in an interactive Shiny app. **View the prototype at**:

bit.ly/echo-screen

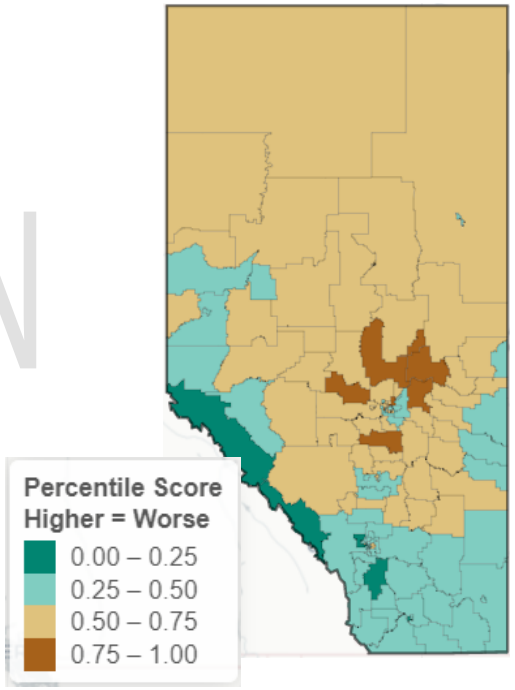

Fig 2. **Overall vulnerability score** for Alberta municipalities. Dark brown indicates greater vulnerability.

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Funding from: Canadian Institutes of Health Research
Environment Community Health Observatory Network | Réseau observatoire sur l'environnement les communautés et la santé
the Prentice Institute for Global Population and Economy