Chemical Health Risk Identification System (CHRIS)

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Background

Motivation:

- 785 million people without clean water
- 3.4 million people die from waterborne illnesses each year
- Many communities cannot afford water quality testing

Mission:

- Create an **interactive tool to evaluate potential risks** in water sources to **help low-socioeconomic communities** address exposure risks with appropriate treatment options

Literature Review

Scope:

- 132 papers were reviewed for India
- 52 papers were included in the database

Inclusion criteria:

- The paper is relevant to chemical contamination in drinking water (groundwater and surface water)
- The paper links chemical occurrence to the source of contamination (e.g., nearby industry/agriculture)
- An intervention or treatment method for specific chemical toxins is recommended

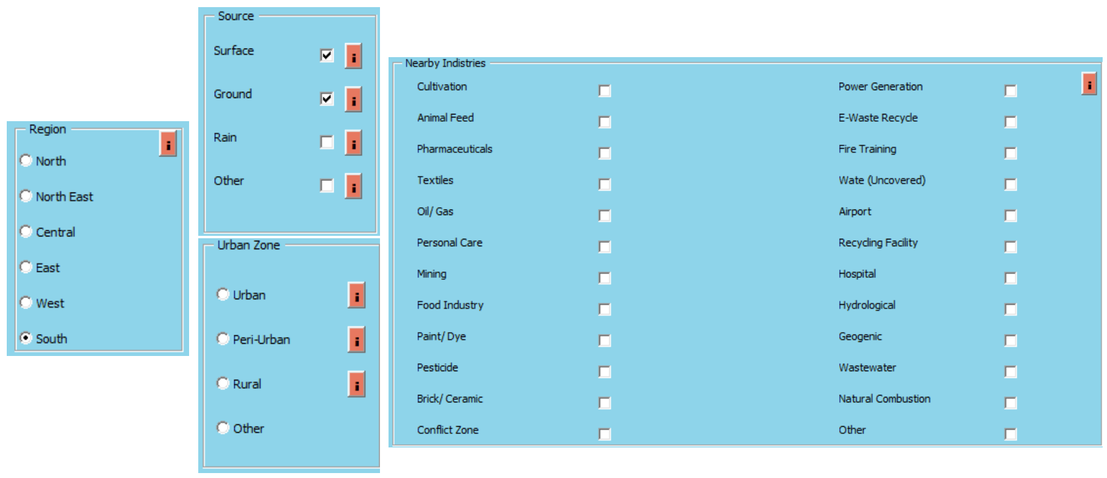
Next Steps

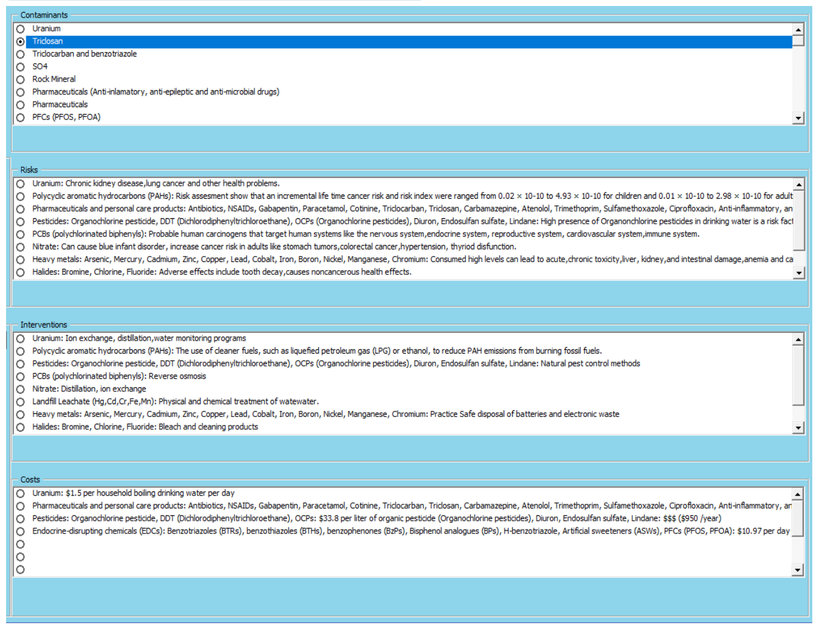
- Expanding functionality of CHRIS through a web or application
- Inclusion of additional contaminants, risks, and interventions through continued literature review
- Expanding database to include additional countries in literature review
- Improving risk prediction and recommended interventions based on literature review and water quality data

Excel VBA – Fully-Functional Alpha Version

Input

Region
Location
Source
Source of water
Urban Zone
Population density
Nearby Industries
Industrial facilities



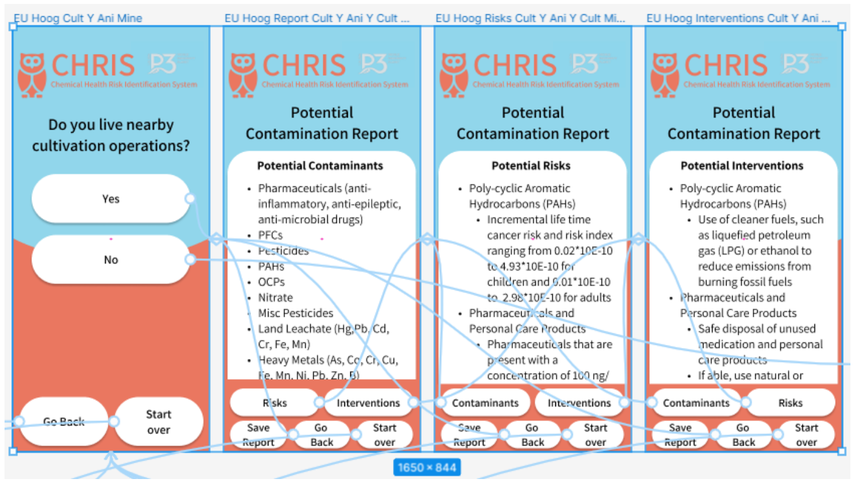


Output

Contaminants
Potential contaminants in drinking water source
Risks
Risks from contact with contaminants
Interventions
Treatments for contaminants
Costs
Cost of interventions

Figma – Interactive Prototype

Prototype View



User View of Application