## An assessment of the combined risk to human health from flooding and poor sanitary conditions in the community of Gbegbeyise in Accra.

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# **Outline of presentation**

- Background of the study
- Main objective
- Research approach and methodology
- What has been done so far
- Next step(s)



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### Background to the study

Flooding has become a perennial phenomenon in lowlying areas in Accra

Pollution of streams by waste discharges identified as part of the major environmental problems facing the city.

The situation is bad in poor and highly populated communities e.g. Gbegbeyise and may be aggravated due to climate change.



Besides stress, worry, loss of property...., one main cost rarely quantified is the health risk to population living in these areas.

This is the first step to find ways and means of containing the related health implications.

Specific risk assessment goal To assess the combined risk to human health from flooding and poor sanitary conditions in the community of Gbegbeyise in Accra.





#### **Research approach and methodology**

#### Hazard identification

- System under evaluation (flooding, sanitation, diseases etc.)
- Etiological agents and their characteristics (growth conditions etc.)
- Exposed population/groups
- Identification of risk factors
- Exposure routes
- Health outcome (types of disease/severity of the illness/difficulty in controlling the illness etc).



#### Approach to be adopted

- Detail review of literature (QMRA in flood prone areas)
- Historical data (Health of community and flood incidences)
- Health or transect walks
  - Interviews of key informants and community members.
  - Questionnaires (checklist for the key informant)
  - Expert knowledge



Sample collection for laboratory analysis under different risk scenarios:

- Heavy rainfall event and flooding
- Less rainfall

Sampling sources to be determined

Potential pathogens (reference pathogens:

- o E. coli,
- o Salmonella,
- Helminth eggs in soil in water



#### **Exposure assessment**

Exposure routes

- Direct ingestion of water
- Accidental ingestion of soil by children/worker etc.
- Ingestion of water/soil through surface to hand to mouth contact

Exposure frequency and duration Exposure volume (kg/ml) Number of people exposed / annual infection risk



#### Approach

- Review of literature
- Health or transect walks (Interviews, Questionnaires, Expert knowledge)

#### **Dose response analysis**

Fitting the appropriate dose response model (appropriate models will be selected from the dose response relationships)



### Healthwalk (an adaptation of *transect*)





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# What Next???

- Population of the study community
- Historical data
  - Health of community
  - flood incidences
- Rainfall events
- .....????



