Description of Services
GeoAdaptive LLC
Boston, USA

Public Health

Overview

Improving community's health is a key element in promoting sustainable forms of development. Understanding geographic patterns, including the arrangement of health services and nature of environmental threats, is crucial to assessing the inherently interrelated risks to public health.

GeoAdaptive's Public Health sector provides an analytical insight to improve health of the community by identifying the geographical element, "where". Public health problems are spatially dependent and GeoAdaptive address public health solutions by thinking:

- Where are people exposed to greater health risks from the natural and built environment?
- Where are the areas with disproportionately lower access to medical services?
- What are the correlation between environmental factors and human health behaviors at global, national, regional and local level?

Location-specific analyses have become a powerful mechanism for policy makers, not only for conveying information and synthesizing data from multiple sources, but for leading to new and precise approaches for interpreting and intervening urban and rural regions.

Our multidisciplinary approach ensures importance of context, setting and spatial scale- from global to local- in determining health outcomes. We support public health in diverse ways, including mapping, monitoring and modelling infectious and chronic diseases, disease surveillance and outbreak detection, emergency preparedness, and targeting interventions and health promotion initiatives.
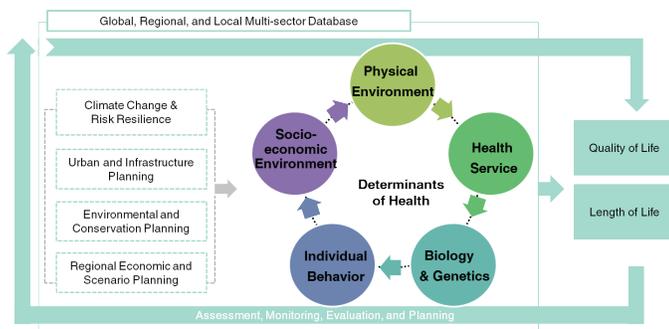

Figure 1. Public Health Conceptual Framework (GeoAdaptive,2016)

What We Do

Specific Areas of Public Health Focus Include:

1. **Preventive Health Service Planning**
- Appraise whether current health service facilities are located in physically and socially suitable areas
- Analyze inequalities in availability of health care providers and level of service for populations facing health disparities
- Identify spatial factors limiting access to health care services

2. **Epidemic Risk Prevention Analysis**
- Predict and detect infectious disease (e.g. vector-borne disease) risk zones based on geographic outbreak pattern
- Identify hot spots for chronic diseases (e.g. breast cancer) to support the development of prevention strategies
- Associate clusters of diseases and correlation with socioeconomic indicators

3. **Strategies for Health Disparity and Unsustainable System**
- Evaluate and target bulit environment interventions to increase population's physical activity
- Analyze inequalities in availability of health care providers and level of service for populations facing health disparities
- Identify spatial factors limiting access to health care services

4. **Strategies for Health Impacts of Environmental Changes**
- Identify distribution of air and water pollution and assess the relationship with human health (e.g. population with asthma)
- Develop flood hazard projections and identify the relationship with vector-borne disease risk
- Assess health vulnerability to climate change

GeoAdaptive
Spatial Technologies + Strategies

Services

GeoAdaptive offers a wide range of consulting services to design and implement sustainable and market-based public health analytics. Our goals for public health are to improve access to high-quality care, reduce inequities, and identify mitigation measures for environmental health risks.

The Nature of Analytics:

- Incorporate multi-sectoral databases in global, regional, and local protocols to improve data integrity
- Apply qualitative and quantitative analysis to answer clients' research questions
- Provide spatial statistical results to provideclients with reliable indicators for decision-making
- Enable multi-sector involvement in improving health and wellness through actionable recommendations
- Support policy development for equitable health systems
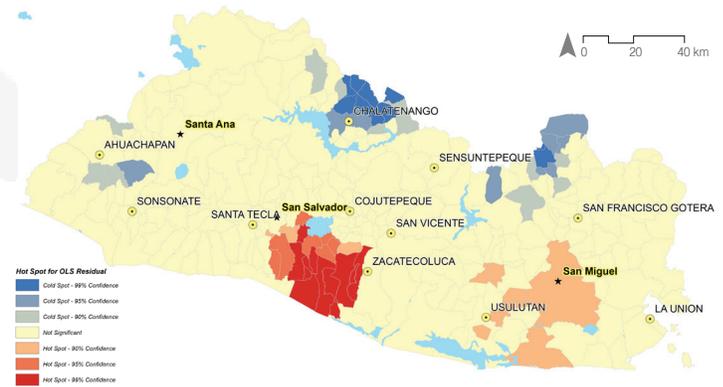- Align health programming with social investing to maximize benefits to public health + human capital

Figure2. Result from regression analysis between built environments and health-deprived population with high fatality rate in El Salvador. Map shows residual clusters that show over and underpopulated areas with health disparity

Service Access	Fatality Population Distribution
Housing with water supply	-0.035
Housing with sanitation	-0.150
Housing with waste management	-0.130
Travel time to bazar	0.080
Travel time to Unidades de Salud	0.100

Note: Coefficients range between -1 indicating significant negative linear dependency and +1 indicating significant positive linear dependency

Table 1. Regression result between health outcome (fatality rate) and housing conditions in El Salvador (GeoAdaptive, 2016)

Experience With Clients

We have expereince with global clients across North, Central, and South America, and Africa, where we work to improve geographic access to health care, reduce health inequalities, and improve health outcomes

Inter-American Development Bank (IADB)

Socio-economic analysis of prioritize territories for the Northern Triangule in Guatemala

Project Goal:

Identify the main socio-economic and development challenges and link them with infrastructure and services needs in order to secure a sustainable development of the region

Our Contribution:

We conducted an analysis to evaluate access (travel time) to municipal clinics and comprehensive hospitals. Results highlighted an urgent need for comprehensive clinics, which helped our client to enhance health policy decision making. Also, identifying areas with limited health facilities emphasized the need for public health services to enable human capital development.

Stanford University Woods Institute for the Environment

Developing a sustainable future for the region of Osa and Golfito

Project Goal

Develop a participatory process to define in coordination statekholder a series of spatial scenarios that represent the most relevent plans, assumptions and conditions that could shape for the region.

Our Contribution:

Coordinate and develop the future scenarios to include an analysis of public health services - as a determining factor for the sustainability for the region. This includes an spatial census-based evaluation of population health determinants, location and access to health services and infrastructure, as well as an analysis of the spatial dependent factors for the most critical health conditions.