Hydrogeological Favorability

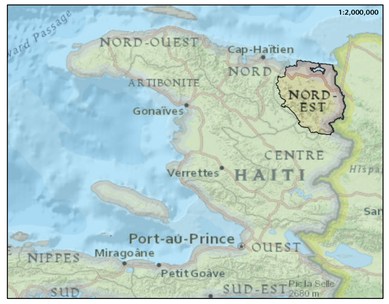
Department Nord-Est
Republic of Haiti
V 1.0

1:100,000

0 1,000 2,000 4,000 6,000 Meters

Prepared By:
NORTHWATER CONSULTING INTERNATIONAL

IN PARTNERSHIP WITH:
HAITI OUTREACH
LA DIRECTION NATIONALE DE L'EAU POTABLE ET DE L'ASSAINISSEMENT (DINEPA)
CENTRE NATIONAL DE L'INFORMATION GÉO-SPATIALE (CNIGS)



NORTHWATER CONSULTING · HAITI OUTREACH · CNIGS · RÉPUBLIQUE D'HAÏTI DINEPA Direction Nationale de l'Eau Potable et de l'Assainissement

Hydrogeological Favorability

Good

Most of this area consists of unconsolidated sedimentary hydrogeological environments. Yields ranging from very small to very large are possible from beds of sands, gravels and coarse colluvial deposits. Morphological aptitude of the land, geological suitability (permeability/formation hardness) and water quality considerations also contribute to a positive favorability.

Moderate to Good

These zones predominately consist of unconsolidated sedimentary and consolidated sedimentary hydrogeological environments, some areas contain dissected plains of crystalline igneous rock with increased fracturing potential. Yields ranging from meager to large are possible within sands and gravels or within weathered zones, fracture zones, cavities or permeable beds of consolidated rock formations. Morphological aptitude, geological suitability and water quality considerations are generally favorable.

Moderate

These zones mostly consist of consolidated sedimentary and crystalline hydrogeological environments. Possibilities exist for yields that range from unsuitable to large, dependent on intersecting weathered bedrock zones, or networks of fractures and cavities. Favorability is moderate also due to the potential hardness of rock formations, possibility for physical water quality impairments and morphological aptitude of the land.

Low

These zones mostly consist of consolidated sedimentary and crystalline hydrogeological environments. Possibilities exist for yields that range from unsuitable to moderate, dependent on intersecting weathered bedrock zones, or networks of fractures and cavities. Favorability is low also due to the potential hardness and impermeability of rock formations, possibility for physical water quality impairments, morphological aptitude of the land, and drilling depths that may require greater than 100 meters.

Very Low / Unsuitable

These zones mostly consist of consolidated sedimentary and crystalline hydrogeological environments where groundwater and drilling conditions are expected to be the most challenging. Well drilling that targets weathered bedrock zones, fractures or cavities may produce unsuitable to small yields. Favorability is ranked as unsuitable also due to potential Water quality impairments, morphological aptitude of the land, and drilling depths that may require greater than 100 meters.

Water Quality Concern

Area of concern for saltwater intrusion, groundwater quality may exceed 1,000 ppm of total dissolved solids.

Drilling favorability was modeled with geospatial analysis and incorporates the following factors:

1. Hydrogeologic Environment
2. Geological Suitability (rock hardness/permeability)
3. Morphological Aptitude (Landforms)
4. Potential Water Quality Issues

Yield Quantitative Terms:

Large	= > 25 l/s (400 gal/min)
Moderate	= 10 - 25 l/s (160 - 400 gal/min)
Small	= 4 - 10 l/s (60 - 160 gal/min)
Very Small	= 1 - 4 l/s (16 - 64 gal/min)
Meager	= 0.25 - 1 l/s (4 - 16 gal/min)
Unsuitable	= < 0.25 l/s (4 gal/min)

Analysis led by Northwater International and supported by Haiti Outreach, CNIGS & DINEPA.

Additional Data Sources:
GIS data from CNIGS
30m ASTER Digital Elevation Model

Centre d'Etudes et de Réalisations Cartographiques Géographiques (1989) Carte Géologique de la République D'Haiti [Geologic map of the Republic of Haiti]. 4 sheets, scale 1:250,000, Bureau des Mines et de l'Energie, Port-au-Prince, Haiti.

United Nations Development Program (1990) Carte Hydrogéologique République d'Haiti [Hydrogeologic Map of the Republic of Haiti]. United Nations Development Program, New York.

James K. Adamson, PG - Principal Hydrogeologist

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -75.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

The maps and analyses presented are based on limited data, existing resources and supplemental data collected during by the investigators over the course of several years. A degree of care should be exercised in use and application of these maps. This mapping was designed to be general and cost-efficient to achieve budgetary and time restrictions, it is for the purpose of planning and conveying a general understanding of well drilling favorability in the Northeast Department of Haiti.