Allende-Piedras Negras Transboundary Aquifer Project

Annex C
Collected data and Information

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Deliverable 1.2
Annex C

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1. INTRODUCTION

This document describes the data and information collected for the purpose of this project's deliverable 1.2. The project's database contains a comprehensive list of the retrieved information used to produce the extensive technical report, with technical information divided into eight categories: Geology, Hydrogeology, Surface water, Groundwater, Hydro-geochemistry, Environment, Remote Sensing, and Figures. Each domain in the database has a brief summary of its contents, along with information on the institutions from which the data was retrieved and the access URL links. The collected information for each domain is described on the table below with links where available.

Domain	Sub-domain	Description	URL
1 ─ Geology	Geological charts	Geology of Northern Coahuila in pdf format	https://www.inegi.org.mx/temas/geologia/
	Shapefiles	Geology of northern Coahuila and Texas in shp format	https://mrdata.usgs.gov/geology/state/state.php?state=TX
2 ─ Hydrogeology	Boundaries of aquifers	Allende-Piedras Negras boundaries in the Mexico and the U.S. regions in geopackage format. Own elaboration. The source files for the aquifers in Mexico and the U.S. were retrieved from CONAGUA and the TWDB	https://datos.gob.mx/busca/dataset?tags=acuiferohttps://www.twdb.texas.gov/mapping/gisdata.asp
	Palestina aquifer	Groundwater quality for well samples and pumping tests in pdf format. Private information.	LESSER Y ASOCIADOS S.A. DE C.V. 2013.- Estudio geohidrológico del acuífero Palestina (0513), localizado en el estado de Coahuila
	Presa La Amistad aquifer	Pumping tests and transmissivity calculations in pdf and xls format. Private information.	LESSER Y ASOCIADOS S.A. DE C.V. 2013.- Estudio Geohidrológico para Determinar la

Domain	Sub-domain	Description	URL
			Disponibilidad Media Anual, de Aguas Subterráneas de los Acuíferos Presa La Amistad (0522) y Cerro Colorado-La Partida (0503), Localizado en el Estado de Coahuila, Tomo I Presa La Amistad.
	Region Carbonifera aquifer	Pumping tests, transmissivity calculations in xls format.	https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/coahuila/DR_0512.pdf
	Wells	Water levels in Mexico in xls format. Water levels in the U.S. in shp format. Information provided by EPA and Modelo.	https://www.lesser.mx/files/08-2-Allende-PN.pdf
3 ─ Surface water	Catchments	Catchments maps in geopackage format. Own elaboration.	Not applicable
	Dams and Reservoirs	Dam locations in Mexico and the U.S. in geopackage format. Source file included in URL column. Own elaboration.	https://datos.gob.mx/busca/dataset?groups=rmx&res_format=shp
	Dams data Mex	Dam water elevations and storage estimates in Mex, csv format.	https://www.ibwc.gov/water-data/
	Dams data on the U.S.	Dam water elevations and storage estimates in the U.S., csv and xls format.	https://www.ibwc.gov/water-data/
	Precipitation	Location of precipitation gages location and raw data for Mex and the U.S. in xls and txt format.	https://datos.gob.mx/busca/dataset?tags=lluvia
	Rivers	Rivers in shp format. River gage locations and river stages in xls and txt format. Data retrieved from IBWC	https://ibwcsftpstg.blob.core.windows.net/wad/DailyReports/flowdata.htm

Domain	Sub-domain	Description	URL
	Streamflow data	Stream locations, water pH, temperature, and discharge in csv and xls format.	https://www.inegi.org.mx/temas/hidrologia/#descargas https://www.twdb.texas.gov/surfacewater/flows/instream/index.asp
	Streamflow stations	Streamflow gauge locations in geopackage format. Own elaboration.	Not applicable
4 — Groundwater	Cerro Colorado aquifer	Census of used springs and wells for the years 1982, 1986, and 2013 in xlsx format. Private information.	https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/coahuila/DR_0503.pdf
	Presa La Amistad aquifer	Census of used springs and wells for the years 1981, 2006, 2012, and 2013. Calculations of transmissivity, hydraulic gradients, volume, and discharge rates in xlsx format.	LESSER Y ASOCIADOS S.A. DE C.V Estudios Geológicos y Geoquímicos en la porción norte del Estado de Coahuila, elaborados para la Empresa Hidrogeología, S. A. 1981. LESSER Y ASOCIADOS S.A. DE C.V. 2013.- Estudio Geohidrológico para Determinar la Disponibilidad Media Anual, de Aguas Subterráneas de los Acuíferos Presa La Amistad (0522) y Cerro Colorado-La Partida (0503), Localizado en el Estado de Coahuila, Tomo I Presa La Amistad.
	Region Carbonifera	Census of used springs and wells in xls format. Private information.	LESSER Y ASOCIADOS S.A. DE

Domain	Sub-domain	Description	URL
	aquifer		C.V Actualización del estudio geohidrológico del acuífero Región Carbonífera, Coah., 2011, elaborado para Altos Hornos de México, S. A. de C. V.
	Serrania del Burro aquifer	Census of used springs and wells in xls format. Private information.	LESSER Y ASOCIADOS S.A. DE C.V. Actualización 2014 del Estudio Geohidrológico del Acuífero Allende-Piedras-Negras, Coah, 2014; elaborado para Compañía Cervecera de Coahuila.
	Texas	Groundwater pumping and water uses by county in csv format	https://www.twdb.texas.gov/groundwater/data/index.asp
	2020_Consejo de Cuenca Río Bravo_Padron de acuíferos.xlsx	List of permitted volumes, number of permits, number of groundwater extraction points per aquifer in the Consejo de Cuenca Rio Bravo jurisdiction in xlsx format.	https://www.cuencariobravo.org/concentrado-de-padrones-de-acu%C3%ADferos-del-ccrb
	Texas_gw-level_monthly_m.csv	Groundwater levels per well in meters. File in csv format.	https://waterdatafortexas.org/groundwater
5 ─ Hydro-geochemistry	Cerro Colorado aquifer	Chemical analysis for groundwater samples, year 2013 in xlsx format.	https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/coahuila/DR_0503.pdf
	Presa La Amistad aquifer	Chemical analysis for groundwater samples, years 2010 and 2013 in xls format. Private information.	https://sigagis.conagua.gob.mx/gas1/Edos_Acuiferos_18/coahuila/DR_0522.pdf LESSER Y ASOCIADOS S.A. DE

Domain	Sub-domain	Description	URL
			C.V Estudio técnico justificativo para el ordenamiento de los acuíferos Cerro Colorado- La partida (0503), Palestina (0513), Hidalgo (0514), Santa Fe del Pino (0515), Laguna El Guaje (0517), Castaños (0519), Presa La Amistad (0522) y Serranía del Burro (0526), en el Estado de Coahuila. 2013. Elaborado para el OCRB de la CONAGUA.
	Region Carbonifera aquifer	Chemical analysis for groundwater samples, year 2010 in xlsx format. Calculation of wastewater discharges in xlsx format.	https://www.earth-prints.org/bitstream/2122/16230/3/APGEO-D-21-00516_R3_ml.pdf
	Serrania del Burro aquifer	Chemical analysis for groundwater samples, year 2010 in xls format. Private information.	LESSER Y ASOCIADOS S.A. DE C.V Actualización 2014 del Estudio Geohidrológico del Acuífero Allende-Piedras-Negras, Coah, 2014; elaborado para Compañía Cervecera de Coahuila.
6 — Environment	Climate data	Meteorological stations in Mexico, evaporation, temperature, precipitation in csv format. Meteorological stations in Texas, temperature, precipitation, humidity, and wind speed in csv format. Retrieved from NOAA.	https://www.ncei.noaa.gov/cdo-web/

Domain	Sub-domain	Description	URL
	Climate stations	Meteorological stations map in geopackage format. Own elaboration.	Not applicable
7 ─ Remote sensing	Annual maps	CHIRPS precipitation, ERAS mean temperature, and GLDAS evaporation per year in tif format.	• https://www.chc.ucsb.edu/data/chirps • https://modis.gsfc.nasa.gov/data/dataprod/mod13.php • https://disc.gsfc.nasa.gov/datasets/GLDAS_CLSM025_DA1_D_2.2/summary • https://www.gleam.eu/
	Land cover	North America land cover for the years 2010, 2015, and 2020 in tif format.	http://www.cec.org/north-american-land-change-monitoring-system/
	Time series	Precipitation, evapotranspiration, root zone soil moisture, potential evapotranspiration, GRACE terrestrial water storage anomalies, EVI, NDVI, LAI, and temperature extracted from the remote sensor datasets. Daily and monthly datasets. Files in csv format. Own elaboration.	• https://grace.jpl.nasa.gov/data/get-data/monthly-mass-grids-land/ • https://espa.cr.usgs.gov/ • https://www.usgs.gov/landsat-missions/landsat-tools • https://modis.gsfc.nasa.gov/data/dataprod/mod15.php https://coast.noaa.gov/digitalcoast/data/satellite.html
8 ─ Figures	—	Figures generated for the extensive technical report in png and jpg formats. Own elaboration	Not applicable

2. CONCLUSIONS AND RECOMMENDATIONS

This report is an initial step towards identifying the available information on aquifers located in northeast Coahuila; it highlights the gaps in the existing data and the requirements for immediate technical information. To address these, it is recommended to develop a robust database platform in future stages of this project; this will be useful for consulting the available information and updating it with new information. This database will also enable stakeholders and interested community members to access technical information freely.

The identification of gaps in the technical information will allow better efforts on finding the missing information and planning the necessary field and laboratory studies required to collect missing data. Recognizing the information gaps in the region will help identify the immediate effects of the most relevant unavailable information, to prioritize the data collection process accordingly. Since studies typically provide various types of information with varying degrees of impact, data collection efforts can focus on studies that help strengthen the databases necessary for a greater understanding or description of the phenomena that take place in the transboundary aquifers. The above allows providing information for decision-making regarding the topics under study.