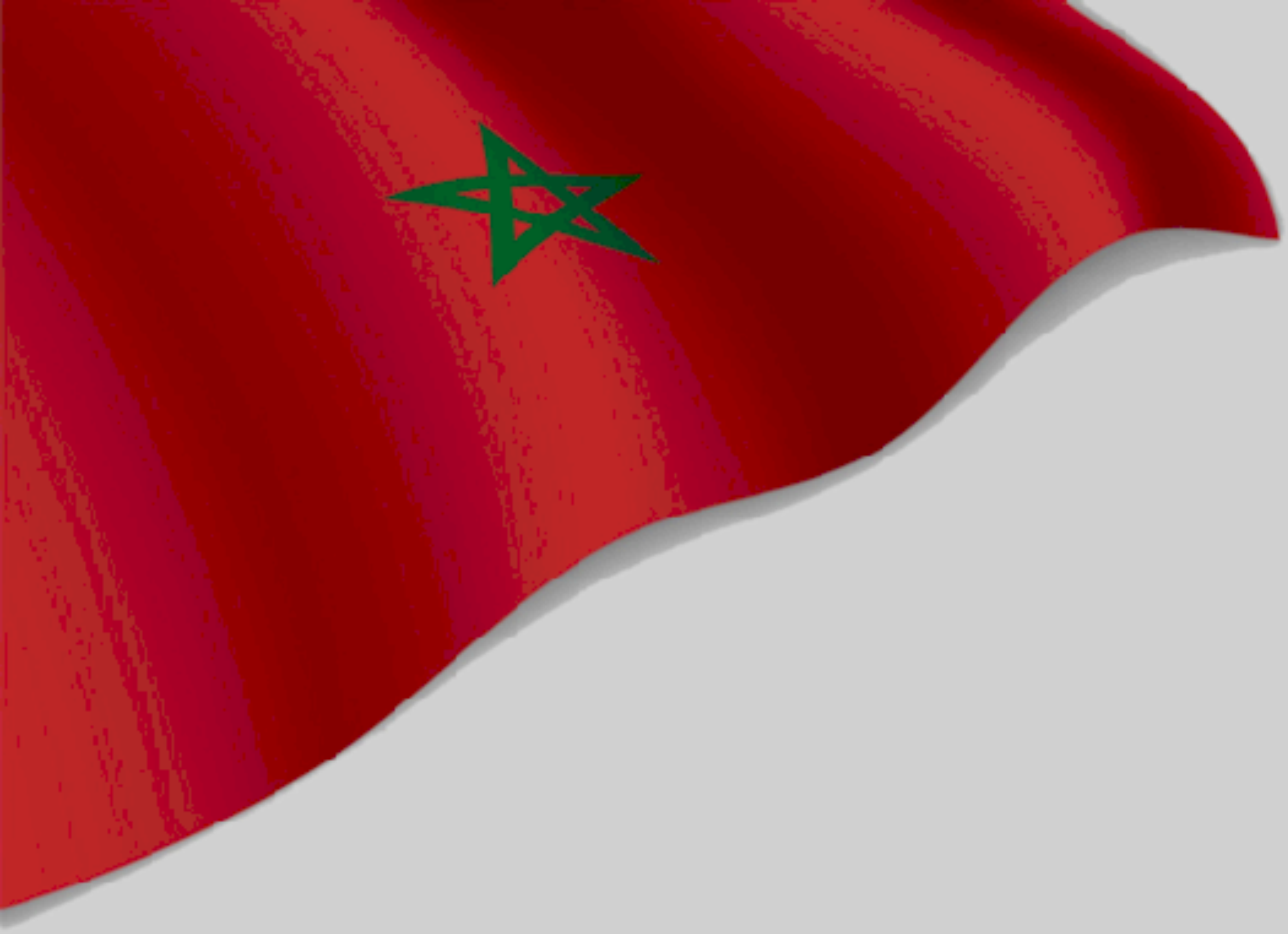


PROPOSAL FOR WEATHER MANAGEMENT AND SUPPLIES OF WATER RESOURSES OF ATMOSPHERIC ORIGIN FOR THE KINGDOM OF MOROCCO

S.Y. Capital Holdings Limited

Investing in the Future

August 2022

Introduction

S.Y. CAPITAL HOLDINGS LTD is a United Kingdom based company that was recently granted the exclusive rights to propose and market the unique, advanced CGCT developed Climate Modification Technology, that is decades ahead of its competitors, to governments and organisations within the entire Continent of Africa, including the Middle East and North Africa region.

This proposed CGCT Climate Modification program has the ability to resolve all the environmental issues faced globally, to prevent, stop and even more importantly reverse the degradation of ecosystems such as eliminating pollution, rising sea levels, reviving hundreds of millions of hectares, covering terrestrial as well as aquatic ecosystems, along with many other climate issues on all parameters.

CGCT Technological solutions allow seasonal regulation of atmospheric processes in a defined area dictated by the client, by transferring wetted air masses from over-wetted areas of the Indian and Pacific oceans to arid regions and to ensure the long-term, even permanent, presence of additional moisture in arid regions and maintain a given climate regime.

The uniqueness of the technology for weather management allows the delivery of Megalitres (ML) of water over long distances and the precipitation of atmospheric origin in large areas determined by the Government of the Kingdom of Morocco, as a Client, allows solving problem of water security of the Kingdom, especially in the regions suffering from water scarcity.

Integrated technological solutions of the Climate Modification program allow for the provision of additional inflow of moisture into the arid regions of the country by the transfer of wetted masses of air, which will increase precipitation in arid areas at least 300 mm a year that will eliminate water scarcity for household and industrial needs of cities of the Kingdom of Morocco.

The CGCT Climate Modification Technology allow radically reduced costs for regulation of the amount of rainfall in the areas of the Kingdom of Morocco suffering from water scarcity and also radically reduce costs for regulation of groundwater level.

Thus, the unique way of supplying large volumes of water of atmospheric origin has a colossal advantage over the conventional methods of supplying fresh water and has a positive impact on the agricultural sector, energy sector and the entire economy of the Kingdom of Morocco.

The Innovative Climate Modification Technology has successfully completed tests of the unique advanced Technology in the UAE, Iran, India (Mumbai State), and other countries since 2007 and is safe and ecologically friendly and does not use any chemical components and is reversible.

Provision of water resources of atmospheric origin will ensure national water security of the Kingdom of Morocco by;

- Raising the level of rainfall approximately 50% in the arid season
- Replenishing the groundwater aquifers
- Increasing the average levels of precipitation
- Filling of reservoirs with fresh water and Regulation of the water levels in reservoirs;
- Resolve the country's needs for water resources within 2 to 3 years.
- Present a stable change of weather conditions within 5 to 7 years
- Ensure within 5-7 years the country's water security will be completely secured

Climate of the Kingdom of Morocco

Morocco is the north-westernmost country which spans from the Mediterranean Sea and Atlantic Ocean on the north and the west respectively, into large mountainous areas in the interior, to the Sahara desert in the far south. Morocco is a Northern African country, located in the extreme northwest of Africa on the edge of continental Europe. The Strait of Gibraltar separates Spain from Morocco with a 13 kilometres (8.1 mi) span of water. Morocco borders the North Atlantic Ocean to the west, and the western Mediterranean Sea to the north, and has borders with Algeria and disputed Western Sahara.

The terrain of Morocco is largely mountainous. The Atlas Mountains stretch from the central north to the southwest. It expands to about 1,350 kilometres (840 mi) and is the dorsal spine of the country. To the north of the Atlas Mountains, there are the Rif Mountains, a chain that makes part of the Sierra Nevada mountain range in Andalusia, Spain. The massive range expands to about 250 kilometres (160 mi) from Tangier in the west to Nador eastward.

In the west of the country, along the Atlantic coast, the Moroccan Plateau stretches from Tangier to Lagouira, about 2,310 kilometres (1,440 mi) long, and get inward to Saiss Plains near Fes and Tansift-Alhaouz near Marrakech. These vast plains promotes fertile agricultural lands and support 15% of the local economy.
In the extreme southeast of the country, the lands are arid due to their proximity to the Sahara Desert. Palm trees oasis are developed in many regions, notably in Figuig and Zagora.

Morocco's climate can be divided into two parts: The northwest and the southeast. In the southeast, the climate is arid and poorly populated. The northwest has a mild climate, and 95% of the Moroccan population lives in these regions.

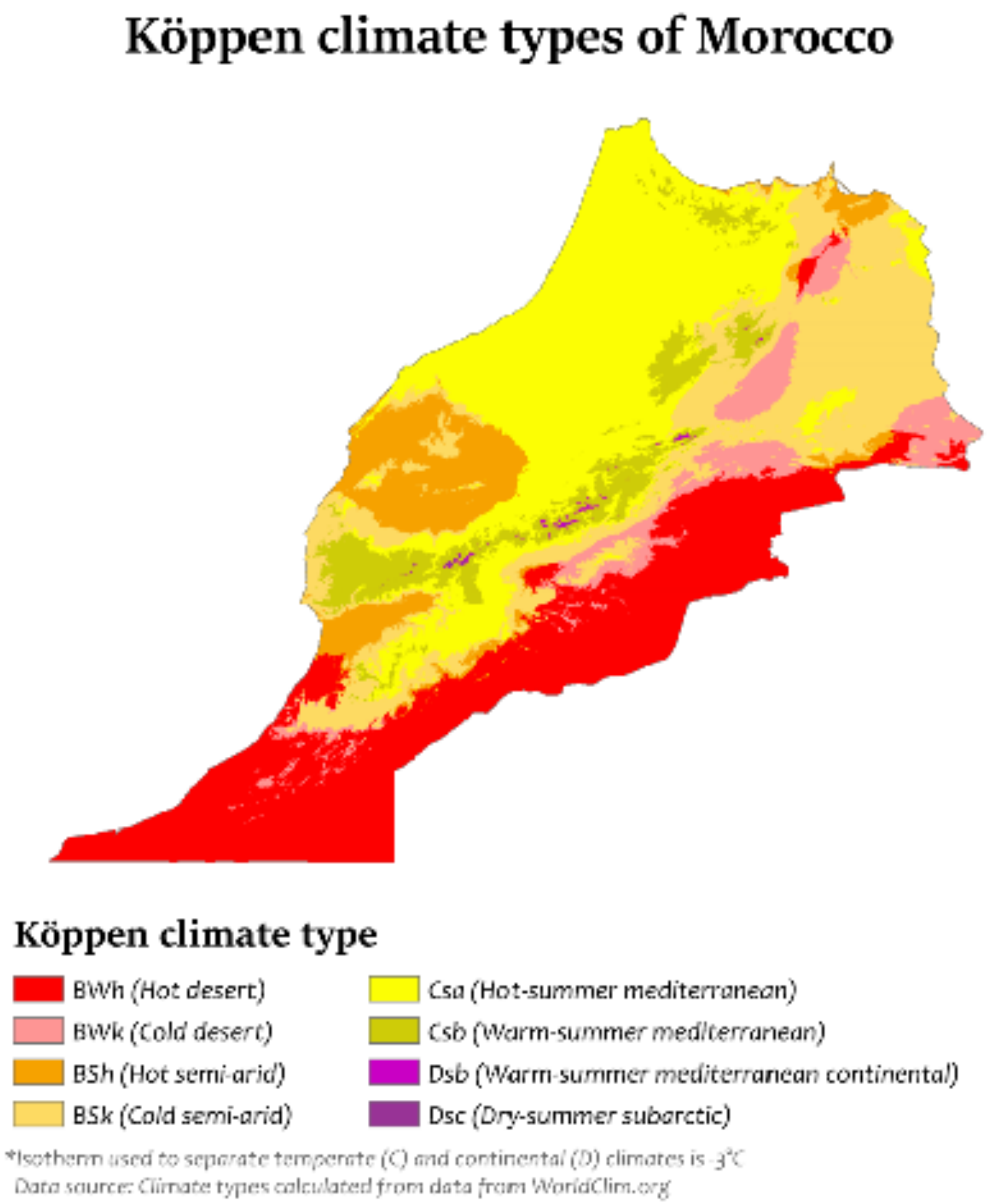
The largely populated areas of the northwest of the country mostly have a Mediterranean climate, but since the country is heavily mountainous, continental and alpine influence is evident, as well as the oceanic influence along the Atlantic coastline. And finally, the semi-arid lands, that cover few regions in the northeast, the central-south, and the southwest.

Along the Mediterranean coast, the climate is typically Mediterranean and supports all types of typical Mediterranean vegetation. The summers are moderately hot and the winters are mild. Further away from the coast, into the Rif Mountain range, the climate starts to become more continental in character, with colder winters and hotter summers. At elevations above 1,000 metres (3,300 ft), the climate is alpine with warm summers and cold winters. Rainfall is much higher on the west side than it is on the east side. The average annual precipitation is between 600 and 1,500 mm (24 and 59 in), and 300 and 700 mm (12 and 28 in) respectively. Snow is abundant at higher elevations.

1. Typical Mediterranean climate cities: Tangier, Tétouan, Al Hoceima, Nador
2. Typical continental-influenced cities: Chefchaouen, Issaguen, Targuist, Taza
3. Typical alpine-influenced cities: Bab Berred

Along the Atlantic coast, the climate is the Mediterranean with oceanic influence. The imprint of the oceanic climate differs along the coastline from region to region. It is generally presented from Asilah to Essaouira. The summers are warm to moderately hot, and winters are cooler than on the Mediterranean coast. Further away from the coastal lands, into the Atlas Mountain range, the climate starts to become more continental in character, with colder winters and hotter summers. At elevations above 1,000 metres (3,300 ft), the climate is typically alpine, with warm summers and cold winters. Rainfall is generally high. The average annual precipitations is between 500 and 1,800 mm (20 and 71 in) on the north, but as you move southward, the average drops by about 100 to 200 mm (3.9 to 7.9 in). Snow is abundant at higher elevations. There are two ski stations, one in the middle-Atlas Mischliffen, and the other in the High-Atlas Oukaïmeden.

1. Typical oceanic-influenced cities: Rabat, Casablanca, Essaouira, Larache
2. Typical continental-influenced cities: Fès, Meknès, Khenifra, Beni Mellal
3. Typical alpine-influenced cities: Ifrane, Azrou, Midelt, Imouzzer Kandar



The southern regions of the northwest are semi-arid. Rainfall is lower, and is between 250 and 350 mm (9.8 and 13.8 in) annually. Although temperature ranges generally do not change in comparison with the upper provinces, a slight increase in high averages is not to be dismissed. Largely due to the lower latitudes where they fall.

Typical cities with such climate are Agadir and Marrakesh.

The disputed Western Sahara region features a hot desert climate, but temperatures are more moderate along the coast.

Terrain:

Northern coast and interior are mountainous with large areas of bordering plateaus, intermontane valleys, and rich coastal plains

Natural Hazards:

northern mountains geologically unstable and subject to earthquakes; periodic droughts

Land use:

Arable land: 17.5%
Permanent crops: 2.9%
Permanent pastures: 47.1%
Forests: 11.5%
Other: 21.61% (2011)
Irrigated land: 14,850 km^2 (2004)
Total renewable water resources: 29 km^3 (2011)
Natural hazards: periodic droughts

Morocco - National Water Resources

Morocco, like many countries across the "global south," faces an intensifying dilemma:

While it has improved its food production to reduce food insecurity and undernourishment, that progress has stressed the country's limited water supplies with water-intensive industrial farming practices.

As climate change intensifies structural drought throughout the Maghreb, Sahel and elsewhere, these regions must develop policies that treat food insecurity and water scarcity as interlinked crises.

Consistent with global warming trends, observations from Morocco's National Meteorological Directorate show rising temperatures, less precipitation, and an increase in drought, widening the gap between water supply and demand. Average temperatures are expected to rise between 2 and 5ºC by the end of this century, while rainfall is predicted to decline 20 to 30%.

Morocco has experienced annual rain deficits since 2015 causing weak runoffs, a reduction in water supply to dams, and diminished recharge of groundwater. In regions where the demand relies exclusively on local supply systems, successive drought years have caused chronic shortages.

The average rainfall is 140 billion cubic metres per year (BCM/yr), Evapotranspiration is high, amounting to 118 BCM/yr on average.

The potential of natural water resources is estimated at 22 BCM/yr, the equivalent of 700 m3/capita/yr, comprising 18 BCM of surface water and 4 BCM of groundwater.

The amount of water that is technically and economically exploitable is 80% of current available resources.

This reveals the constraints on water resources and the challenges that lie ahead regarding the urgency of an integrated management approach.

Surface Water Resources

The hydrological regime of all basins is characterised by high inter-annual variability marked by wet and dry sequences, interspersed with years of strong hydraulic flow or severe drought.

The Ouergha basin, for example, is one of the most productive basins in the country, with an average annual inflow of 2.5 BCM.

The large regional disparity of rainfall also induces a large variability of surface water flows. The latter varies from a few million cubic metres (MCM) for the most arid basins, such as the Saharan basins, to 1 BCM/yr for the most water-rich basins.

For instance, the Sebou basin holds 30% of surface water and groundwater resources. Although it represents only 6% of the total area of Morocco, 18% of the country's population lives within it.

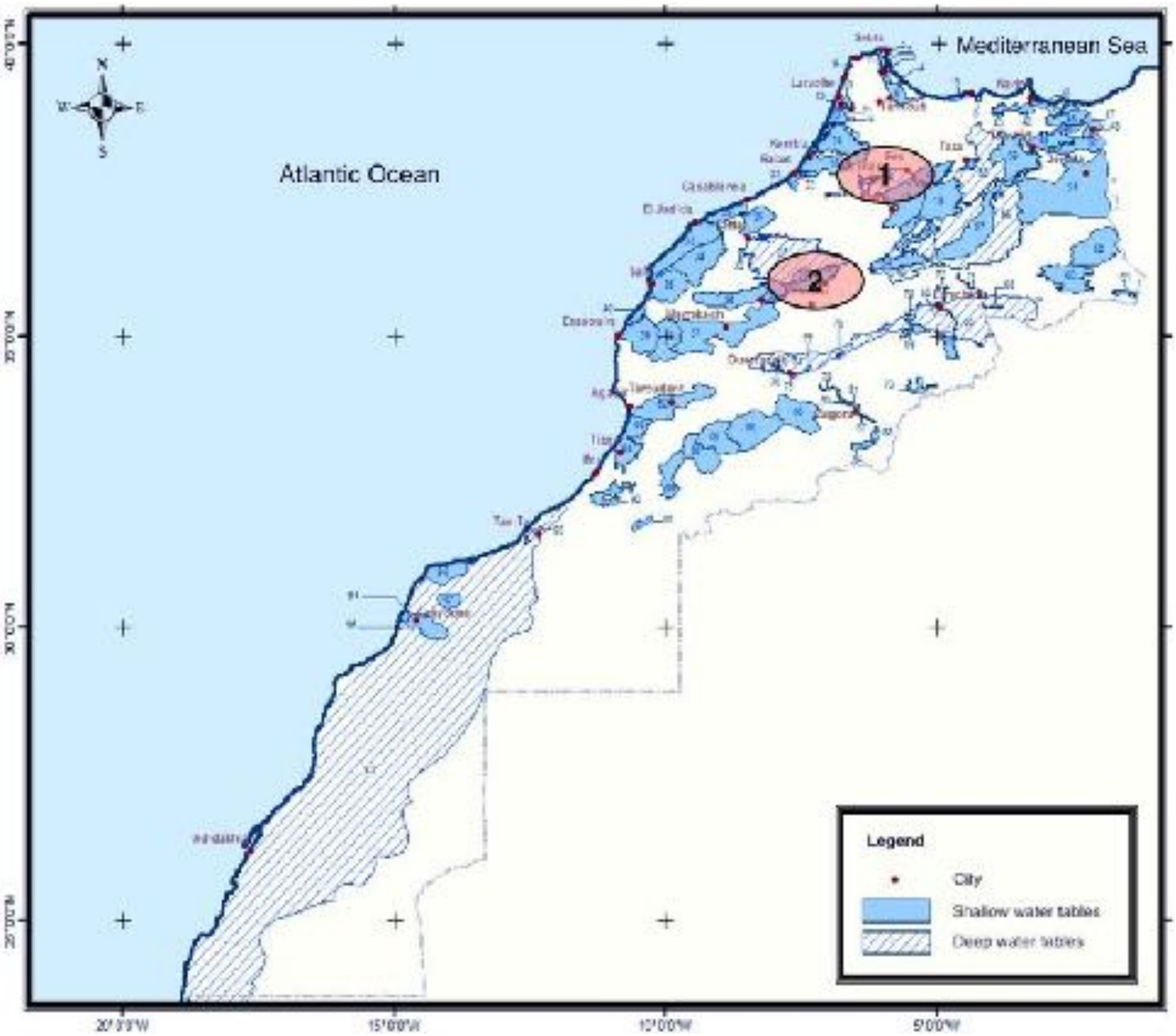
Internal water reallocations are applied to reduce the shortages in each river basin. About 0.3 MCM is transferred from the Oum er-Rbia basin to dry areas in Tensift, essentially to sustain irrigation.

Similarly, another 0.16 MCM is transferred from the Sebou and Oum er-Rbia basins to support Bouregreg's domestic water needs.

The country has 120 major natural lakes, the majority of which are located between the two mountain ranges of the Middle Atlas and High Atlas.

On the coast are lagoons and marshes. In 1980, the Ramsar Convention classified four wetlands. Today, the 24 classified sites total 272,010 hectares (ha).[4]

Groundwater Resources



Groundwater accounts for about 20% of water resources. The most important aquifers cover a total area of almost 80,000 km², about 10% of the country.

Total groundwater withdrawals are estimated at 3,170 MCM/yr. However, groundwater has been overexploited, by around 4.2 BCM/yr, 10% higher than the average yearly recharge.

This high extraction has led to a rapid drop in the water table, at an average rate of 2 metres per year. The current water level in the Saiss aquifer is 64 metres lower than in the 1980s.

Name of basin	Area (km2)	Flow (MCM)	Exploitable potential (MCM/year)
Loukkos, Tangier and Mediterranean coastal	12,805	3,600	190
Moulouya, Figuig-Kert-Isley-Kiss	76,664	1,610	512
Sebou	40,000	5,560	1300
Bouregreg and Chaouia	20,470	850	120
Oum er-Rbia and el-Jadida Safi	48,070	3,315	405
Tensift and Ksob-Igouzoulen	24,800	800	520
Souss-Massa-Draa	126,480	1,444	691
Guir-Ziz-Rhéris	58,841	526	313
Sakia el-Hamra and Oued Eddahab	302,725	390	16
Total	**710,855**	**18,195**	**4,067**

Similar drops can be seen in the Souss, Témara, Haouz and South Atlas aquifers. This problem is prone to occur in areas where precipitation is less than 400 mm/yr and groundwater is used for agricultural irrigation by local farmers. Groundwater supplies 40% of the water used for irrigation.

Desalination

Seawater desalination is considered a promising non-conventional water source and climate change adaptation measure.

In 2009, Morocco launched a National Water Plan (PNE) for 2020-2030, which outlines several measures to address the gap between water supply and demand, including desalination.

The PNE proposes the construction of seawater desalination plants to produce nearly 515 MCM/yr in 2030.

By 2016, Morocco had 15 desalination installations, with a total desalination capacity of 132 MCM/yr. Almost all desalination plants (96%) operate with reverse osmosis (RO) systems. The current capacity is relatively evenly split between medium-, large- and extra-large-scale plants.

As Morocco imports 95% of its energy, RO will likely remain the preferred technology, given that it is the least energy-intensive of the desalination technologies at large and extra-large scale. However, future desalination projects may be combined with renewable energy generation to address the problem of high-energy costs.

The Agadir Desalination Plant has recently completed the contractual tests, The reverse osmosis plant, has been operational in Morocco since the beginning of the year. The desalinated seawater is divided between the needs of the population of Greater Agadir (150,000 m3 per day) and the irrigation (125,000 m3) of thousands of hectares of agricultural land.

Two further desalination plants at Jorf Lasfar – el-Jadida and Safi, with a capacity of 75 MCM/yr and 25 MCM/yr respectively, are under construction and set to produce 100 MCM/yr of drinking and industrial water by 2025.

Wastewater Reuse

The wastewater sector has made significant advances in the last ten years. One of the main issues is wastewater treatment.

The National Sanitation Programme aims to connect 80% of the urban population to sanitation networks and to reduce pollution by 60% in 2020. In addition, due to the limited surface water resources and growing demand, most of the groundwater resources have been overexploited.

The performance of supply networks and water uses is still low; new tariffs could improve this. More than 120 wastewater treatment plants have been built, increasing the treatment capacity to 900 MCM/yr in 2016.

Indicatively, 75% of the total population is connected to the sewer network, with 62% connected to wastewater treatment plants. The PNE targets reuse of 325 MCM/yr of wastewater by 2030.

Despite the high potential, the level of wastewater reuse is low. It is expected that by 2030, wastewater generation will increase to 900 MCM.

Of the total wastewater discharge, 60% is discharged directly into the Mediterranean and Atlantic, while 40% is discharged into the natural environment.

The implementation of the National Sanitation Programme and PNE was a real trigger for controlled reuse of wastewater.

Eighteen wastewater reuse projects with a total production of 38 MCM are in operation and supplying good-quality water for the following uses:

- Irrigation of green spaces, parks and golf courses (69.3%);
- Agriculture, which currently accounts for 13%;
- Industry, specifically phosphate mining (16.6%);
- Groundwater recharge (1.1%).

Total Water Availability In Morocco

Morocco’s water resources are under increasing pressure from population and industrial growth, irrigated agriculture, urbanisation, tourism, climate change, the overexploitation of aquifers, the low cost of piped water and deteriorating water quality caused by sanitation shortcomings.

Water availability is predicted to drop to 500 m^3/capita/year by 2030. In contrast, the demand for water is projected to continue growing, from 14.3 BCM in 2010 to 23.6 BCM in 2030.

According to the World Resources Institute (WRI), Morocco ranked 23rd among countries most at-risk of water shortage.

Causes of Water Shortages in Morocco

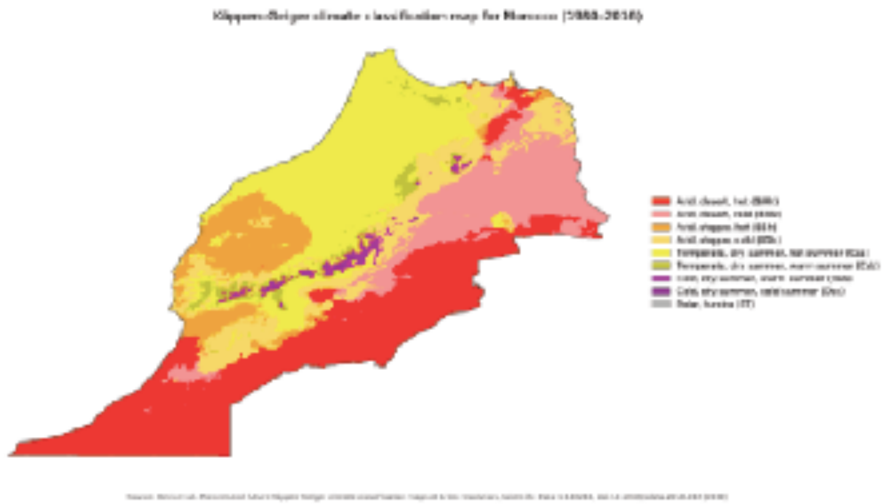
Morocco has four primary causes for the lack of accessible, fresh water available to people for drinking and other minor uses. These four causes are: the dry climate, global climate change, pollution of the existing water sources, and mismanagement of existing freshwater sources, largely involving agriculture.

Arid Climate

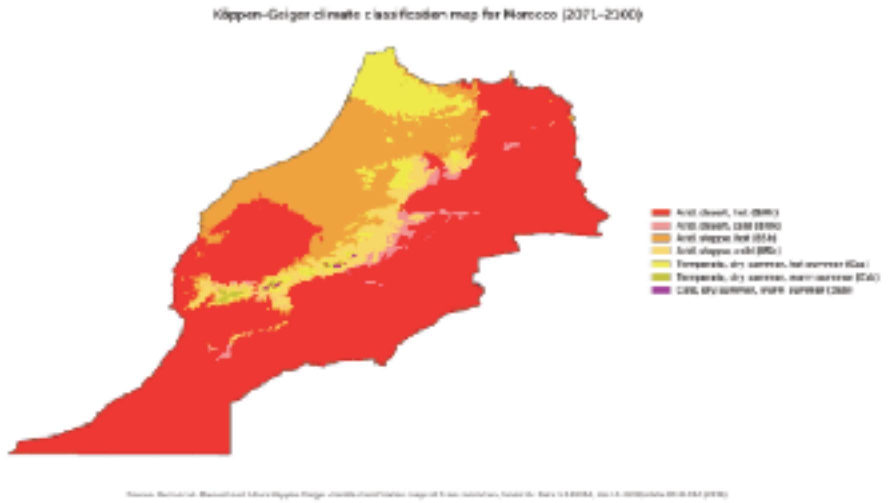
Morocco is categorised as a freshwater scarcity country by the UN Department of Economic and Social Affairs, The report differentiates between physical and economic water scarce countries, with Morocco being a physical water scarce country.

Morocco has a widely variable climate. with Annual precipitation ranges from 1200mm in some northern areas and in the Atlas Mountains, to less than 100 mm per year in the areas on the eastern side of the Atlas Mountains, near Morocco’s border with Algeria.

Global Climate Change



Current/past Köppen climate classification map for Morocco for 1980–2016



Predicted Köppen climate classification map for Morocco for 2071–2100

A second reason for Morocco's lack of freshwater is global climate change resulting in less rainfall and more serious droughts. Morocco has already experienced a mean annual precipitation decreases by seven percent in the past thirty years.

In Morocco, droughts are one effect of increased drought, and less precipitation in general, is that the aquifers may not be able to recharge as quickly, depleting this capacity as a renewable resource.

This was found in a study on the Saida aquifer, which predicted a possible 50-60% decrease in the aquifer's capacity compared to current values. Additionally, due to reduced recharge of the aquifer and anticipated sea-level rise, the salinity in the aquifer could increase up to 30 g/L. This is compared to the average salinity of the Mediterranean of 38 g/L.

Pollution of Freshwater

A third reason for the lack of usable freshwater resources in Morocco, because it is reducing water quality rather than quantity, as the previous two causes were, is the pollution of the existing water resources.

Pollution of freshwater resources in Morocco can come in many forms, including municipal wastewater discharge, industrial effluents and agricultural activities.

Currently, municipal wastewater is discharged without being treated first, and thirty percent of the wastewater is discharged directly into natural water bodies. Much of the available groundwater has been made unusable due to high salinity and nitrate concentrations.

Many rivers, lakes, and even groundwater sources have high levels of nitrogen and phosphates, due to fertiliser runoff from agriculture areas.

A study in the region of Mnasra, a region known for dense agricultural activity, Marouane et al found that 89.7% of tested water samples exceeded 50 mg/L of nitrates, which is the standard limit of nitrate concentrations for groundwater.

Agriculture

The history, and the current management of the agriculture sector in Morocco is a fourth reason for the shortage of freshwater resources. The agricultural policies of the French Protectorate in Morocco created the infrastructure for Morocco to experience future water shortages. The French Protectorate period in Morocco lasted from 1912-1956.

The French came to Morocco as colonisers with the goal of accumulating wealth through any means. The French saw Morocco as an opportunity to grow exports of food, specifically wheat.

The plan for agricultural expansion began with an emphasis on creating farms larger than 400 acres. The focus on grains resulted in a failure, which prompted the French to turn to the California Policy. It was called the California Policy because it was modelled after the irrigation agriculture and soil conservation in the United States; it focused the agriculture on growing citrus fruits for exportation to Europe.

The California Policy resulted in building dams for irrigation, with the plan that not a drop of water would flow to the sea. This system of large farms utilising irrigation and exporting crops abroad is largely still in place as a result of this policy.

Agriculture is a major industry in Morocco, making up 15-20% of the GDP and employs 40-45% of the workforce[35]. It is prioritised by the government as an area with potential for growth.

Environmental Issues:

land degradation/desertification (soil erosion resulting from farming of marginal areas, overgrazing, destruction of vegetation); water supplies contaminated by raw sewage; siltation of reservoirs; oil pollution of coastal waters

PROPOSAL FOR WEATHER MANAGEMENT AND SUPPLIES OF WATER RESOURCES OF ATMOSPHERIC ORIGIN FOR THE KINGDOM OF MOROCCO

The integrated technological solutions of the CGCT Climate Modification program allow for the peculiarities of climate of Morocco to ensure the elimination of the causes of dust storms, the increasing of precipitation during the dry period, the smoothing of seasonal weather and temperature contrasts to a comfortable level and provide a year-round beach season in the tourist areas of Morocco

Integrated technological solutions of Climate Modification program also allow to regulate the groundwater level on a specified territory of the Kingdom of Morocco.

This will lead to further investment in agriculture, industry and household sectors of Morocco and will have a positive impact on the whole economic sectors of the country and significantly increase the efficiency of the entire economy of the Kingdom.

Integrated Plan For Weather Management in the Kingdom of Morocco

The technological solutions proposed present the opportunity to carry out seasonal regulation of atmospheric processes within the defined areas, by transferring wetted air masses from the Indian and Pacific oceans to arid regions and to will ensure long-term presence of additional moisture in arid regions as well as maintain a given climate regime.

The Innovative CGCT Weather Management program fully comply with the Environmental Modification Convention (ENMOD), formally "The Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification", which is one of the main UN documents prohibiting its participants from military or any other hostile influence on the environment, through the deliberate management of natural processes in the biosphere, hydrosphere, the Earth's atmosphere and near- Earth space.

The proposed Weather Management program is safe and environmentally friendly, does not use any chemical components, provides reversibility of weather conditions and completely compensate the negative impact on the climatic processes caused by anthropogenic impact on the environment.

Ionospheric Climate Modification Technology

- Collection and processing of data on atmospheric processes, formation of control algorithms, and control of execution are carried out in real-time and over large areas.
- Managing weather processes in an area of 100,000 square kilometres up to 3 million square kilometres. CGCT is also able to manage weather processes within commercial projects (minimum of 2,000 square kilometres).
- The advanced Climate Modification Technology ensures Controlled Climate Change is fully reversible
- The Client determines the parameters; temperature, rainfall, humidity, groundwater level, etc.
- If desired, the Client may change the parameters, subject to regional tolerances being compatible to the change.

Benefits of the CGCT Climate Modification Technology

Supplies of water resources of atmospheric origin ensures water security of the Kingdom of Morocco with use Technological Solutions for Weather Management, namely:

- Raise the level of rainfall approximately 50% in the arid season
- Increase the average levels of precipitation
- Replenish the groundwater aquifers
- Filling of reservoirs with fresh water and regulation of the water levels in reservoirs

The CGCT Climate Modification program would ensure the delivery of millions of barrels of water over vast distances and atmospheric precipitation in an area determined by the Client, presenting a real solution of water security for countries suffering from water scarcity.

The water of atmospheric origin has numerous advantages over the conventional methods of supplying fresh water and has a positive impact on the agricultural sector, energy sector, and the entire economy of Morocco.

- The Client defines the weather regime and area for an agreed duration (minimum of 1 year).
- The results of the application of the technology will be visible within 2-3 months.
- Integrated use of the technology will solve the country's needs for water resources within 2 to 3 years.
- A stable change of weather conditions on the territory of the Client will occur within 5 to 7 years
- Within 5-7 years the country's water security will be completely secured

The proposed CGCT Integrated Plan for Weather Management developed in accordance with the mechanism "UN - Water Resources" and take into account national programs to optimise water and energy consumption and other projects to improve water supply in the Kingdom of Morocco, such as the National Priority Program for Drinking Water and Irrigation (NPP)

The CGCT Weather Management program takes into account the critical water situation in the Kingdom of Morocco and determines the key role of Morocco in addressing the problems of water scarcity and ensuring water security of countries located within the region.

The Weather Management program for the Kingdom of Morocco takes into account significant efforts of the Kingdom to protect the environment and has developed in accordance with the aforementioned National Priority Program for Drinking Water and Irrigation (NPP)

Morocco - Regulation of Groundwater Level

During the last decades, the coastal areas of Morocco have witnessed an intense socioeconomic development associated with a continuous population growth and urban extension. This has led to an overexploitation of coastal aquifers leading to a degradation of their water quality.

In order to obtain large scale overview on the quality status of Morocco's coastal aquifers (MCA) to assist national water managers to make informed decisions, a comprehensive scrutinisation of the MCA against common indicators and using unified methods is essential.

Databases from thirteen MCA were analysed, using multivariate statistical approaches and graphical methods in order to investigate the degree of mineralisation in each aquifer and to identify the main salinisation processes prevailing in groundwater.

The results showed that the dominant groundwater types are Na–Cl, Ca–Mg–Cl, Ca–Mg–SO_4, Ca–Mg–HCO_3 and Ca–HCO_3–Cl.

Integrated technological solutions of Climate Modification program allow the regulation of the groundwater level on a specified territory of the Kingdom of Morocco by;

1. Raising groundwater level
2. Reduction of groundwater salinity
3. Change the level of humidity of soil

Problematics:

Observed Seasonal Precipitation

The identified sub-national units with the highest and lowest precipitation sums reflect the latest climatology 1991-2020.

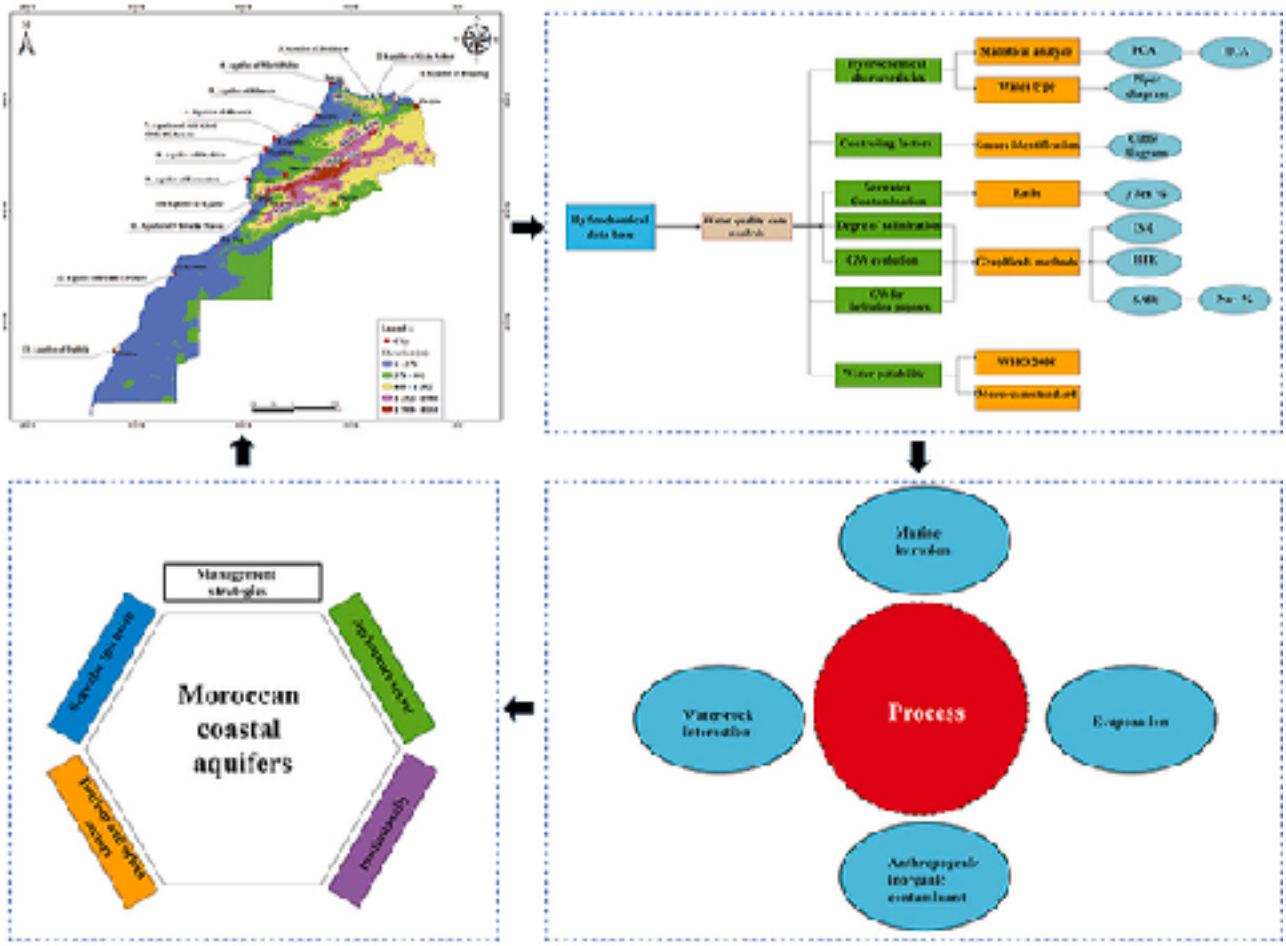
	1991-2020				1961-1990				1931-1960				1901-1930			
Units: mm	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Country: Morocco	74.89	84.09	16.72	92.08	89.67	98.94	17.30	88.34	52.69	98.65	13.13	89.77	80.28	101.84	16.71	108.87
Highest: Tanger - Tétouan	169.31	171.44	17.40	201.2*	201.20	164.02	27.45	162.06	209.62	210.31	18.55	179.47	173.09	200.65	24.97	206.21
Lowest: Laâyoune - Boujdour - Sakia El Hamra	25.06	10.53	0.94	15.88	23.81	8.51	1.05	14.46	25.32	10.81	0.98	17.38	24.56	10.74	1.13	16.75

The Gibbs diagram and the seawater contribution (0–37%) indicate that the mineralisation is mainly due to the seawater intrusion and water-rock interaction.

The salinity degree diagram illustrates that almost all groundwater samples are located in the moderate to very saline zone, indicating that MCA are recharged by water from variable sources.

The groundwater quality assessment shows a deterioration, particularly by seawater intrusion and significant nitrate pollution. The temporal evolution confirm that the MCA are influenced by seawater namely in the Atlantic part.

The Wilcox and USSL diagram indicate that the majority of sampled water are unsuitable for irrigation uses.



In addition, and by referring to the WHO and the Moroccan standards for water potability, large number of samples from the groundwaters of the MCA is not fully adequate for drinking purposes.

A set of management actions (e,g., artificial recharge) are proposed in order to mitigate the effect of groundwater overexploitation and seawater intrusion to ensure the sustainability of MCA.

Groundwater accounts for about 20% of water resources. The most important aquifers cover a total area of almost 80,000 km², about 10% of the country.

Total groundwater withdrawals are estimated at 3,170 MCM/yr. However, groundwater has been overexploited, by around 4.2 BCM/yr, 10% higher than the average yearly recharge.

This high extraction has led to a rapid drop in the water table, at an average rate of 2 metres per year. The current water level in the Saiss aquifer is 64 metres lower than in the 1980s.

Similar drops can be seen in the Souss, Témara, Haouz and South Atlas aquifers. This problem is prone to occur in areas where precipitation is less than 400 mm/yr and groundwater is used for agricultural irrigation by local farmers. Groundwater supplies 40% of the water used for irrigation.

Proposed Solution:

Restoration and maintenance of the required level of groundwater within the agricultural and industrial areas of the Kingdom of Morocco by providing additional annual rainfall in the arid areas of the Kingdom.

The CGCT technology allows the delivery of Megalitres (ML) of water over long distances and the precipitation of atmospheric origin in large pre-determined areas by the Government of the Kingdom of Morocco, as a client, which will ensure restoration to the required level of groundwater within the regions suffering from water scarcity.

The unique way of supplying an immense volume of water of atmospheric origin provides a major advantage over the conventional methods of supplying fresh water, for the restoration of the required level of groundwater, and will provide a positive impact on the agricultural sector, energy sector and the entire economy of the Kingdom of Morocco.

Thus, innovative technology for weather management effectively provides restoration the required of groundwater level and radically reduce costs for combating water scarcity and ensuring of national water security for the Kingdom of Morocco.

Morocco - Atmospheric Air Pollution

“Mortality related to air pollution has increased 50% in Morocco over the last 25 years. And a sector of the population remains without access to water, sanitation and hygiene despite considerable progress in the last 25 years. This means that, with the current trend, the country will not achieve the SDGs in these two areas. We need cross-cutting actions, multidisciplinary efforts and inter-ministerial collaboration in order to implement the necessary interventions and achieve the SDGs”, ISGlobal researcher David Rojas.

Casablanca is a city located in the central western portion of Morocco, being the largest city located in the country as well as being counted as a major port city, facing onto the Atlantic Ocean and holding the title of being one of the most prominent financial hubs of Africa. It is also a city with a sizeable population, being home to over 3.71 million inhabitants and far more in the extended region of greater Casablanca.

As a city with a high population as well as being the economic and financial heart of the country, there would be subsequent depreciations in air quality, due to many different factors, usually involving the mass movement of people, continued urban growth, rising population as well as large scale industrial movements.

Whilst there is a limited amount of concise data on record regarding the city’s pollution readings, it is well known both on a local and international scale that there are many pollutive issues occurring within the city’s limits, however there are also times when the air quality is significantly better, with geographical and meteorological factors playing a part in this, being both an aid as well as a compounding factor in pollution levels.

In early 2021, Casablanca was seen to have PM2.5 levels as low as 5.1 $\mu g/m^3$ showing up, going up to 9.1 $\mu g/m^3$. These figures placed Casablanca on that particular time within the World Health Organizations (WHO's) target goal for the best level of air quality at 10 $\mu g/m^3$ or less.

Due to limited recorded data available, it can be said that there are days such as this that show up where the pollution levels are low and within appreciable limits, and on the flip side, times when the pollution levels would soar due to anthropogenic activity coupled with the large scale accumulation of polluting chemicals and hazardous fine particulate matter.

Main causes of air pollution in Casablanca

Main causes of pollution in Casablanca would be largely related to the actions of people within the city, with tens of thousands of vehicles inhabiting the roads at any given time, taking people on their daily commutes as well as in and out of the city, with heavy duty vehicles such as trucks and lorries carrying their industrial load, not to mention the many ships that would be docking and departing from the port city.

Other prominent causes of pollution would be ones such as the burning of garbage and refuse, which contains both organic matter as well as synthetic materials. Due to the arid conditions of the land, large dust and sandstorms can also occur which would cause massive amounts of choking particulate matter to permeate the atmosphere over the city. These soil and sand particles can often be covered in hazardous chemicals or materials as a result of waste burning or dumping, as well as other activities that leave behind polluting residue.

Health risks associated with pollution in Casablanca

With a combination of vehicles releasing large amounts of smoke and haze, as well as oil vapours and other dangerous materials that arise from older, poorly maintained vehicles that run on diesel or other lower quality fuels, there would be a number of health risks associated with these alone, not to mention the various other hazardous sources of pollution.

Health risks would include short term or acute conditions such as irritation to the skin and mucous membranes, with the eyes, nose, mouth and ears all subject to aggravation and even rash outbreaks or infections in those who have a particular sensitivity towards chemicals. More severe ailments include a heightened risk of cancer, particularly towards the lungs or throat, but also possible in many of the organs throughout the body. PM2.5 and its insidiously small size allows it to penetrate deep into the lung tissue and enter the blood stream via the alveoli, whereby it can cause widespread damage to the blood vessels, kidneys, liver and the heart.

Main pollutants found in the air in Casablanca

Main pollutants in the air over the city would be ones such as high quantities of both nitrogen dioxide (NO2) and sulphur dioxide (SO2). Both find their release mainly from vehicle engines, with nitrogen dioxide being the chief offender when it comes to vehicle emissions, with areas that see a high volume of traffic consistently having high amounts of nitrogen dioxide in the nearby atmosphere. Ships can also release large amounts of sulphur into the air as well, due to different regulations regarding the fuels that ships can utilise, which often contains much higher quantities of sulphur than is seen in regular fuel. Both can contribute to instances of acid rain, as well as being damaging to the lung tissues of those who are exposed.

Other pollutants would include ones such as black carbon, volatile organic compounds (VOC's), as well as polychlorinated biphenyls, dioxins, furans and even toxic metals such as lead, mercury or cadmium. All of these can find release from the burning of synthetic materials, construction sites and factory grounds.

Combating Atmospheric Air Pollution in Casablanca

Integrated technological solutions of the Climate Modification Technology combat atmospheric air pollution by the change the strength and direction of prevailing winds

Problematics:

The air quality index for Morocco in mid 2022 and rated as unhealthy for sensitive people, reaching up to 69.27 which represents a potential danger to the health and life of the Kingdom's population.

World Health Organisation (WHO) data show that almost all of the global population (99%) breathe air that exceeds WHO guideline limits and contains high levels of pollutants, with low- and middle-income countries suffering from the highest exposures.

Air quality is closely linked to the earth's climate and ecosystems globally. Many of the drivers of air pollution (i.e. combustion of fossil fuels) are also sources of greenhouse gas emissions.

Policies to reduce air pollution, therefore, offer a win-win strategy for both climate and health, lowering the burden of disease attributable to air pollution, as well as contributing to the near- and long-term mitigation of climate change.

Pollutants with the strongest evidence for public health concern include particulate matter (PM), carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2) and sulphur dioxide (SO2). Health problems can occur as a result of both short- and long-term exposure to these various pollutants. For some pollutants, there are no thresholds below which adverse effects do not occur.

Particulate Matter: Particulate matter (PM) refers to inhalable particles, composed of sulphate, nitrates, ammonia, sodium chloride, black carbon, mineral dust or water. The health risks associated with particulate matter of less than 10 and 2.5 microns in diameter (PM10 and PM2.5) are especially well documented.

PM is capable of penetrating deep into the lung and enter the bloodstream causing cardiovascular (ischaemic heart disease), cerebrovascular (stroke) and respiratory impacts. Both long-term and short-term exposure to particulate matter is associated with morbidity and mortality from cardiovascular and respiratory diseases. Long-term exposure has been further linked to adverse perinatal outcomes and lung cancer.

In 2013, it was classified as a cause of lung cancer by WHO's International Agency for Research on Cancer (IARC). It is also the most widely used indicator for assessing the health effects of exposure to air pollution.

Black carbon is a major component of PM2.5 and a potent warming agent in the atmosphere, and contributes to regional environmental disruption and accelerates glacier melting.

Proposed Solution:

The technological solutions of the Climate Modification program effectively combats pollution of atmospheric air by transferring air masses over long distances.

The technological solutions of the Climate Modification program change the strength and direction of prevailing winds, replacing polluted air masses with clean atmospheric air above the industrial cities within Morocco or over a defined territory within the Kingdom of Morocco.

The integrated technological solutions of the Climate Modification program ensure the complete or partial purification of the atmosphere of large industrial cities of Morocco.

- Washing out of solid and water-soluble contaminants from the atmosphere with the assistance of precipitation in the form of fine dispersion rain.

- Changing the direction of the prevailing winds (Wind Rose), moving polluted air outside the city limits and forming horizontal air mass transfer "channels" for removal of contaminated air masses from the atmosphere.

- Formation of vertical convective flows and channels of air mass transfer for the influx of clean and cold air from the upper layers of the atmosphere, with follow removal of contaminated air masses from the surface layers beyond the "dead" zone to a height from 500 m. to 5000 m. and further removal of contaminated air masses by horizontal "channels" of air mass from the atmosphere.

Thus, innovative technology for CGCT Weather Management program radically reduce the pollution of localised atmosphere around cities of the Kingdom of Morocco from the "Unhealthy" levels to "Moderate" and "Good" levels and radically reduce costs for combating atmospheric air pollution.

Regulation of Seasonal Temperature Contrasts

Morocco remains highly vulnerable to climate variability and change, particularly for the country's water, agriculture, and health sectors.

Observed Average Seasonal Mean Temperature

The identified sub-national units with the highest and lowest mean temperatures reflect the latest climatology, 1991-2020.

Units: °C	1991-2020				1961-1990				1931-1960				1901-1930			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Country: Morocco	10.04	16.62	26.79	18.02	10.02	15.71	24.72	16.49	10.00	16.07	24.04	18.00	10.00	15.47	24.45	16.10
Highest: Laâyoune - Boujdour - Sakia El Hamra	17.69	20.86	26.41	23.61	17.06	19.79	[illegible]	22.82	16.70	19.05	24.64	22.79	16.88	[illegible]	24.33	22.46
Lowest: Fes - Boulemane	7.45	12.62	24.35	16.26	7.45	12.59	23.29	15.82	6.94	12.94	23.59	15.87	6.74	12.27	22.89	15.20

Impacts of climate change are already being experienced across the region. Water scarcity and drought conditions are expected to increase risks of food insecurity and may exacerbate conflict situations over scarce resources and population movements.

Additionally, sea level rise may impact much of the country's coastline. Environmental degradation and deforestation, impacted water resources, and loss of biodiversity and ecosystem services constitute serious obstacles to the country's continued development and poverty reduction efforts, increases vulnerability to risks and hazards as well as increases the importance for sustainable adaptation and resilience measures.

Integrated technological solutions of Climate Modification program also allow the regulation of the seasonal temperature contrasts within a specified territory of the Kingdom of Morocco.

1. Changing maximum and average temperature in a given territory
2. Change the temperature of the environment (up to 5-10 Celsius degrees)
3. Levelling seasonal and territorial weather and temperature contrasts to a comfortable level
4. Change the level of humidity of air

Problematics:

Morocco's climate varies considerably across the country's northern to southern areas. Both rainfall and temperature are strongly influenced by the Atlantic Ocean to the west, the Mediterranean Sea to the north, and the Sahara Desert to the south and southeast.

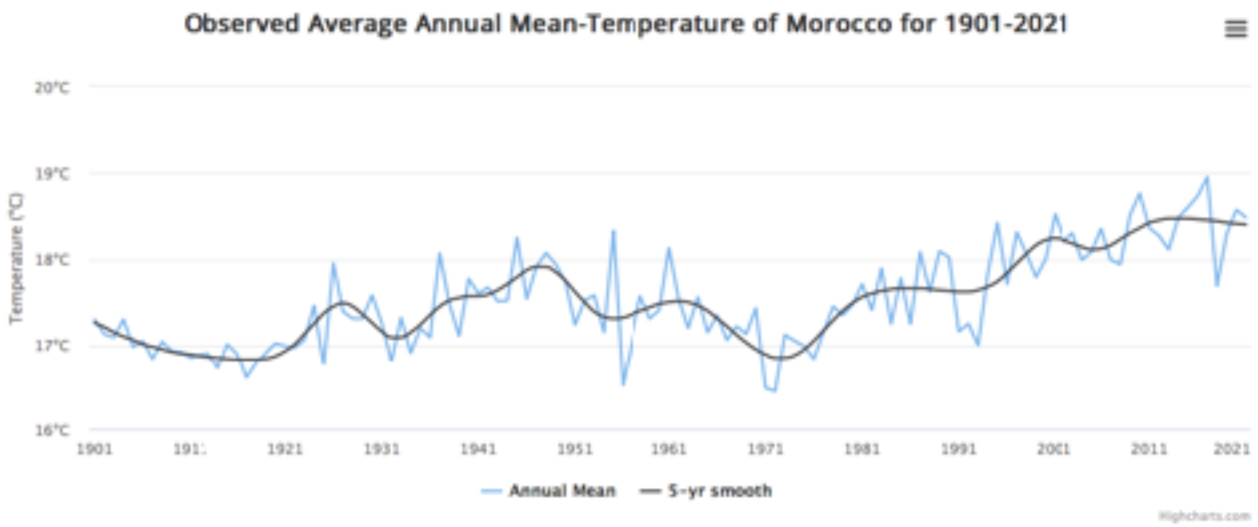
Most of the country's rainfall occurs between October and May. The incursion of extratropical weather systems from Europe and the Atlantic Ocean, brings colder air and cloudiness, which results in a declining rainfall gradient from north to south that is also influenced by the Atlas Mountains.

Temperatures in the arid and semi-arid southern and southeastern parts of the country are generally high, while rainfall and snow can occur in the northern mountainous areas between November and April. Most of Morocco, particularly along the coast, experiences a typical Mediterranean climate, with mild, wet winters and hot, dry summers.

The rainy season extends from November to March, with average annual rainfall of 1,200 mm. The south is much drier and receives approximately 100 mm of rainfall on average each year. In the summer, temperatures along the coast range from 18°C to 28°C and can reach up to 35°C in the interior. In the winter, temperatures along the coast range from 8°C to 17°C and can drop below 0°C in the interior mountain areas.

Mean annual temperature for Morocco is 17.5°C, with average monthly temperatures ranging between 9.4°C (December, January) and 26°C (July, August). Mean annual precipitation is 318.8 mm, with highest rainfall occurring October to April, with extremely low precipitation occurring between June to August.

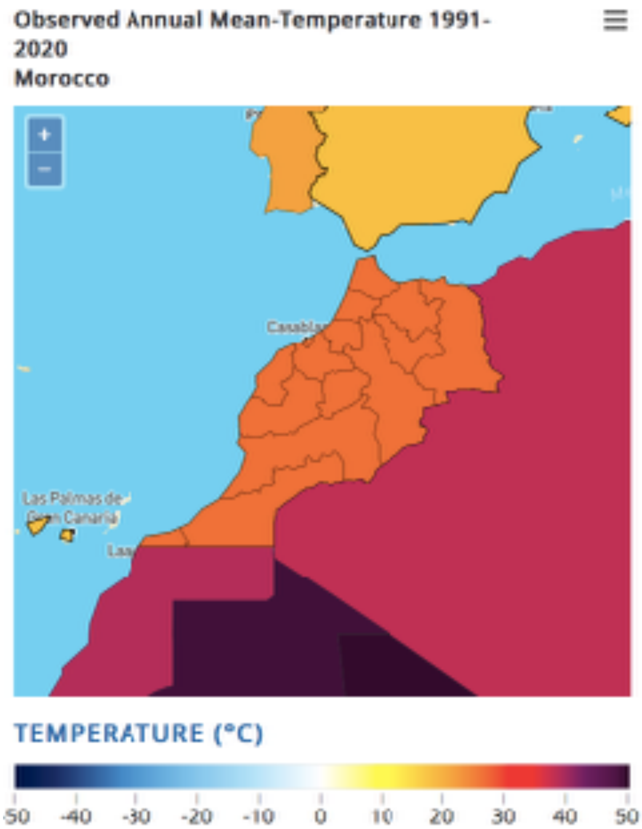
Key Trends

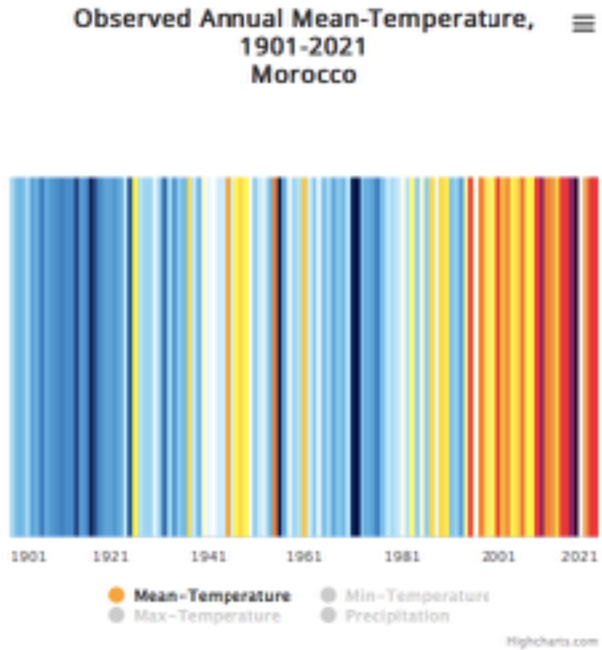


Temperature

Increased temperatures are expected across the Northern Africa region. Mean annual temperature is projected to increase by 1.5°C to 3.5°C by mid-century and possibly by more than 5°C by end of the century. Warming rates are projected to be faster in the country's interior. The number of 'hot days' and 'nights' will also increase, with increase most significant in the July, August, September season.

The number of 'cold days' and 'nights' are expected to occur on less than 4% of days and nights by end of





the century.22 Increased temperatures are also likely to result in reduced snowpack in the Atlas Mountains, impacting the country's water reserves and storage.

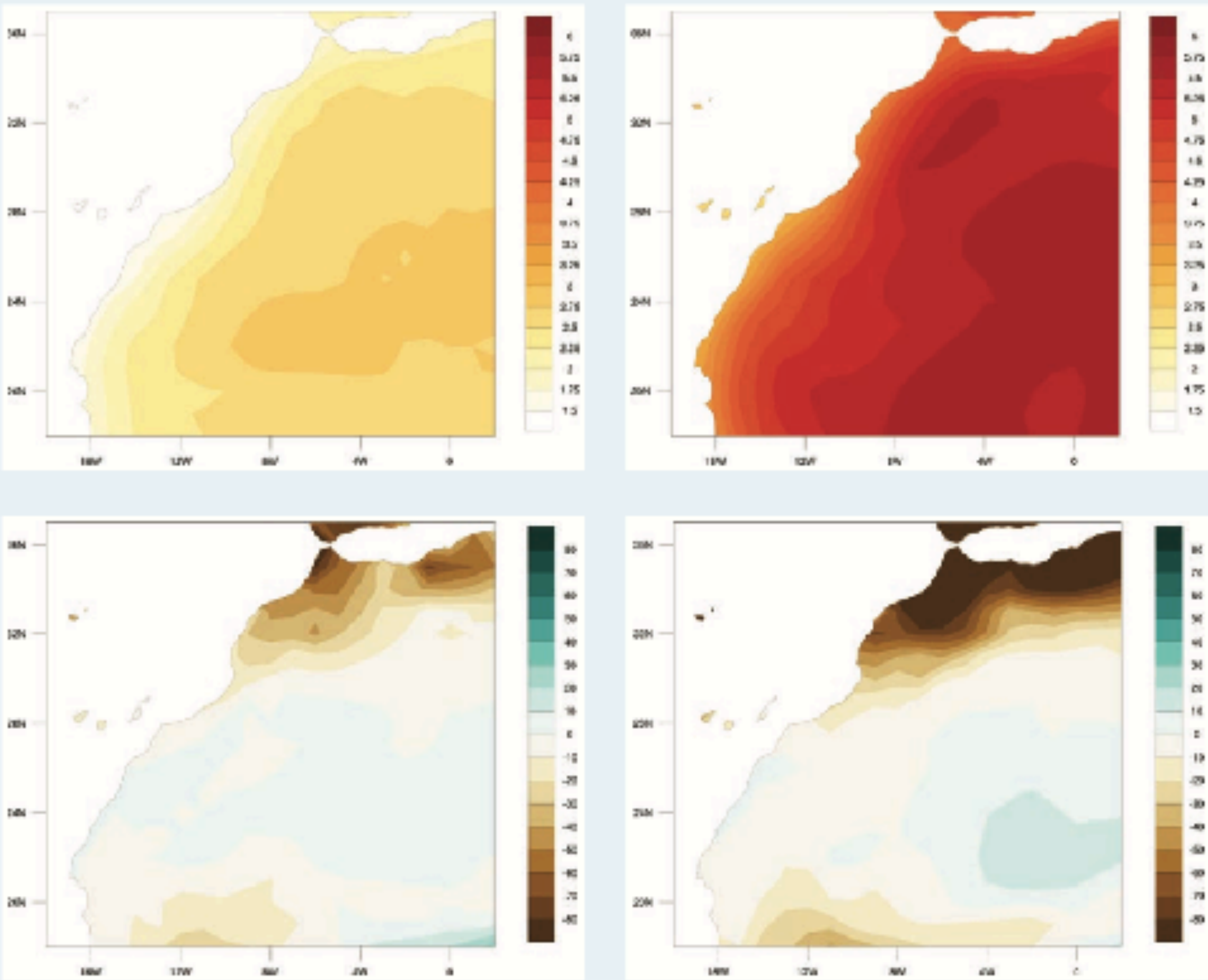
Temperature rise are projected to increase across all emission scenarios throughout the end of the century. Under high-emission scenario RCP8.5, average temperatures are expected to increase rapidly by mid-century.

An increase is also expected for the change in the number of very hot days (Tmax >35°C). The change in number of days across the seasonal cycle is also presented below.

Temperature increase spikes will be felt from May to October. Increased heat and extreme heat conditions will result in significant implications for human and animal health, agriculture, ecosystems as well as energy generation.

Precipitation

FIGURE 5. Multi-model (CMIP5) Ensemble Projected Changes (32 GCMs) in Annual Temperature (top) and Precipitation (bottom)by 2040–2059 (left) and by 2080–2099 (right), Relative to 1986–2005 Baseline Under RCP8.5[21]



Precipitation trends in Morocco are highly variable, however the projections indicate significant reduction in average annual rainfall across the country from 10%–20% to as much as 30% decrease for the Saharan region.

In Morocco, water resources are projected to decline due to increased arid periods and drought conditions Additionally, projections indicate that winter precipitation will be reduced as warming increases.

Even with no change in precipitation, evaporation will increase due to rising temperatures and thus surface soil moisture will decrease. Thus, the availability of water for irrigation from mountain streams and reservoirs will continue to be stressed at an increasing rate, with severe water shortages for the arid southern regions.

Overview

Morocco has a high degree of risk to natural hazards and disasters. Impacts from natural hazards are estimated to cost the Kingdom of Morocco $800 million annually.

Morocco is expected to become hotter and drier in the future. An increase in temperature and decrease in average precipitation by 10% to 20% is expected, with the potential of a 30% reduction for the Saharan region by the 2090s.

Morocco is also likely to experience an increase of drought and flooding in some areas as well as other climate related hazards.

Water resources are expected to be increasingly strained across the country with warmer temperatures expected to accelerate the rate of evapotranspiration.

With more frequent and severe droughts, the region will likely experience negative impacts on water supply, biodiversity, and agriculture and the potentially simultaneous increase in flooding poses a serious water pollution threat.

In Morocco, flooding and drought combine for the most significant impacts, however earthquakes have also resulted in significant destruction to infrastructure and death.

Climate change is expected to increase the frequency and severity of weather-related events in Morocco. The increasing shortage of available water is a significant constraint for economic and social development in the country.

This is a result both of natural conditions (aridity and drought) and poor water management practices and decision-making (water scarcity and desertification), leading to increased water insecurity.

Key impacted sectors include agriculture, water, tourism, and health. Impacts of extreme rainfall events on public and private infrastructure has resulted in costly repairs, road closures, limited or no access to electricity, and failure of sewage and storm water systems.

Temperature anomalies are affecting infrastructure sensitive to temperature extremes, such as roads. Rainfall and temperature impacts on agriculture production and food security and extreme weather events are affecting tourism and livelihoods that depend on the sector.

Decreased rainfall and higher temperatures (including heat waves) have resulted in water scarcity as well as increased demand for water and energy for cooling in domestic, commercial and industrial sectors. Extreme rainfall has resulted in soil erosion, land degradation, loss of ecosystems and ecosystem services, alien species invasion, salinisation of groundwater and flood trails containing pesticides and fertiliser.

Impacts of sedimentation on the storage capacity of dams due to changes in climate will differ across the country and are most likely to impact on smaller capacity dams.

Additionally, rising sea levels pose a high risk to coastal areas and specifically coastal urban zones as 60% of the Moroccan population and the majority of the country’s economic activities are along its coast. An estimated 42% of the coastline will be at high risk of erosion and floods by 2030.

Key sectors such as, agriculture and livestock, health, water resources, and tourism are vulnerable

Disaster risk from increased temperatures is expected to (i) exacerbate existing tensions between agricultural and livestock needs as well as human population needs for water, especially during the dry season, (ii) alter the quality of available water from surface water and groundwater, and (iii) increase pressure on urban zones due to increased urbanisation.

Changing rainfall patterns are expected to play a significant role in agricultural production and harvest seasons, with later onsets expected to impact crop productivity as well as livestock health.

The increased risk and intensity of water scarcity and drought throughout the country is expected to impact primary sectors such as water, agriculture, and human health. Additionally, increased frequency of intense rainfall events will lead to a heightened risk of flooding, river bank over ow and ash flooding.

Intense rainfall and flooding may also result in soil erosion and water logging of crops, thus decreasing yields, with the potential to increase food insecurity; particularly for subsistence-scale farmers.

Higher temperatures with increased aridity may also lead to livestock stress and reduced crop yields. This is likely to result in economic losses, damage to agricultural lands and infrastructure as well as human casualties.

Furthermore, land degradation and soil erosion, exacerbated by recurrent flood and drought adversely impact agricultural production, further affecting the livelihoods of the rural poor.

Small rural farmers are more sensitive to impacts of disasters (floods, dry periods) because they have limited resources with which to influence and increase adaptive capacity.

Climate Risk Profile: Morocco (2021): The World Bank Group.

Proposed Solution:

The integrated technological solutions of the Climate Modification program allow reduction of the maximum and average summer air temperatures, by creating conditions for controlled quasi-convection influx of cold air masses from the upper layers of the troposphere into the heated surface layer of the atmosphere and mixing them, which results in a steady decrease of the maximum and average temperature by 8-10 degrees as well as increases the humidity of surface air.

The integrated technological solutions of the Climate Modification program provide formation of managed vertical convective flows and channels of air mass transfer for the influx of clean and cold air from the upper layers of the atmosphere, with follow removal of heated air masses from the surface layers beyond the "hot" zone to a height from 500 m. to 5000 m. and further removal of hot air masses by horizontal "channels" of air mass from the atmosphere of big cities within the Kingdom of Morocco.

The regulation of seasonal temperature contrasts will ensure a year-round beach season in the tourist areas of Morocco, leading to further development of tourism sector as well as having a positive impact on the entire agricultural sector of the country that will significantly improve the efficiency of the entire economy of the Kingdom.

The complex technological solutions of the Climate Modification program allow radically reduce costs for combating with the consequences of weather contrasts and temperature anomalies.

COMPARISON OF WEATHER MITIGATION SERVICES TECHNOLOGIES:

Compare our CGCT technology and other rain generating techniques, such as cloud seeding, currently available.

CGCT WATER RESOURCES OF ATMOSPHERIC ORIGIN (IONOSPHERIC TECHNOLOGIES)

There are some technologies that are able to generate rainfall from dense clouds, but there are **no other technologies** like CGCT's that is able to move heavy rain bearing clouds from one place to another or from Oceans to any land area, even over distances in excess of thousands of kilometres, or change the direction and speed of winds, quench hurricanes, change their direction and weaken them, and increasing or decreasing the monthly and yearly temperature.

CLOUD SEEDING (CHEMICAL TECHNOLOGIES)

- The technology of cloud seeding is a technology for increasing the amount of precipitation (rain, snow, hail, and fog) that falls from clouds by means of dispersing into the air chemicals that include the silver iodide, potassium iodide, and dry ice (solid carbon dioxide, and also could use Liquid propane, which expands into a gas and can produce ice crystals at higher temperatures than silver iodide. Also Sodium, which is becoming more popular.

- Cloud seeding chemicals may be dispersed by aircraft or by dispersion devices located on the ground (generators or canisters fired from anti-aircraft guns or rockets). For release by aircraft, silver iodide flares are ignited and dispersed as an aircraft flies through the inflow of a cloud. When released by devices on the ground, the fine particles are carried downwind and upward by air currents after release.

SUMMARY OF PREVIOUS PROJECTS:

Project "Kerman" - Iran 2007

On the 31st May 2007 CGCT began a two month demonstration of the CGCT Climate Modification Program over a 100 square kilometre pre-determined area within the Hamun-e Jaz Murian region of Iran.

Th designated area was situated in the western part of a valley between the Makran and Kuh Rud mountain ranges, and bordered by the Kuh Rud foothills to the West, a dry lake to the East, and the newly constructed road to Iranshahr to the North.

The nearest meteorological station, that had archive data available that included the pre-determined project area, was Kahnuj, that is located approximately 660km to the South East of Hamun-e Jaz Murian.

The Khanuj station's data showed an average monthly precipitation level in June as just 0.7 mm and 2.9 mm in July for the preceding five years.

The Mohammad Abad Koteki Weather station, which is situated close to the centre of the demonstration area (longitude of 58-36E, latitude of 27-49N) reported that on the 24th July 2007 the level of precipitation in the pre-determined area was 23 mm.

There was a further 13 mm precipitation on the 26th July 2007 - a total precipitation of 36 mm was achieved within the pre-determined area within sixty days.

An additional result of the operation included a change of the weather conditions over the region.

The precipitation in Iranshahr during the month of June was increased 64%, based on the average annual precipitation rate and the precipitation level in July was in excess of thirty times the previous five year average.

Similar weather anomalies were registered throughout the entire region. These anomalies were caused by moisture alone, as CGCT had discharged the bulk of water transferred from the Pacific Ocean into the Arabian Sea, which is illustrated by data from the Goddard Space Centre, that demonstrates the weekly precipitations accumulated over the period 21st - 27th June 2007.

The demonstration caused a dramatic change of the weather patterns, including anomalous tropical cyclone 03B**, that appeared during the moisture transfer process.

The tropical cyclone 03B was the main source of precipitation and energy to enable the transfer of the precipitation to the pre-determined region of the demonstration.

The tropical cyclone 03B was directed over the Hindustan peninsula to the Arabian Sea to ensure minimal loss of humidity and energy.

It should be noted that the main precipitation occurred on the south coast of Iran and in mountainous regions, which hindered higher levels of precipitation reaching the pre-determined Hamun-e Jaz Murian Valley.

** NASA Earth Observatory: https://earthobservatory.nasa.gov/images/18567/tropical-cyclone-03b

Project Kerman data and climatic imagery on file at head office and available

Project “Urmia" - Iran 2010

The aim of project Urmia was to raise precipitation levels above the seasonal norm by 30 - 40 mm during a month long trial. Project Urmia was a massive success, generating more than 60 mm of rainfall.

This was achieved via the active transfer of moisture, by forming of the localised stationary "mini-cyclone" to provide transfer of moisture from the Caspian and Black Sea region as well as the North Caucasus.

Precipitation for 30 days within the epicentre of the project target area from 30th May 2010 to 29th June 2010 was more than 100 mm and over the same period, in excess of 150 mm of rain fell within bordering regions in Iran.

Notably Khuzestan Province, which was the epicentre of the first precipitation and Tehran, the epicentre of the second precipitation experienced in excess 250% increase in precipitation, in comparison to the historic climatic norm.

An additional result of project Urmia was that significant levels of precipitation fell over 85% of Iran during the “dry season”.

Project Urmia data and climatic imagery on file at head office and available

Project "Khuzestan" - Iran 2011

The Scientific and Industrial Department of the Embassy of the Islamic Republic of Iran organised talks with regard to Practical Application of Technology driven climate change, in order to address environmental and economic problems within the Islamic Republic of Iran.

Iranian Representatives Present:

Mehrab Rouhbakhsh, Attach. of Science and Industry

Mehdi Ghalenovi, Director of Industrial Technologies Department, Centre for Innovation and Technology Cooperation (CITC) (Iran)

Mr Hodemi, deputy governor of Khuzestan province (Khūzestān Province)

Abbas. Holacoei, Ahwaz Urban Railway Organisation Managing Director

Dr. Amir Mahmoodzadeh, Sharhes Sazan Managing Director

The Deputy Governor of Khuzestan province, Mr. Hodemi acted as the representative of the Client at the talks that took place in December 2010.

The client expressed a desire to achieve full climate conversion in the region via technology controlled climate change.

Project requirements:

1. increase rainfall in the province of Khuzestan (Khūzestān Province) with the aim to eliminate the effects of drought, recharge of water in natural water bodies and reservoirs as well as raise the level of groundwater;

2. decrease in the number and intensity of dust storms.

Khūzestān Province Coordinates: 31Åã19′38″N 48Åã41′38″E / 31.3273ÅãN 48.6940ÅãE

It should be noted: Due to the client's failure to provide confirmation of the required payment guarantees, it was decided that the project would continue, albeit as a short term demonstration of the localisation and intensity of changes in climatic parameters in the region, rather than the full climate change parameters as agreed.

Results

The demonstration region was the province of Khuzestan.

The month long demonstration took place from the 10th January 2011through to the 9th February 2011, during the demonstration period the precipitation level over the entire region was between 50 to 200 mm of rainfall, which equates to approximately 250% above the seasonal norm for this region in addition, zonal anomaly ranged from 60 to 150 mm of precipitation equating to an annual rate of 280 mm rainfall.

The majority of the precipitation was localised in the Khuzestan province but also included bordering provinces, including ones close to the UAE

Anomalies also provided precipitation (10-30 mm) over large parts of desert in Iraq and Saudi Arabia that were prone to dust storms. This also provided a convenient and favourable climatic conditions in the Persian Gulf countries, especially in coastal areas.

Rainfall on 9th February 2011 in the extended area ranged from 20 to 60 mm and excess rainfall over the 30 days in the period in the central zone was more than 150 mm (approx 300% over seasonal norm)

Project Khuzestan data and climatic imagery on file at head office and available

Cyclone Transfer - UAE 2019

Cyclone transfer provides capture and accumulation (concentration) of water vapour for subsequent transfer to a target area or region.

Control and formation of Cyclone transfer via CGCT Climate Modification technologies generates high levels of energy within the activation zone - in this particular case; North-West part of Indian Ocean and Arabian Sea - forcing wind correction over the target area or region, as well as adjacent territories.

Maintenance of the process is realised by external high-energy pumping up of zones of activation, by interception and capturing of high speed wind flows on adjacent territories and creation of conditions for formation of self-supporting process within the framework of managing algorithms and programs.

The main purpose of creation of the Anomaly "Cyclone transfer" – is a demonstration of immensity (scale) of areas of impact and energy of involved processes and programs of managing of climate processes.

The additional purpose of creation of Anomaly “Cyclone transfer” – is the creation of an effective tool for managing correction of climate in the region.

The secondary purpose of creation of Anomaly “Cyclone transfer” – is adjustment of the technology for external high-energy pumping up of the zones of activation and creation of energy, temperature and wind anomalies, activation of cyclones, managing of trajectories and power of cyclones, retention of cyclones in the activation zones for a time comparable to the "life" of the cyclone.

Results

Formation of Anomaly “Cyclone transfer” began in the framework of program of trajectory management of cyclone VAYU** and was used for formation of a channel for transfer of precipitation deep into Arabian Peninsula and to the UAE territory (Abu-Dhabi emirate)

** Nasa Earth Observatory: https://www.earthobservatory.nasa.gov/images/145175/cyclone-vayu-approaches-western-coast-of-india

Cyclone Transfer data and climatic imagery on file at head office and available

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