



**RESEARCH PAPER**

**No. 172**

**DECEMBER 2016**

**THE DAMS WAR**

**HOW WATER SCARCITY HELPED CREATE ISIS  
AND WHY COMBATING IT WOULD UNDO IT**

*Quantin de Pimodan*

(Co-author of *The Khaleeji Voice*, six-part book series about each of the GCC nations and their respective urban art cultures)

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*“By means of water, we give life to every living thing.”*

*Aya 30 of Surat Al-Anbya, the Qur’an*

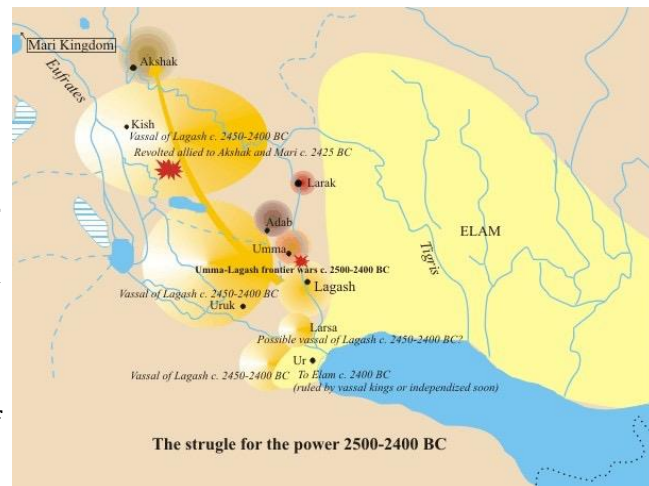
In *“Peak Water: How We Built Civilisation on Water and Drained the World Dry”*, Alexander Bell narrates what he calls the first war in human history that takes place around 2450 BC in Mesopotamia in today’s Iraq. This war was fought between two city-kingsdoms, the Lagash and the Umma, both kingdoms of Sumerian civilization. The Lagash were found northwest of the Euphrates’ shores with its spiritual center of Girsu while upstream, of the same river, Umma is located, looking at its southern rival with much envy for its access to water.

According to Bell, the king of Umma carried out one of the first known acts of “terrorism” by sabotaging the canal from Euphrates that was supplying water to the Lagash, to the horror of the king of the Lagash who “looked out from his city walls at the watery mess below”.

The result however, was not the one the King of Umma expected, as his southern enemy succeeded in rebuilding the canals from the nearby Tigris River and eventually defeating Umma. Naturally, this episode resonated as a warning to the generations to come, with regards to the use of water as a weapon in Iraq.

With water, in the region, worshipped as much as it is feared, due to the frequent and ruthless flooding, the Sumerians had long since mastered the impetuous flows of both Iraq’s Tigris and Euphrates Rivers. Furthermore, by digging a web of canals allowing for the irrigation of the plains in between the two rivers, the Sumerians<sup>ii</sup> were able to give life to a sedentary civilization in Iraq.

It has since followed, in Iraq, that whomever is situated upstream of the rivers shapes the destinies of those situated downstream as well as their own.



MAP BY [HTTP://CLASSICALWISDOM.COM/LAGASH/](http://classicalwisdom.com/lagash/)

Today, ISIS, very much like the first “terrorist” king of Umma, intends to use its’ strategic positioning of the northern parts of both the Tigris and Euphrates in order to hold the upper hand in today’s regional conflict. Mosul dam<sup>iii</sup> is a highly valuable prize. Despite the hydroelectricity it provides, the dam controls a significant volume of the river’s flow which remains essential to nourish the downstream Mesopotamian basin and its marshlands which are in the hands of the Shias, whose ISIS call “Rafidi” and consider as being “enemies of Islam”. But any attempts to see the dam flying away from Iraq’s central supervision would also have devastating effects on Baghdad itself as the capital city is located on Tigris’ shores. In a similar move, as the one carried out by the king of Umma, ISIS threatened to restrain, divert or even unleash the water, forcing a coalition of Kurdish forces and Iraqi Military to act swiftly to regain control. This event showed the true face of the conflict: controlling Mosul dam is more important than controlling Mosul itself.

In this context, a question should be asked: did the political issues and water security issues of the region lead to the creation of ISIS? In answering this question, I propose that a long list of internal and external factors, from deliberate policies to unpredictable events, has led to the creation of an unavoidable void that the terrorist organization such as ISIS, despite its ideology, would fill. In other words, if it wasn’t ISIS itself who created this power vacuum, decades of mismanagement, corruption, local power



fragmentation, environmental issues, unequal international and national water distribution policies would eventually lead to the creation of an illegal organization in Iraq that has enjoyed support based on local mistrust toward Baghdad policies over several decades. Therefore throwing a harassed local population into the arms of any power that would be able to secure basic needs and provide a semblance of “ordinary” existence.

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### AN ALREADY FAILING ECONOMY

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For the actors involved in Iraq’s economy, whether local, such as the Ministries of Agriculture, Industry and Minerals, Oil, Electricity, Environment, Health - or international organizations such as the United Nations Assistance Mission for Iraq (UNAMI), the Food and Agriculture Organization (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United States Agency for International Development (USAID), the World Food Program (WFP) and others, publicly agree on two things:

Firstly, Iraq is an agricultural country. Secondly and perhaps more importantly, water is vital. If agreeing on platitudes could be a first step towards facing the issues, it still would not resolve them, particularly confronted by the temptations which the oil industry sector represents now that Iraq has been welcomed back on the global market, and urgently needs money in order to rebuild from the ashes left behind by the liberators.

Yet, the 2003 Invasion cannot be held solely accountable for the water debacle.

Studying the case of Iraq’s lands, agriculture and water resources is more or less like looking for a needle in a haystack blindfolded because the numbers vary according to the source of information and sometimes even within the same sources. For example, the FAO in its *Agriculture sector note*<sup>iv</sup> headed by Paolo Lucani in 2012, states that Iraq’s total area is 43.7 million hectares (437, 000 km<sup>2</sup>) of which 9.5 million ha (22% ) are suitable for cultivation and out of that, only 5 million ha are actually exploited and harvested.

However, the same FAO in its *Global Information and early warning system on food and agriculture*<sup>v</sup> on June 25<sup>th</sup> 2014 says that Iraq’s total area is 43.3 million ha of which 11.1 million ha (27%) is suitable for cultivation. This disparity could be explained by a logical agricultural progression made between 2012 and 2014. But during that period, it seems that Iraq lost about 0.4 million ha (4 000 km<sup>2</sup>) in through some magical process. But then it doesn’t explain Tara Mohamed Anwar Omer *Country Pasture/Forage Resource Profile’s*<sup>vi</sup> Iraq total area of 438 317 km<sup>2</sup> in 2006. No, the answer has been provided at the *Suleimani Forum: The Tigris and Euphrates dilemma’s*<sup>vii</sup> conference by Andrea Cattarossi of the MED Ingegneria talking just about water: “the problem is that there are many, many variable numbers, in the vast collective of information out there. [We] spent a great deal of effort in trying to prove verify, and validate basic information such as: how much water Iraq is getting? How much water is flowing through Iraq? What is the quality of the water coming in? What is going to happen in the future or in the present?”

*UN development group – Iraq trust fund*<sup>viii</sup> (p.12): “whilst Iraq is dominated by oil production, the exact volume and value of import and exports for all kinds of farm, off farm and non-farm agricultural products are poorly documented, both are due to weak recordings and the highly porous nature of certain trade routes in Iraq.”

This speaks volumes about the overall quality of reliable information regarding Iraq while the main source of wealth or plague has never been precisely monitored, and the most genuine knowledge is out of reach. This is the result of several decades of negligence and vagueness resting on corruption and cooptation. Saddam's heavily centralized system did not allow any modernization of the agricultural industry and the obsession with imposing a tight leash on the several governorates composing the country's structure, led to disastrous public works of which the draining of southern Marshes<sup>x</sup> in the 1990s could be considered the most damaging project in modern Iraq. This drainage however, is more politically rooted in revenge than development.

That being established, a certain balance can be found in the available knowledge of the country. Iraq is composed of 18 governorates and one independent region called the Kurdistan Regional Government and that encompasses 3 out of the 18 governorates (Erbil, Dahuk and Sulaymaniyah) in the north of the country.

Three main topographies can be delimited: the plains in between the Tigris and the Euphrates that for many centuries brought Iraq renown; the mountains in the north and east; and finally the desert areas in the south and west which account for 40 % (up to 50% according to some sources) of the land area. If the northern agriculture is rain-fed, the southern area relies mainly on irrigation.

And that is where it starts. Iraq has huge irrigation potential but due to a catastrophic management of water, political turmoil, conflicts and a lengthy list of other destructive interventions, the country still relies on the rain-fed lands to meet its grain requirements. These rain-fed lands more or less stretch from Mosul to Kirkuk through the Kurdistan Region (in the text, KRG, the acronym of Kurdistan Region Government will by extent refer to the Kurdistan Region and its Government). It is therefore important to note that both Mosul<sup>x</sup> and Kirkuk<sup>xi</sup> have long been subjected to intense disputes between the federal power of Baghdad and the regional power of Erbil. Kirkuk has been waiting for a referendum<sup>xii</sup> intended to cement its situation since 2003 and is now in the hands of the Kurds. As for Mosul, if currently besieged by a coalition it is still in the hands of ISIS and will not logically stand out of KRG's reach for long as the highly strategic dam of Mosul remains under strict shared surveillance between KDP and PUK, the main Kurdish forces (though the future leadership over Mosul remains unclear as all forces involved in its liberation have claims over the city). It would not be an exaggeration to conclude that ISIS contributed to giving the totality of the rain-fed rich northern agricultural lands to the KRG and ended up with a decade long political impasse. Little doubt that the KRG will ever be willing to give the control of both its harshly paid seizures back to the central power.

As usual figures vary. Tara Mohamed Anwar Omer states that out of the 120 000 km<sup>2</sup> of cultivable land, 40 000 km<sup>2</sup> are rain-fed in the northern region and the rest is in the irrigable areas of the Mesopotamian plains. For the FAO it's 50 % of the 111 000 km<sup>2</sup> of cultivable lands that are suitable for irrigation, the rest being rain-fed. The point is that the most important regions for agriculture in Iraq are situated in the north and the south east of the country, and both need to reach symbiosis. For example the FAO estimates that "today the farming system tends to maximize short-term returns at the expense of long-term sustainability" and later adds "most often the restoration of the major pump stations has not been followed by parallel improvements in irrigation efficiency".

According to the *UN development group – Iraq trust fund*<sup>xiii</sup> document headed by Dr Fadel El-Zubi in 2010, agriculture is the main employer in the country, 25% behind public sector, and accounts for only 8% of the GDP. Which is still better than the 3.9% of GDP contribution and 20% employment credited to agriculture by the Paolo Lucani FAO's note in 2009. However, they both agree that the sector is the second GDP contributor after the oil industry.

Agriculture is vital for rural employment as out of the 32 million Iraqi people, 1/3 resides in rural areas. Important to note that today's main work force is composed of women who are now estimated to represent 60 % of the work force when they were only 50% in 2000. Unfortunately the very limited performances of the agricultural sector provoked a migration of this poor and food insecure population to the urban areas and therefore raising the urban poverty. In order to provide context to these limited results, the FAO provided the following figures: in 1985 the total value of agricultural imports was 1762 million USD and in 2008 (a year savaged by severe drought) the total was USD 4638 million. In the meantime the total value of the agricultural exports were in 1985 about USD 78 million and dropped to USD 68 million in 2008. It is therefore clear that the so-called agricultural Iraq "is heavily dependent on import food to satisfy local demand", concludes the FAO. Useful to remind that until 1996, Iraq was second country, right behind Iran, in terms of planted area, and nowadays 60 to 70% of the vegetables consumed in Iraq are imported from neighboring countries. Nowadays Iraq imports more or less 80% of its staples among which wheat that once built *Sumerians' supremacy*<sup>xiv</sup>.

"It is a crisis that threatens the roots of Iraq's identity, not only as the land between two rivers but as a nation that was once the largest exporter of dates in the world, that once supplied German beer with barley and that takes patriotic pride in its expensive Anbar rice" says Robertson in the *New York Times*<sup>xv</sup>.

One of the major problems Iraq is facing is indeed information, as the authorities fail to know who the real owners of the lands are. 80% of the farms, reminds the FAO, have a total size of less than 10 hectares and even these 10 hectares are scattered over several locations.

The fishery industry faces equivalent issues. Until now the majority of the projects carried out concern the freshwater fisheries and little has been done to support the fishery in saline waters. Ironical as this practice represents, according to the FAO, more or less 40 % of the total resources available for inland fishery in Iraq, employs about 4 000 fishermen in the famous southern marshes and *lake Razzaza*<sup>xvi</sup> (second largest lake in Iraq) near Karbala, and finally one of the oldest fishery practice in human History.

Iraq has a huge potential in agricultural sector and could very well sustain the growth of domestic food consumption as well as for exports, says the FAO. Yet many fears Iraq could face the *Dutch Disease* in response to the sudden wide range exploitation of oil. The danger would be that the massive oil revenues would be used in order to buy outside whatever is more expensive to produce locally. Like the neighboring *Gulf States*<sup>xvii</sup>, this would provide a short-term illusion of wealth and material goods, but would drastically impact the Iraqi's industrial and agricultural productions. On the long-term, relying on oil revenues could have devastating effects on every sectors and this "easy money" will accentuate the countries' dependence on imports. For example the FAO notes in 2012: "fuel for tractors and electricity for pumps are often in short supply and add to farmer's production costs", demonstrating that Iraq's oil is mainly exported and shortages are common inside the country.

On the contrary, a particular effort, surely more difficult to apply and demoralizing on a short-term as the results would take long to be seen, should focus on investing the oil rent on modernizing and developing other industries, like the agriculture, and water distribution for Iraq to achieve independence for the time to come that will witness major water-related and food-related pressures, not to say conflicts.

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## FURY OF NATURE

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As if it wasn't enough, Nature also entered the field for the past decades as the region faced severe droughts and forecasts for the following years are not good. From 1999 to 2001 a major drought has hit Iraq, then again from 2007 to 2009, particularly severe in 2008 (which impacted<sup>xviii</sup> the whole<sup>xix</sup> Middle East<sup>xx</sup>). Now for the coming years the prospects seem even worse<sup>xxi</sup>. Since 2007 Iraq has only half<sup>xxii</sup> of its usual rainfalls some argue. One thing is for sure; the agricultural production is greatly suffering from it, but not to forget that the Mesopotamian civilizations and amongst them, the Sumerian power, are believed to have collapsed because of the soil salinity. Paul Krugman in a New York Times article<sup>xxiii</sup> from 2003 explains: "The answer—the reason "the very soil lost its virtue"—is that heavy irrigation in a hot, dry climate leads to a gradual accumulation of salt in the soil. Rising salinity first forced the Sumerians to switch from wheat to barley, which can tolerate more salt; by about 1800 B.C. even barley could no longer be grown in southern Iraq, and Sumerian civilization collapsed".

Because the two main environmental reasons agriculture is collapsing in Iraq regardless of the low rainfalls, are precisely due to soil salinity added to wind erosion. Both contribute to the country's desertification, like Andrea Cattarossi said quoting an UN study at the *Suleimani Forum* "2% of the agricultural land is lost every year to the desert". Tara Mohamed Anwar Omer explains that already "by 1950, approximately 60% of Iraq's agricultural land was estimated to be seriously affected by salinity" and reminds that "20 to 30 % had been abandoned with a rate of loss estimated to 1% per year". The problem is far from being new.

The FAO estimates that 70% of Iraqi's cultivable land suffers from salinity threats; meanwhile 20 to 30% of the irrigated area are not farmed because of salinity. The salinity is the result of poor land management as well as harsh climatic conditions, lack of efficient drainage and over-flooding. "Traditionally, farmers managed the accumulation of salt by leaving the land fallow every alternate year, which allowed the water table to drop, and the rainfall to leach out salts". However, as seen previously, 80% of the farms are scattered over several locations and into smaller parcels, forcing farmers to abandon the alternate fallows which accumulates to "a rapid accumulation of salts".

In the meantime strong winds hit Iraq all year long and more particularly in the desert and the Mesopotamian plain during the early and mid-summers, during which periodic sandstorms are particularly severe. The dominant winds come from the northwest and the north like the infamous Shamal (literally "North" in Arabic) that repercussions are felt in the whole Gulf region. The sands therefore carried from Jordan, Syria, and Iraq's desert (50% of its territory) are providing the country with an average 2,5mm of dust fall every year. As an example, Tara Mohamed Anwar Omer reminds us that Baghdad faces no less than "23 major dust storms a year".

Worse, the FAO states that wind erosion affects 35% of Iraq's total area while water erosion affects 17%. However the *UN development Group - Iraq Trust Fund*, explains that

Nature alone should not be held accountable as “desertification and dust storms” are the result of “mismanagement of water resources”. Deforestation is also a “major concern in the northern highlands and mountains” says Tara Mohamed Anwar Omer.

Iraq’s agriculture, whether through its irrigation for the Mesopotamian plain, or its rainfed agriculture in the North and Northwest, greatly relies on rainfalls. It is estimated that rainfall in Iraq contributes for 50% of the water supply flowing into the Tigris and for 10% of Euphrates’. Therefore, any drought inevitably leads to a catastrophic situation<sup>xxiv</sup>. From 2007 to 2009 the majority of Iraq’s 18 governorates reported a 70% decrease in the total rainfall. This resulted in the displacement of 100,000 people<sup>xxv</sup> by drought in the country from 2004 to 2009.

If Euphrates seems less impacted by the rain compared to the Tigris, the latter is somehow slightly more important because the Tigris contributes to up to 54% of the total river basin area. The FAO estimated that in 2006, Iraq’s irrigation potential was over 5.15 million hectares of which 60% is in the Tigris basin, 37% in the Euphrates basin and 3% in the Shatt Al-Arab basin. Portraying therefore the essential role played by the Tigris River and demonstrating how decisive it is to control it in nowadays Iraq (without forgetting the fact that Baghdad is situated on its shores).

Rains in the country start during the months of October and November, and is key for the country’s agriculture. In 2005 for example, due to good rainfall, the wheat area doubled that of any other year from 2000 to 2009. The annual rainfall mean goes from less than 100 mm in the south-western half of the country up to 1 000 mm in the Zagros Mountains. The agriculturally productive northern regions witness only an average of 400 mm rainfall. In comparison, France’s lower rainfall is 600 mm to over more than 2 000 mm a year.

The low rainfalls added to the high temperatures and the strong winds all lead to high evaporation, up to 2170 mm in the central part of the country. During the summer months the evaporation rate is about 250/300 mm per month or 10 mm/day. This evaporation directly impact soil salinity if the problem is not dealt with extra care.

Yearly fluctuation in the annual discharge of the Euphrates and Tigris is so important, notes Tara Mohamed Anwar Omer, that it is impossible to determine the average annual discharge. This fluctuation also causes disastrous floods. As an example, Tara reminds Tigris’ level of water can rise at a rate of over 30cm/hour. From February to June, both the River’s natural flows make up 50 % to 80% of the total annual flow and as early as July to September, in low water period, the natural flows don’t exceed 10% of the annual amount. This demonstrates the sudden and impressive fluctuation of the flows.

In other words, a great deal of natural uncertainties are impacting the country’s landscape and therefore its soil quality from a year to another. Sometimes even discouraging any long-term environmental actions. However, many natural events’ impacts, such as salinity, deforestation and dust storms could be reduced if not avoided with proper water policies, both nationally and internationally.

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### **THE FIERCE AND SILENT REGIONAL BATTLE**

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Are Tigris and Euphrates international rivers or transboundary<sup>xxvi</sup> waters? If the question seems naïve, it in fact holds much tension. Still nowadays there is not a simple answer but rather several depending on whom the question is addressed to: Ankara, Damascus, Tehran or Baghdad.

While both rivers take birth in Turkey, they go through several countries before ending their courses in Iraq. The 2,315km long Euphrates goes through Syria before spreading along 1,000 km in Iraq. Meanwhile the clear majority of its river basin is situated in Iraq. Out of the 440,000 square kilometers of the Euphrates basin, 45% of it is situated in Iraq as Syria enjoys only 20% and Turkey about 35%. However Turkey contributes up to 88% of its flow, Syria up to 12% as Iraq doesn't contribute at all.

The Tigris situation is slightly different. 1,900 km long, the river basin spreads on 258,000 square kilometers shared as followed: 12% in Turkey, 2% in Syria, 53% in Iraq and 33% in Iran. Iraq is the main river flow contributor with 51%, while Turkey makes up to 40%, Iran 9% and Syria doesn't contribute to the flow. Similarly to the Euphrates, the longest part of the Tigris runs through Iraq on 1,300 km before reaching the Gulf Sea.

Therefore it is easy to understand why the rivers hold much regional tension between the different countries sharing their presence. Should the rivers capacities be fairly distributed according to the countries' contributions to the flow? Should they be divided according to the river basins superficies or the extent of the riverbeds? The figures clearly demonstrate that Iraq highly relies on both rivers as they nourish the entire country as the majority of its agriculture is based on irrigation. They also reveal that Turkey holds the upper hand on their flows and that Iraq is dependent on the good willing of the upstream states. Making Campbell Robertson write in a NYT [article](#)<sup>xxvii</sup> in 2009: "the Iraqi government is reduced to begging its neighbors for water".

Iraq's destiny is so reliant on the water, that the first modern time dam ever built on the Euphrates-Tigris water system was created in the country by the Ottoman Empire in 1911. The [Hindiya Barrage](#)<sup>xxviii</sup> was located between the cities of Baghdad and Karbala before being replaced during the 80's. It was soon clear to the mandatory powers ruling the old Ottoman Empire's provinces, that a particular emphasis would have to be put on water sharing policies and concerted efforts should be applied. This is precisely why the secret French-British [Sykes-Picot](#)<sup>xxix</sup> accords of 1916 that would state the future borders of the falling Empire, would dedicate a [chapter](#)<sup>xxx</sup> on water distribution thanks to a "guarantee of a given supply of water from the Tigris and Euphrates". In 1923, the article 109 of the [Treaty of Lausanne](#)<sup>xxxi</sup> also stipulates that a commission would be formed between Turkey, Syria under the French mandatory power and Iraq under the British mandatory power aiming to resolve possible disputes raised by countries' hydraulic projects. In this particular article 109, Turkey finds itself required to inform Iraq of any new planned infrastructure along the rivers, indicating yet again the delicate situation downstream Iraq is mired into compared to the two other nations. This Turkish's obligation toward Iraq will again be reminded after World War Two through the [Treaty of Friendship and Neighborly Relations](#)<sup>xxxii</sup>, a [protocol](#)<sup>xxxiii</sup> concerning regulation of water use of Euphrates and Tigris signed between Turkey and Iraq in 1946.

However these "promises" only bind those who believe in them whilst the saga continues:

- 1980, *Joint Technical Committee on Regional Waters* signed by Iraq and Turkey.
- 1982, Syria enters the previous Committee (last time the 3 countries will be negotiating on water issues all together).

- 1990, Agreement between Iraq and Syria about Euphrates sharing waters. Iraq can claim 58% of the waters while Syria can claim 42% of the water entering its territory.

Without forgetting that between 1962 and 1974, the three countries have been negotiating exclusively in pairs (Syria-Iraq from 1962 to 1974 and Syria-Turkey from 1962 to 1971). The climax has been reached in October 2014 when no “senior Turkish officials”<sup>xxxiv</sup> deigned attend at a transboundary water conference in Istanbul while Baghdad was insisting Ankara did not respect the agreement upon which Turkey had to inform Syria and Iraq of any major water project.

As no real global agreement has been reached between the three countries on that particular matter, a legal void emerged with time and provoked many disputes if not babbling conflicts.

The Turkish project GAP<sup>xxxv</sup>, also known as the Southeastern Anatolia Project is a mastodon hydroelectric and irrigation project consisting of no less than 22 dams and 19 hydroelectric power plants spread on both Tigris and Euphrates right above the Syrian and the Iraqi borders. The project which started as early as in the 1960s is supposed to be completed in 2029<sup>xxxvi</sup> instead of the planned 2005, and produces a quarter of Turkey’s total electricity. Besides providing with hundreds of thousands of jobs, the GAP is also said to resolve<sup>xxxvii</sup> the Kurdish minority issue in the country, by simultaneously allowing regional economic development but also forcing Kurds to relocate and regroup<sup>xxxviii</sup> in dedicated areas. Therefore facilitating their “control” by Ankara as the project is taking shape on the Kurdish minority held region. The ambition is also to make Turkey an agricultural power by irrigating approximately 1,7 million hectares. Damascus and Baghdad have, of course, been accusing Ankara not to have informed them of the project while specialists warn that once completed the flow entering Syria would go from an actual 500 cubic meters per second (the agreed quantity of water between Syria and Turkey) to 300 cubic meters per second. Hydrologists Kolars and Mitchell<sup>xxxix</sup> revealed in 1991, that the Euphrates’ natural flow would be reduced by 70% while entering Syria and would make Iraq having only 20% of its today’s Euphrates flow, preventing the river to reach its junction point with Tigris in the city of Qurna. Adding: “Turkey’s Southeastern Anatolia Project will reduce water flow to the downstream riparians so drastically as to foment armed conflict in the basin region within the next ten years.” Meanwhile the Ilisu Dam in Turkey is expected to hold another 10 billion cubic meters of Tigris water when filled. “Since 1975, Turkey’s dam and hydropower constructions on the two rivers have cut water to Iraq by 80% and to Syria by 40%”, says John Vidal in the Guardian<sup>xl</sup>.

Yet, as the rivers continue their course across the region, tensions rise. In the late 1960s, Syria built the Taqba Barrage on the Euphrates, creating Lake Assad, holding around 12 billion cubic meters of water. According to Georges Mutin<sup>xli</sup>, the total Syrian’s restrain of water is set to reach 13 billion cubic meters, diminishing yet again Iraq’s flow. As if it was not already enough, Iran, who hosts some Tigris’ tributaries, entered the game in 2009. For 10 months<sup>xlii</sup> the country entirely cut the flow of the Karun River supposed to discharge in the Iraqi Shatt Al-Arab south the Shia, the inhabited city of Basra, all the while Iran is, ironically, boasting about defending their interests.

“Iraq will witness more shortages in water resources after Turkey and Syria develop their irrigation projects.” (*FAO-Agriculture sector note*, p-11).

In his November 2014 article<sup>xliii</sup>, Peter Schwartztein even asserts: “For more than a decade, politicians in Baghdad have done little as Turkey and Iran pursued accelerated

dam-building programs upstream on the Tigris and Euphrates rivers and their tributaries. The nearly unbroken years of violence after the U.S.-led invasion in 2003 and the political stalemate stemming from antagonism between the nation's Shiite and Sunni leaders have weakened its institutions and minimized its leverage over its regional rivals." He also reveals that Iraqi officials affirm that Iran has "blocked or diverted 22 of the 42 waterways that pass from its territory into Iraq".

The Kurdistan Regional Government's (KRG) very real threat to break away from Iraq is also adding to the country's most worrying water situation as major tributaries to the Tigris River run through the Kurdistan region before reaching Baghdad. Iraqi environmentalist Azzam Alwash praises<sup>xliiv</sup>: "use water for something that unites us" while insisting the Kurdistan and the Iraqi government should abandon construction of dams. He adds: "my concern is that if we don't reach some kind of water treaty, agriculture is going to die in the land in which it was born. As things stand, it's a *when*, not an *if*".

These facts give body to Andrea Cattarossi's statement at the *Suleimani Forum*: "If the water issue is not taken seriously, Iraq has no more than 7 to 10 years before it runs out of fresh water".

The threat to Iraq's fresh water independence comes from the outside as much as it comes from the inside. Like Hamza Hassan Shareef, adviser to the Iraqi National Security Council accuses: "we're facing a very critical period. There are many reasons for this, but it's mostly because of neglect and aggressive policies of our neighbors". A stand highlighted by the adviser to the KRG prime minister, Talibe Murad Elam<sup>xliv</sup> who infuriates: "The only thing ministers [of Agriculture for Kurdistan] care about is the water they put into their whiskey!"

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## WATER UN-POLICIES

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If Iraq appears to be "the weak player" of this water game, it is also thanks to the catastrophic policies that have been willingly, or by force, applied to the country for the past decades.

March 22<sup>nd</sup> 2010, in addressing to the *National Geographic Society*<sup>xlvii</sup> in Washington for the annual World Water Day, Hillary Clinton then US Secretary of State admitted: "A lack of water, sanitation, and irrigation we know leads to economic decline, and even can lead to unrest and instability." Four years later, on January 2014, ISIS would take control of Al-Anbar cities of Fallujah and Ramadi before heading to Iraq's second largest city of Mosul which would fall in June the same year.

More than a simple prophecy, Secretary of State Clinton was in 2010 offering to push at open doors as she wisely inserts "we know". However, how accurate this statement was, little has been done in Iraq ever since to tackle the desperate water situation the country faces.

In an article<sup>xlviii</sup> published as early as June 2010, Julia Apland Hitz reminds us that the ICRC (International Committee of the Red Cross) already warned that "one in four of Iraq's 30 million people does not have access to safe drinking water". Even more catastrophic, Sharmila L. Murthy reveals in her paper<sup>xlviii</sup> "*Iraq's Constitutional Mandate to Justly Distribute Water: The Implications of Federalism, Islam, International Law and Human Rights*" published in 2011 that poor hygiene is the main cause of the death of Iraqi children, and the cause is directly linked to water access. In 2010, less than 8% of



homes outside Baghdad were connected to a sewage system and by 2008, 17% of the sewage was treated in the country. The effects on the population didn't take long to appear as in 2007, "30 000 people fell ill from acute diarrhea from which 4 500 were confirmed cases of Cholera".

If in 1991<sup>xlix</sup> only 54% of Iraq rural areas had access to water supplies, these latter reached 100% of the urban areas. By 2006, 77% of the total population had access to improved drinking water, only 56% of the rural population and 88% of the urban one. The least can be said is that in more than a decade little improvement could be registered. For the rural population it is barely noticeable as for the urban population it even declined. More worrying, Murthy notes "in the 1970's Iraq was at the top of the Arab World's development index". Before the 1990-1991 Gulf War, 72% of rural dwellers had access to clean water which represented 330 Liters per day (daily per capita provision of drinking water). By 2000, for the capital Baghdad, the water daily produced was 150 Liters per person while it was 65 Liters per person in rural areas at the same period, Murthy acknowledges before adding in her paper: "However, given that an estimated 50% of water was lost during distribution, per capita access to water was in reality far lower". In a study published in 2004, Ghassan Ghali even claims that "water treatment plants are vital to Baghdad's restoration". He reminds us that the full 5 million Baghdadi fully depend on the Tigris River while claiming that "250 large water treatment plants in Iraq require rehabilitation or upgrading".

The irrigation status is not comforting neither. During the *Suleimani Forum*, Andrea Cattarossi claimed: that "80% [of the water received in Iraq by upstream states] is going to agriculture. 70% of that water is lost, never gets to the target". Lucani's *Agriculture sector note*<sup>l</sup> highlights that in 1990 Iraq's irrigation potential was estimated at over 5.5 million ha (5,15 million ha in another FAO note quoted above). By 1997 the total irrigated area was estimated at 3.4 million ha "of which 87.5 percent obtained water from river diversion, 9.2 percent from rivers using irrigation pumps, 3.1 percent from artesian wells and 1,2 percent from spring sources". Making the agriculture sector the "main sector in consumption of water in Iraq". Sources slightly vary upon water withdrawal figures yet a pattern emerges, out of the 66 km<sup>3</sup><sup>li</sup> of water withdrawn in 2000, 78% was dedicated to agriculture (irrigation and livestock), 15% for the industry and 7% for municipalities including<sup>lii</sup> "drinking water, sanitation and other domestic needs".

TABLE 3  
Water use

Water withdrawal			
Total water withdrawal	2000	66 000	10 <sup>6</sup> m <sup>3</sup> /yr
- irrigation + livestock	2000	52 000	10 <sup>6</sup> m <sup>3</sup> /yr
- municipalities	2000	4 300	10 <sup>6</sup> m <sup>3</sup> /yr
- industry	2000	9 700	10 <sup>6</sup> m <sup>3</sup> /yr
• per inhabitant	2000	2 632	m <sup>3</sup> /yr
Surface water and groundwater withdrawal	2000	65 992.6	10 <sup>6</sup> m <sup>3</sup> /yr
• as % of total actual renewable water resources	2000	87.3	%
Non-conventional sources of water			
Produced wastewater		-	10 <sup>6</sup> m <sup>3</sup> /yr
Treated wastewater		-	10 <sup>6</sup> m <sup>3</sup> /yr
Reused treated wastewater		-	10 <sup>6</sup> m <sup>3</sup> /yr
Desalinated water produced	1997	7.4	10 <sup>6</sup> m <sup>3</sup> /yr
Reused agricultural drainage water	1997	1500	10 <sup>6</sup> m <sup>3</sup> /yr

FIGURE 1  
Water withdrawal by sector  
Total: 66 km<sup>3</sup> in 2000

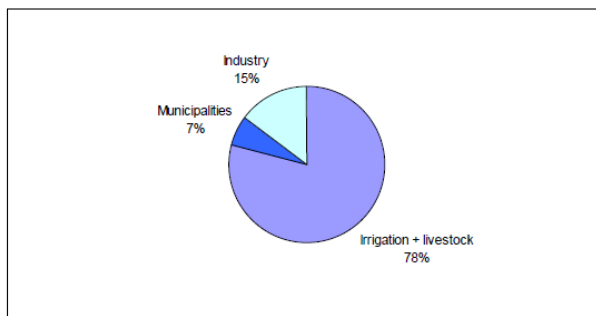
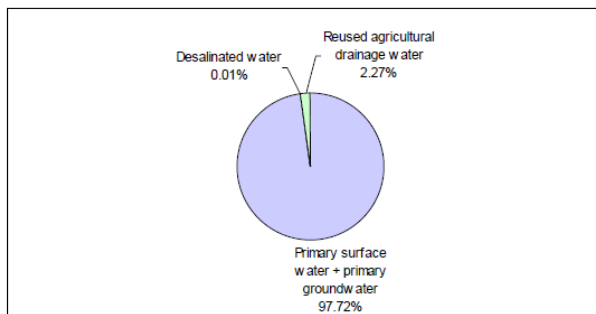


FIGURE 2  
Water withdrawal by source  
Total: 66 km<sup>3</sup> in 2000



2(ESCWA, 2005) (TABLE 3, FIGURE 1 AND FIGURE 2, FAO – WATER REPORT 34, 2009)

Lucani’s note warns: “water losses in irrigation schemes, all over Iraq, are substantial. By and large, water is conveyed to farmer’s fields through very poorly maintained distribution systems made of earth canals and ditches which suffer significant water losses because of infiltration, seepage or leakage.”

“The Tigris and Euphrates lost 144 cubic kilometers from their combined basins between 2003 and 2009, or roughly the amount of water held in the Dead Sea, according to NASA researchers.” Says Peter Schwartztein<sup>liiii</sup> (in 2014) before adding: “The volume of the Euphrates is expected to drop by at least half by 2025, according to another study conducted by the UN.”

2012 Lucani's note even states that "the water level of both the Tigris and the Euphrates rivers has fallen by more than 60 percent over the last 20 years partially as a result of upstream water use and damming".

The water situation and by extension the irrigation and agriculture situations in Iraq are not only due to environmental and upstream states pressure but also to internal policies or lack of. It is clearly explicated in Lucani's note: "Problems in irrigation are severe: they range from widespread deterioration of irrigation infrastructure to poor operation and maintenance of the systems, inefficient water use, soil salinity, weak institutional support and lack of regulatory framework for efficient use and pricing of irrigation water."

Ex-Reuters journalist Serena Chaudhry gives<sup>liv</sup> an alarming situation:

- Water levels in the rivers have dropped
- Failing crops have forced possibly millions of people out of rural areas and into cities
- 83 percent of sewage is discharged untreated
- Government disorganization means improvement projects are delayed
- US Government reconstruction efforts include sewage and water, but can't solve the whole problem
- Oil production requires huge amounts of water (1.6 barrels of water for each 1 barrel of oil), so personal and agricultural consumption competes with economic development

One of the major reasons of the current crisis was Saddam's own "damming policy". During his more than a quarter of century of unshared reign, Saddam Hussein never hesitated to use Iraq's waters as a political weapon. Right after the *Algiers Agreement* of 1975, Saddam carried out a politic of Arabization targeting in priority the Kurdish Northern population. Before the Al-Anfal campaign, the president ordered the building of the Mosul Dam (previously known as Saddam Dam) that some<sup>lv</sup> believe to isolate the Kurds and obstructing any movement of the Peshmergas. In the same vein the 1991 drainage of the Mesopotamian Marshes was part of Saddam's politic in order to punish the Shia population for supporting the US-led coalition during the Gulf War, "the massive drainage of the Mesopotamian Marshes (covering about 20,000 km<sup>2</sup>) in southern Iraq has had a catastrophic impact on people's livelihoods, the ecosystem and the biodiversity", says Lucani in his note. Saddam Hussein's water policy was not only targeting the agriculture development but some projects were directly linked to internal disputes and punishments in order to regain control on its population. The same idea<sup>lvi</sup> lying behind the 1983 Kirkuk Irrigation Project (renamed Saddam Irrigation Project) willing to irrigate more than 300 00 ha or the 1991 North Al-Jazeera Irrigation Project, which the Mosul Dam is part of, together with the East Al-Jazeera Irrigation Project planned to irrigate 250 000 ha of the Al-Jazeera plain. Unfortunately, these policies and projects had a terrible impact on the lands and accentuated the country's water-stress it faces today. Instead of abandoning these politics, some damming projects today carried on and seem to be more influenced by sectarianism purposes than by agriculture development.

At the *Suleimani Forum* Andrea Cattarossi claimed: "the money should be invested in modernizing the agriculture not on building dams" while adding "Thathar lake (largest lake in Iraq) will not be used for managing water. There is no water to fill this lake in the future". Azzam Alwash, also present at the conference, created the "damn the dam

movement” in order to alert the authorities on the danger building more dams in the country. However, if water retention systems should be reduced, Julia Apland Hitz advocates: “a large number of new water treatment facilities need to be built”.

The Ministry of Water Resources employs 12 000 people who have to take care of 25 major dams but they face great defiance among the population which is fed up with water and electricity shortages. While, from 2005 to 2008, 600 workers of the Ministry of Municipalities and Public Works were killed while attempting to repair water networks revealed the UNICEF. These murders aimed to prevent local communities to enjoy “essential services”, therefore isolating some remote population as well as raise their frustrations toward the central power unable to provide them with the basic needs. However the authorities bear a large part of responsibilities as Murthy illustrates with the Fallujah sewage treatment plant. The initial plan should have cost USD 32,5 million, to be completed in 8 months’ time and “serve all of Falluja’s 200,000 current residents, as well as a 50 percent population increase”. It ended up costing USD 104 million for 6 years of completion and “serve about one-sixth of the population and will likely emit a foul odor after completion.” The main reasons for the total failure is poor planning, fraud, insufficient and/or inadequate equipment, lack of chemicals, shortage of qualified personnel with appropriate training.

Peter Schwartztein points out that water is “becoming more and more polluted”. The reason is the use of the old Sumerian flood irrigation practices, an observation also shared by Azzam Alwash who claims that such methods need lot of drainage water that is salty, full of pesticides and is fed back into the rivers. Neighboring states are not innocent in this state of facts as Basra’s Marine Science Center found traces of heavy metals used by Iranian oil refineries in tributary of the Tigris River.

As for Iraq’s own oil Industry, the sector is an insatiable water consumer. As it contributes to nearly 95% of the country’s revenues nothing is too expensive for the industry, not even the precious water which 3% to 5% of the total reserves are injected for the oil extraction process alone.

However all these rickety policies would not have been possible nor could have matched the mother policy at all: the UN embargo or the 1990-1991 *United Nations Security Council Resolution 687* (some resolutions were adopted in 1990 increased and restated in 1991).

*FAO Water Report 34* from 2009, ingeniously explains: “After 1993 agricultural productivity suffered from lack of fertilizers, agricultural machinery and the means of spraying planted areas with pesticides. Iraq’s irrigation infrastructure fell into despair and salinity spread across much of the irrigated fields of central and southern Iraq”. The UN office should know about it as the UN resolution forbade Iraq from procuring fertilizers, and other equipment, in order to prevent the country from obtaining Weapons of Mass Destruction. Ironically enough, these WMDs would, decades later, precisely be the reason for the 2003 US-led invasion. For now, they would allow the country to go back to Stone Age, witness its water capacities collapse and with that the entire agricultural sector. Leading in 1995 to the glorious Oil-for-Food program, or *UN Security Council Resolution 986*. Iraq, which was “in the 1970’s at the top of the Arab World’s development index” according to Murthy, would from now on have to exchange its oil for basic needs including food or medicine. The embargo together with Oil-for-Food program, which was already smacking of heresy in the 2000’s, would nevertheless persist until 2003, amid high suspicion of abuse and intense controversy.

On June the 12<sup>th</sup> 2001, the Association of Genocide Scholars from the University of Minnesota released under Thomas J. Nagy, Ph.D, a relentless document<sup>lvii</sup> entitled “*The Role of “Iraq Water Treatment Vulnerabilities” in Halting One Genocide and Preventing Others*” based on a then recently declassified Defense Intelligence Agency (DIA) document dated from 1992. Through a five part document, the author explains how Iraqi water capacities have been willingly destroyed while stating: “In a word, IWTV is a plan to achieving extermination without the need of constructing extermination camps. The present author recognizes the gravity of these claims”.

The declassified DIA document explains that “failing to secure supplies will result in a shortage of pure drinking water for much of the population. This could lead to increased incidences, if not epidemics, of disease and to certain pure water-dependent industries becoming incapacitated including: Petrochemicals, Fertilizers, Petroleum Refining, Electronics, Pharmaceuticals, Food Processing...”

“Unless water treatment supplies are exempted from the UN sanctions for humanitarian reasons, pursues the DIA document, no adequate solution exists for Iraq’s water purification dilemma...since no suitable alternatives meet Iraqi needs”.

The document claims finally that “the entire Iraqi water treatment system will not collapse precipitously. Full degradation of the water treatment system will probably take another 6 months”. The DIA document then established a “list of materials and chemicals indispensable to Iraq’s water treatment system” one of the most famous is chlorine<sup>lviii</sup> that has been amongst others, targeted by the UN-embargo ban.

Nagy’s interpretations of the DIA’s declassified document is a harsh accusation against the 90’s US administration, about their knowledge of the devastating effects of the UN sanctions on Iraqi population: “At the other extreme, IWTV is an early blueprint for genocide against the people of Iraq – a genocide that has selectively targeted for extermination by contaminated water the very young, the very old and the very ill”.

One of the DIA pin pointed issue is a wise anticipation of nowadays situation. In the “Possible Iraqi counter measures to obtain drinkable water despite sanctions and they can’t succeed” chapter, the author explains: “Drill additional Water wells: Saline or alkaline content of ground water in most locations would constrain wells”. While Peter Schwartztein was warning in 2014 that 14,500 illegal wells have been drilled in KRG that have lowered the water table and double the depth to which new wells must be dug therefore putting pressure on the rivers as a water resources. In the meantime, the traditional “Karez” system of wells and aqueducts is still used all over the KRG.

Forbidding Iraq, thanks to the UN sanctions, to obtain chemicals and equipment however key for its water system under the pretext of prohibiting Saddam to acquire WMDs, sounds very much like the “aluminum tubes<sup>lix</sup>” accusation Bush’s administration proclaimed in 2003.

It would however be incorrect to claim that today’s Iraq water situation is entirely inherited from the sanctions imposed by the UN, nevertheless the country has, since the 1991-embargo been unable to reach any modern living standards because of its inability to provide basic needs such as an unfailing flow of drinking water, continuous electricity procurement and modernized agriculture. Therefore it is unsurprisingly that the Iraqi population is reliant, still to this day, on the Saddam era implemented Public Distribution System (PDS). Lucani’s note even states: “The nation-wide rationing system set up by the Government of Iraq in 1991 is a key instrument of its food security policy.

The PDS reaches the poor as well as the non-poor. For the average Iraqi, the PDS increases purchasing power by about a third. For some groups- including groups commonly considered to be poor, such as agricultural labourers - the increase in purchasing power is as high as 50 percent”.

He continues: “The PDS is intended to provide a minimum standard of living for the entire population in amounts calculated to be sufficient to meet 100 percent of each household member’s minimum daily caloric needs”. However the note reveals, that the PDS budget which represents 7% of the national budget, had been reduced from USD 5.9 billion to USD 3.6 billion in 2009 but increased in 2011 to USD 4 billion.

If one of the unwanted effect of the PDS is the fact that “food items in the basket are mostly imported; and the food basket have been heavily subsidized-virtually free”, suppressing it would greatly impact the weaker members of the Iraqi population, and push a starving population directly into the arms of anyone that could promptly and successfully fix the problem. Indeed, the note highlights: “the high dependence on the PDS as a major source of food is inherently a source of vulnerability as disruptions in food distribution often leads to acute food insecurity”. Before recognizing that “the highly subsidized “food basket” has been and is, an essential policy measure to ensure food security and avoid possible famine during the years of war and economic disruption”.

Finally, it is important to remind ourselves that the present execrable security situation doesn’t allow NGOs or international organizations to fully implement the various policies aiming to resolve the water and agricultural crisis. A report from UNDP for the “*emergency rehabilitation of Karma water treatment plant – line 1*” outlines that “given the unstable security situation, UNDP cannot have any of its staff permanently on site”. It highlights that any effective change of policies toward water can only be made nationally, carried out internally and by locals as the Government of Iraq can count on external expertise only periodically. Any change, would logically take a longer time to be implemented as Iraq faces challenges from all sides and cannot delegate. The UN *Iraq Agricultural Growth and Employment Generation Support (I-AGES)*<sup>lx</sup> of 2010 also reminds that “one of the highest priorities of the Iraqi government has been the rehabilitation of the water planning sector” and aims<sup>lxi</sup> to “taking an integrated approach to water resources management, five-year master plans will be prepared in 2015, 2020, 2025 and 2035. Water infrastructure will be privatized within this integrated approach, and capital will be invested by different sectors for sustainable development”.

The security issue doesn’t however discourage the international organizations to support some plans as the FAO *Support Cooperation on Water Resource Management in the Lower Mesopotamia*<sup>lxii</sup> which objective is “to promote sustainable development in the lower Mesopotamia by supporting countries cooperation to address common problems of water resource management.”

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## A SLOPPY CONSTITUTION

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In his paper<sup>lxiii</sup> entitled “Autonomy as a conflict-resolving device”, Kenyan head of the Constitution Advisory Support Unit of the United Nations Development Program in Nepal, Yash Ghai states: “Those who are concerned with the settlement of internal conflicts must explore the potential of autonomy. We need to pay attention to this device because disaffected groups frequently ask for it, it is central to negotiations over many

present conflicts, and it may be emerging as an entitlement under international law to groups in certain circumstances.” However in the light of the Nation-State era inherited from the 19<sup>th</sup> century and designed in order to finally settle the tensions of multiculturalism empires of the 18<sup>th</sup> and previous centuries, Ghai’s statement looks like a step backward. It even comes in direct contradiction with Malcolm MacLaren’s take on federalism which is according to him “a strategy for conflict management and not for conflict resolution”. When the first one sees in country’s partition a way to pacify by negotiation and recognition, the latter considers the federal solution a short term answer and if not, as an easy mistake to make. It highlights the challenges a state has to face when regions composed of it, are inter-dependent.

In the case of Iraq, as previously stated, Southern regions are highly dependable upon upstream waters birthing in other States and flowing through Kurdistan region. As oil-poor Western provinces are equally dependable upon Southern and Northern oil rich Iraqi provinces. If Kurdistan has been gifted with resources that could provide the region an enjoyable independence, the remaining areas of Iraq cannot and still need their share in order to survive. This is why the Federalism that could be seen as a logical solution for easing relations between communities resulted in a tool that exacerbated defiance and grew a sentiment of injustice particularly for Western provinces such as the very poor Sunni dominated Al-Anbar (ISIS birthplace).

To this end the negotiations which occurred previous to the 2005 Iraqi Constitution are enlightening. The legal text that was supposed to bind communities and regulate their relationships in Iraq, revealed itself not to fulfill its primary mission. In her massive “Iraq’s constitutional mandate to justly distribute water: the implications of federalism, Islam, International’s law and human rights<sup>lxiv</sup>”, Sharmila L. Murthy analyses the place given to water in the new Constitution. As Murthy aptly notes: “The constitutional negotiations over Iraq’s vast oil and gas reserves were particularly contentious because the reserves are not evenly distributed across the country. The constitutional negotiations over Iraq’s water have received less attention than those over oil and gas”.

Yet, from 2012 to 2014, Erbil and Baghdad were violently opposing over Kurds’ oil exports that only ISIS’ common threat managed to halt until now. As early as 2009, Kurdistan Regional Government’s President Massoud Barzani was already warning: “Water is now more important than oil”. Murthy explains that the “power over internal water resources is shared between the federal and regional governments, but not with the governorates that are not incorporated into region”. And later on adds, “Iraq’s constitution gives the federal government exclusive authority over sources of water outside Iraq [understand the capacity to negotiate with neighboring States], but grants the federal and regional governments concurrent authority over sources of water inside Iraq. In contrast to the regions, governorates do not have guaranteed constitutional authority over any aspect of internal water resources policy unless the federal government devolves power to a region in accordance with article 123. Kurdistan is currently the only region in Iraq, and thus, the only sub-federal entity, that has power to determine internal water policy under Article 114”.

In other words, only Kurdistan can manage its water the way it wishes and the other provinces are subjected to Baghdad’s directives. The informal Lebanese style power-sharing agreement<sup>lxv</sup> stating that the role of president goes to a Kurd, the speaker of parliament is a Sunni, and the position of prime minister to a Shiite, allowed Kurds to pressure for a greater independence toward Baghdad and assured Shiites’ hegemony on the rest of the country. The case of the Ministry of Water Resources is in that matter enlightening. As Murthy notes : “The reference to “internal water resources policy” in

Article 114 of Iraq's constitution may have been intended to include only activities that fall within the jurisdiction of the Ministry of Water Resources (such as dams and irrigation) and not those within the Ministry of Municipalities and Public Works (such as water treatment and sanitation services)." Yet again, the major decisions regarding water are taken nationally and not locally. The first Minister of Water Resources in 2003 was Kurd and the incumbent Minister, Moshen al-shammari, is part of the Shia sadrist movement.

This led the Sunni deprived resources regions of West to entirely rely on Baghdad's good willingness. Governorates were more or less putted aside of the 2005 constitution as Murthy proves: "Article 114 then lists seven enumerated concurrent powers. Of these seven powers, four—customs management, environmental regulation, health policy, and educational policy—must be exercised in consultation, in coordination, or in cooperation with the governorates. The remaining three powers—internal water policy, electricity regulation, as well as development and general planning policies—do not mention the governorates. The constitutional provisions governing the governorates' power were influenced by several conflicting factors. The Shia Alliance initially sought a strong central government, but later in the constitutional negotiations, pushed to expand the governorates' power. Concerned that creating a region as powerful as Kurdistan may prove difficult in the future, "the Shia Alliance made a concerted effort to give governorates the same or similar governmental authority that the constitution gave regions." Despite this effort, Iraq's governorates do not share all of the concurrent powers of Article 114—and water is not one of those shared powers."

#### **Article 50 of the Constitution of Iraq adopted on October the 15<sup>th</sup> 2005:**

*Each member of the Council of Representatives shall take the following constitutional oath before the Council prior to assuming his duties:*

*"I swear by God Almighty to carry out my legal duties and responsibilities with devotion and integrity and preserve the independence and sovereignty of Iraq, and safeguard the interests of its people, and ensure the safety of its land, sky, water, wealth, and federal democratic system, and I shall endeavor to protect public and private liberties, the independence of the judiciary, and pledge to implement legislation faithfully and neutrally. God is my witness."*

#### **Section Four**

##### **Powers of the Federal Government**

**Article 110, 8<sup>th</sup> point:** *The federal government shall have exclusive authorities in the following matters: Planning policies relating to water sources from outside Iraq and guaranteeing the rate of water flow to Iraq and its just distribution inside Iraq in accordance with international laws and conventions.*

**Article 114, 7<sup>th</sup> point:** *The following competencies shall be shared between the federal authorities and regional authorities: To formulate and regulate the internal water resources policy in a way that guarantees their just distribution, and this shall be regulated by a law.*



In September 2014 only 3 weeks after the retake of the Mosul Dam by the Kurdish forces, John Schnittker, US advisor to the Iraqi Minister of Agriculture, warned<sup>lxvi</sup> that “if the Kurds keep control of the Mosul Dam... they will have about 80 percent of Iraq’s water, which is tremendous leverage”. He added: “The Kurds are in a really strong position to leverage Baghdad (...) and my real concern is that the U.S. would be kind of complicit in a Kurdish land and water grab.” Major tributaries of the Tigris River run through KRG while two of the largest hydroelectric power plants, Dokan and Darbandikhan are located in KRG, giving the autonomous region a great control over Baghdad.

While emphasizing on the Oil and Gas resources, the 2005 Constitution turned a blind eye and forgot the water and agricultural resources, together with allowing a clear independence to the Kurdish territories while pursuing the “leash” policy of Baghdad onto the remaining area of Iraq. Eventually these policies caused frustration in the region to grow;

- the Kurdistan Region felt abused by Baghdad with regards to the disputes surrounding the Oil industry,
- the people from Mesopotamia have long been envious of the-independence the KRG enjoyed, while
- the Western farmers from the massive al-Anbar region felt abandoned by Baghdad altogether whilst feeling powerless under the 2005 Constitution power sharing.

Initially conceived as a founding text for the rebuilding of a post-Saddam Iraq far away from blind injustice, the 2005 Constitution settled the sectarian trap by reinforcing the sentiment of injustice within the Iraqi society. Soon “regions”, which together composed Iraq, realized that the Constitution itself would not be a protecting tool for their own interests, but rather one that would cause further weakness, and the idea of local empowerment made its way in, accelerated by both internal and security crisis that prevent any implementation of the nationwide policy with regards to the basic daily needs.

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## INTERNAL CRISIS

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Iraq Internal Displaced Persons crisis did not quite break during the last decade with the 2003 US-led invasion, but is on the contrary the result of a series of internal crisis starting during the 1960’s with the continuous political instability which continue to this day.

In fact “since 1960s, Iraq has produced the largest number of refugees and internally displaced persons in the Middle East with the exception of Afghanistan” according to a 2009 Brookings Institute survey<sup>lxvii</sup>. From that time, waves of Iraqis have fled or returned into the country, depending on the internal political situation.

This issue, far from being sudden and new, has been a solid component of Iraqis way of life, subjected to implemented policies together with “revenge” operations as highlighted by the survey: “In many respects, this legacy lies at the heart of the most recent trend of displacement caused by practices of revenge, persecution and eviction that have been used by new actors against new population groups. (...) Under the previous regime, recurrent policies of repression, expulsion, and population redistribution resulted in massive internal displacement especially in the north and the south of the country. Before the 2003 conflict, those who remained displaced were estimated to number one million, two-thirds in the north of the country, another third

mostly in the south. Refugee flows were extremely large, with Turkey and Iran receiving most of the temporary waves of refugees during conflicts inside Iraq, and Iran also hosting the largest number of long-term Iraqi refugees, with cumulative numbers amounting to over a million and a half.” The Iran-Iraq war followed by the an-Anfal campaign and the invasion of Kuwait, culminating with the UN embargo, all mark a series of unprecedented internal displacement affecting the whole region. “Many of the neighboring countries who hosted Iraqis also host other large populations of refugees: Afghans in the case of Iran, and Palestinians in Syria, Jordan, and Lebanon. All these countries have been remarkably generous in welcoming Iraqis to their countries, within or outside a refugee framework and, before 2003, with minimal international assistance at a time when there was little prospect of repatriation.”

“On the eve of the 2003 war, UNHCR estimated that Iraqis in a refugee-like situation in countries of the region totaled up to half a million, most of whom were undocumented.” With the fall of Saddam Hussein and the rise of the Syrian civil war, Iraq witnessed a dramatic rise of refugees returning as Syrian refugees mostly headed towards Baghdad and the KRG. Meanwhile the territorial gains made by the terrorist group ISIS provoked internal displacements from the Western provinces to the center of the country.

Since January 2014, “nearly 1 million people have been displaced”, from which 500 000 are coming from the city and the surroundings of Mosul and 480 000 fleeing the al-Anbar province according to FAO<sup>lxviii</sup> in 2014. Even if today’s figures are still difficult to recover, this gives an overview of the crisis, considering that the latest estimates<sup>lxix</sup> are of 3, 376, 000 people displaced in Iraq. At least 5.2 million<sup>lxx</sup> people are believed to be in urgent need of humanitarian and protection assistance due to the ongoing violence and insecurity. By 2014, refugees from Syria accounted for 250,000 people as 850,000 IDPs were seeking refuge in KRG, mainly in Dohuk Governorate. Meanwhile 700,000 were going toward the central region, 400,000 to al-Anbar Governorate and 200,000 to the Southern part of Iraq.

As the UN agencies and the NGOs have “a limited” access to much of al-Anbar, Niniveh and Salah ad-Din governorates, more than 5 million people are in urgent need of water and sanitation. By 2014, some 2.2 million Iraqis<sup>lxxi</sup> were living in ISIS-held (and affiliated groups) territories making it virtually impossible for the humanitarian workers to assist them. Forcing them to “negotiate<sup>lxxii</sup>” locally in order to reach the vulnerable population as “a combination of direct implementation, discreet oversight and remote management will continue to be adopted whenever feasible. Humanitarian partners will also enhance collaboration with the private and other non-traditional sectors to boost the response.”

This highly unstable situation forced the Government of Iraq to create the Public Distribution System (PDS) as soon as 1991 in order to avoid a humanitarian crisis<sup>lxxiii</sup>. This PDS is still in use nowadays as “6.4 million people would fall into food insecurity in the absence of the Public Distribution System”. However vital for many Iraqis, even after the fall of the Ba’athist regime, the UNDP highlights few factors explaining the huge pressure that the PDS brought to the country’s Economy. It indeed fails to develop a production of domestic agriculture. The series of conflicts and the insecurity combined with the drop of domestic production eventually led to declining exploited fields. The water constraints, the large-scale infrastructure damages, the under-investment in agricultural systems, the state-driven subsidies, the state-controlled input and output markets, the weak environmental policies, the rise of population and the trade tariffs favoring regional and international markets all achieved to lead to a collapse of the Iraqi agriculture. Baghdad also hosts the US Department of Agriculture<sup>lxxiv</sup>’s world second

largest office. The Foreign Agricultural Service's "primary mission in Iraq is economically driven, to create market for the US agricultural exports", leading Iraq to import USD 1 billion of US agricultural exports in 2008.

The situation inherited from half a century of wars, insecurity and mismanagement led the Iraqi population to step by step slip into food and water insecurity. The constant delay with which Baghdad's politician addressed these pressing issues led to power vacuum that eventually has been filled up by a "power" resting on local's disillusion and frustrations. Therefore any actor that could provide, or at least stabilize, some basic required daily needs would receive consent if not a warm support from the population which has been put at risk since the 1960's.

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## THE RISE OF ISIS

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Despite the obvious failure to contain the terrorist group's aspirations in both Syria and Iraq, which is also dangerously spreading into Libya, Yemen and elsewhere, the story and, to some extent, the leadership of the now infamous Islamic State of Iraq and Syria (ISIS), or Islamic State of Iraq and the Levant (ISIL) or again Islamic State of Iraq and al-Sham, is well documented. It even became a field of expertise with the mushrooming of thousands of experts<sup>lxxv</sup> in Jihadology<sup>lxxvi</sup>, as it is referred to, together with a worldwide obsession surrounding the name of the group, called Daesh sometimes, acronym of the group in Arab *al-Dawlah al-Islamiyah fi al-'Irāq wa-al-Shām* as used by French authorities in the hope that it would counter the terrorists' narrative (without forgetting that private intelligence and security companies have been monitoring the evolution of the diverse terrorist organizations for years already). In that vein it is admitted that the terrorist organization appeared in 2013, on the media scene at least, and made headlines in 2014 while the group entered the scene under the brand new *Islamic State* name and seized Iraq's second largest city of Mosul. As if, out of nowhere, the powerful force sometimes credited with more than 100,000 fighters would have suddenly rose from the shadow sometime in 2014, a few years after the US withdrawal of 2011, and therefore provoking a new coalition to occupy the Iraqi sky. This story, directly coming out from the terrorists' mythology is since religiously duplicated in every single media support as if a rebranding of the group would actually erase every single record of their past existence of the terrorist organization which begs the question; if experts are conscientiously copy/pasting the ISIS' narrative, who really owns the initiative in the debate?

In fact, the group has an old enough ancestry in modern time Iraq, reaching back to the beginning of the 2000 which Iraqi ground contributed to Jordanian national Abu Musab al-Zarqawi's fame. The group was then known as al-Qaeda in Iraq (AQI), quickly opposed the 2003 US-led Invasion, and was a serious component of the Iraqi Insurgency. The presence of the al-Qaeda network, based in Sunni dominated areas of the country like Fallujah or Ramadi in the al-Anfal province, was not for being surprising and was far away from composing what is today's known as ISIS. Even if it is admitted that Sunni lost a great deal of power with the fall of Saddam Hussein, people from Western part of Iraq have not always been as favored by the dictator during his reign as believed, and pretending that the whole region succumbed to al-Qaeda's appeal as soon as the US-led coalition set foot on the Iraqi ground remains a highly questionable shortcut. Tribesmen, ex-Ba'athists elite, ex-Iraqi soldiers or anyone who lost position, power or incomes in

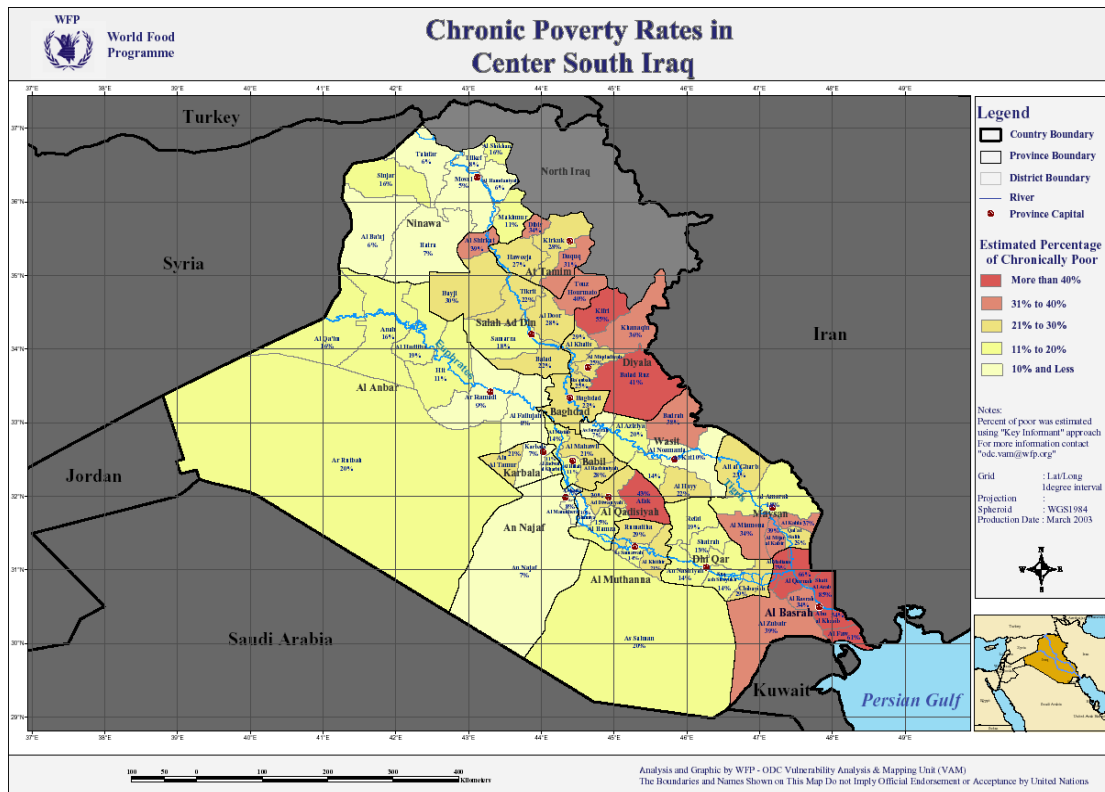
the wake of Saddam's fall would of course consider fighting against the invaders; yet not necessarily join their old sectarian enemy, al-Qaeda.

Even if in 2004, some locals would fight side by side with al-Qaeda in Fallujah against the Coalition Forces one of the proofs, if needed, that demonstrates the defiance these local Iraqis citizens had toward al-Qaeda remains the Sahwas: "The Sons of Iraq or Sahwa as they are known were part of the famous Sunni Awakening movement, a coalition of tribes created to fight back al Qaeda whose strong presence in the al-Anbar province in 2005 was worrying to the tribes".

What really changed the course of the Iraqi civil war and set up the strength of ISIS happened in 2013, with a climax reached on the 30<sup>th</sup> of December of this year. After years of local exasperation with Baghdad's mismanagement and even ignorance of al-Anbar citizens' claims, "sit-ins and protests<sup>lxxvii</sup> took place in al Anbar province particularly in Fallujah and Ramadi where the locals considered the Iraqi police with defiance. Demonstrators<sup>lxxviii</sup> asked for the release of Sunni prisoners as well as equal jobs opportunities. In order to gain support in face of the Sunni social claims, Maliki decided to use a stronger vocabulary, making accusations that these demonstrations were orchestrated by Al Qaeda elements that aimed to destabilize the country. However, the movement gained little support out of the Sunni community as Basra based Shia leader Moqtada al Sadr stood by the demonstrators.

The 30<sup>th</sup> of December 2013, Iraqi police decided to intervene<sup>lxxix</sup> in order to dispatch the sit-in in Ramadi and resulted in an exchange of fire that left at least 10 casualties. The tension had been palpable during the month of December, when 4 policemen were killed in Fallujah, but what occurred on the 30<sup>th</sup> was the real trigger. Suddenly, the tribes took action and Fallujah blazed<sup>lxxx</sup>."

As described above, the deep basic needs insecurity faced by Iraqis has not occurred following the 2003 US-led Invasion, but is rather inherited from various factors, including internal policies, international disputes or environmental issues since the half a century. This pressure carried onto the society has long been contained by the harsh dictatorial power and only revealed its true face thanks to the instability created by the latest war. In that sense, water scarcity and food deprivation which pushed Iraqis into deeper poverty, created a social environment suitable for any birth of counter-power strong enough to challenge Baghdad's rule. If poverty rates<sup>lxxxii</sup> are much higher in rural areas (39%) than urban areas (16%) in 2003 the most important poverty rates encompass the governorates of the South although these rates hugely differ among governorates (see WFP figure below). Since then "poverty reduction was driven by rural areas, where headcount rates decreased by 8 percentage points. Moreover, welfare improvements were concentrated almost entirely in the central part of the country- Najaf, Karbala, Wasit, Babylon, Anbar and Diyala-where poverty rates fell by 14 percentage points; as well as in Kirkuk and Sala hadin. In contrast, poverty increased sharply in five governorates - Nineveh in the north and Qadisiya, Thi Qar, Missan and Muthanna in the south" between 2007 and 2012 according to World Bank.<sup>lxxxii</sup>



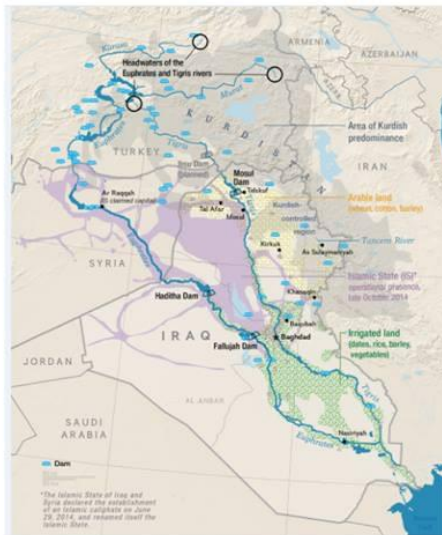
**“THE EXTENT AND GEOGRAPHIC DISTRIBUTION OF CHRONIC POVERTY<sup>lxxxiii</sup>” THE WORLD FOOD PROGRAM (MAY 2003)**

If central Iraq enjoyed a welfare improvement, the Shia majority governorates remain the poorest areas due to decades of Saddam sectarian ruling with slight improvement between 2007 and 2012 while KRG still enjoyed a better situation compared to the rest of the country. It is interesting to note that during the same period the al-Anbar governorate also witnessed a decrease in its poverty rate while Nineveh suffered a “sharp increase”. Between fear of losing the harshly maintained – and very relative – “comfort” and the sudden increase of poverty, some locals could have been tempted to support any of Baghdad’s opposition. The error made in 2014 by some local tribesmen has been to let ISIS take the credit and little by little find themselves overwhelmed by the terrorist organization, a strength they are unable to contain, yet the very essence of any renegade power in Iraq finds its roots within Iraq’s long inherited situation. Since then however, the poverty skyrocketed in all of Iraq, hitting every community as much as “28% of Iraqi families live below the poverty line<sup>lxxxiv</sup>” according to<sup>lxxxv</sup> the World Bank, while the war against ISIS puts pressure<sup>lxxxvi</sup> onto the country’s budget.

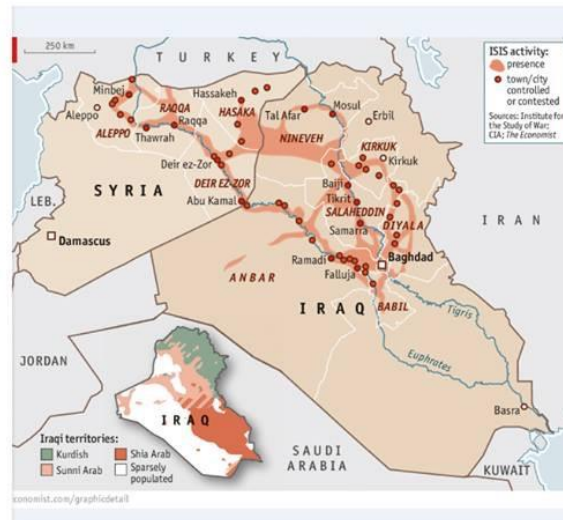
If questions surrounding water procurement would have been sincerely dealt with since half a century in Iraq, the rise of ISIS could have been prevented. The ideological claim of the group being only a “useful” narrative for the group to set up its own legitimacy. The truth is that local and international mismanagement and disinterest in such an elementary issue that water is in Iraq have created ISIS. It is the lack of water and not ideology that sent some of the Iraqi population directly into the arms of ISIS, and considering this lack of water is greatly due to the international community, this latter held therefore a huge responsibility in the creation of the terrorist organization. Without

any reshaping and rethinking of this core matter, there is no suitable solution, as after the collapse of ISIS any force could yet again fill in the vacuum.

### Iraq Water Resources



### ISIS Controlled Territories



SITUATION IN FEBRUARY 2015 FOR LATEST SITUATION:  
[HTTPS://PIETERVANOSTAEIJEN.COM](https://pietervanostaeijen.com)<sup>lxxxvii</sup>

## THE DAMING STRATEGY

As seen at the very beginning of this paper, it is widely accepted that Saddam Hussein used water as a tool to punish or threaten some Iraqis at least twice during his reign. First in the 1980's with the construction of the Mosul Dam (Saddam Hussein insisted it be built at a location despite strongly being discouraged by specialists<sup>lxxxviii</sup> at the time to do so). Which suggests that Saddam Hussein wanted the dam to be “a natural obstacle<sup>lxxxix</sup>” against the Kurds. But a few short years later, Saddam Hussein revived an old canal project in southern Iraq with a construction of more than 550km, “Third River” or “Main Drain Canal”, in order to allow tanks to cross East<sup>xc</sup>. The project would be definitely completed<sup>xc</sup> in 1992 as Saddam Hussein sought to punish<sup>xcii</sup> the Shias who rebelled against him during the invasion of Kuwait, and who had since found refuge in the marshes. This turn caused an unprecedented ecological disaster<sup>xciii</sup>. After the 2003 invasion efforts have been carried out in order to restore<sup>xciv</sup> the marshes' full capacities, however climate hazards combined with upstream States policies failed to provide enough water to fully inundate the marshes even if a consequent improvement has been monitored since the fall of the Ba'athist regime. Though, it is important to highlight that Pr. Thomas Naff from the University of Pennsylvania and leading expert on Middle East water, thinks otherwise. In an answer he wrote<sup>xcv</sup> back in 1992 in the *Washington Post*, Naff argues that “contrary to some claims, the Main Drain Canal was not intended to be used as a strategic weapon against the Shiite marsh Arabs. The Iraqis showed their ability to control the waters of the marshes by repeatedly draining and flooding them for military purposes during the war with Iran. The canal is not needed for that purpose. Nor does the canal have an adverse effect on the ecology of the marshes. By design, when the canal reaches the marshes, it is separated from them by various hydraulic

structures such as tunnels and siphons. Therefore, its ecological impact, rather than being harmful is beneficent because draining irrigation pollutants from the two rivers into the canal above the marshes makes the waters that feed them much sweeter.”

As previously seen, foreign States also bear great responsibilities in Iraq’s water shortages, whether deliberate or driven by self-interest. For internal consumption and irrigation Iran has reduced the flow of the Diyala River a major tributary of the Tigris (called Sirwan in Iran) by more than a half in 15 years. Together with reducing<sup>xcvi</sup> the flow of the Karun River, Tehran takes so much water of the Karkeh River for irrigation through the Karkeh reservoir that the river rarely crosses the border anymore while it used to contribute to the Mesopotamian marshes in the past. Likewise the KRG is currently building the Bekhme Dam<sup>xcvii</sup> on the Tigris’ shores that will also add another layer to the intensity of water shortage in Iraq.

As mentioned earlier, since 1975 Turkey’s dams constructions have cut water to Iraq by 80%. One of the most criticized GAP project is the Ilisu hydro-electrical dam located on the Tigris. The construction lost international funding because of “the continuing ambiguity regarding social and ecological consequences” according to UBS bank which withdrew from the project in 2002. The project is accused of being a tool for the Turkish regime in its dispute with the Kurdish PKK separatists. The group even conducted several deadly attacks during the construction process of the dam set to be completed in 2016.



"SAVE THE TIGRIS AND IRAQI MARSSES<sup>xcviii</sup>"

CAMPAIGN AGAINST THE ILISU DAM PROJECT LED BY CIVIL SOCIETY ORGANIZATIONS FROM IRAQ, TURKEY AND IRAN, 2014

“These extremists are not just mad. There’s a method in their madness. They’ve managed to amass cash and natural resources, both oil and water, the two most important things. And of course, they’re going to use those as a way of continuing to grow and strengthen” said<sup>xcix</sup> Salman Shaikh about ISIS in 2014, director of the Brookings Institution's Doha Centre in Qatar. Syrian city of Raqqah, the de facto capital of ISIS, is located only 40 km down the Euphrates from the country’s largest reservoir, lake Assad. During the summer 2014, ISIS leaders entered the regional battle over water resources by accusing Ankara<sup>c</sup> of deliberately holding back Euphrates, reducing the flows to the giant lake Assad and cut the supplies to Aleppo. Earlier in 2013<sup>ci</sup>, the terrorists targeted the Tabqa Dam in order to gain hydrological control over Syria.

Michael Stephen, deputy director of the Royal United Services Institute in Qatar explained<sup>cii</sup> in 2014 that the “control of water supplies gives strategic control over both cities and countryside. We are seeing a battle for control of water. Water is now the

major strategic objective of all groups in Iraq. It's life or death. If you control water in Iraq you have a grip on Baghdad and you can cause major problems." Indeed by 2014<sup>ciii</sup>, the majority of the water resources of the country were flowing through territories controlled by armed groups. In its Strategic Response Plan<sup>civ</sup>, The UN warned that "the denial of access to basic services such as water and electricity has been employed as a weapon of war".

The Tabqa Dam that was supposed to provide water and electricity for 5 million people and irrigate thousands of square kilometers of farmlands is the largest dam in Syria. It has been subjected to intense dispute between Iraq and Syria in the mid 1970's as downstream Iraq accused Syria to reduce the flow of the Euphrates. Its seizure by ISIS militants in 2013 marked the beginning of the water control race undertaken by the terrorists in both Syria and Iraq. In April 2014, the terrorists captured the Fallujah Dam<sup>cv</sup> in Iraq. The way the terrorists diverted the water flow from the dam demonstrated the will to use water as a weapon. By first stopping the flow, both Shia majority cities of Kerbala and Najaf suffered serious water scarcity. In a second time, militants reopened the dam in order to create flooding, therefore cutting the roads to Iraqi Forces. As a result up to 40,000 inhabitants were displaced.

The same month, ISIS took control of the small Nuaimiyah Dam, on Euphrates' shores near the city of Fallujah. ISIS militants closed the floodgates<sup>cvi</sup> provoking a drought<sup>cvii</sup> and denying drinking<sup>cviii</sup> water to many citizens. Abu Ghraib was flooded and 12,000 families lost their homes according to the UN. After several days, Sahwas claimed<sup>cix</sup> they forced ISIS militants to reopen the dam.

Matthew Machowski argues<sup>cx</sup> that ISIS (and other groups) is "targeting water installations to cut off supplies to the largely Shia south of Iraq" together with charging some Kurdish villages for the use of water.

In June 2014, ISIS took control of the city of Tal Afar 60km west of Mosul. The city is now considered to be ISIS' stronghold<sup>cxii</sup> as many militants are fleeing Mosul by fear of an attack from the Iraqi Army. The town<sup>cxiii</sup> which is located on the road to Raqqah also hosts a drainage system that was headed by a hydrologist<sup>cxiii</sup> terrorist who later on supervised the Mosul Dam for the ten days during which ISIS held it.

On the 7<sup>th</sup> of August 2014, the seizure of the Mosul Dam by the militants provoked an international outcry and a rapid reaction as they lost control of it only ten days after. The Mosul Dam is the largest dam in Iraq and nicknamed the "most dangerous dam in the World" by the US Army Corp of Engineers. "Its foundations are built on porous gypsum that is constantly being dissolved by water in the reservoir, creating sinkholes that threaten<sup>cxiv</sup> the structural integrity of the dam<sup>cxv</sup>" reminds<sup>cxvi</sup> Fred Pearce. Any collapse of the dam would have long-lasting devastating effects as a 2004 study led by Mark Wheeler warned. The city of Mosul would be flooded within 3 hours and the peak of the wave would be 20 meters high as the water would hit Baghdad in 72 hours with wave 4 meters high. Feeling the urgency to repair the dam, already in 2011, the Iraqi government gave German engineering company Bauer Group<sup>cxvii</sup> a EUR 2,6 billion contract to make the dam safe. However, the firm hasn't been able to operate there due to "political disturbances". This explains the swift move from both Kurdish and Iraqis to join forces and put aside their ongoing disputes regarding territory and oil shares and take back the dam from ISIS militants.

ISIS also opened an eastern front on the province of Diyala. The province engulfed between the KRG and Baghdad has long been Sunni dominated, thus today creating a



very mixed area. It is believed that it has been a longtime al-Qaeda<sup>cxviii</sup> stronghold in Iraq. It is also famous for its Media Center but one of the main strategic appeals of the province is the Diyala River, a major tributary to the Tigris River. In 2014, ISIS controlled<sup>cxix</sup> “much of Baqubah's water infrastructure in the country's east, putting pressure on the Shiite militia defending the town.”

The Hamrin Lake (also known as Diyala Dam) is a reserve of water of utmost importance near Diyala's capital city Baqubah. The area is also home to various militant groups leading to clashes<sup>cxx</sup> involving ISIS militants and security forces which became common in 2014. ISIS eventually gained control<sup>cxxi</sup> of Hamrin (Hamrin Dam downstream) in July of the same year until Peshmergas and Iraqi Forces claimed<sup>cxvii</sup> to have secured the area mid-November.

In November 2014, the Iraqi Army together with some militias also expelled<sup>cxviii</sup> ISIS militants from the Adhaim Dam, which is still unfinished. Later on, some sources<sup>cxviii</sup> claimed that the Iraqi Army repelled another attack from ISIS in February 2015.

Together with the Samarra Barrage, the Tharthar Lake composes an essential mechanism to facilitate flow and manage salinity levels for both the Tigris and the Euphrates. The Samarra Barrage is a multipurpose facility (electricity and irrigation) located on the Tigris and diverts the river's flow to the lake through the Tharthar Canal in order to collect excess of water from the Tigris. The Tharthar, on its hand, can discharge water into both the Tigris and the Euphrates during dry seasons. In addition, the lake contributes<sup>cxv</sup> to fight against salinity as “it aims in washing out the salts from the stored water, in the lake by means of natural continuous draining of the stored water.”

ISIS gained<sup>cxvi</sup> control of the Samarra Barrage in July 2014 for some time, then seized it again in April 2015 amid intense fight against the Iraqi Army, causing the death of 127 Iraqi soldiers. On the occasion<sup>cxvii</sup>, “U.S. officials said intelligence reports suggest the extremists had opened at least one of the dam's gates, although darkness has hampered efforts to determine how much flooding, if any, resulted.” Subjected to intense fights, the barrage has since been taken back by the Iraqi Army that announced<sup>cxviii</sup> having repelled yet another ISIS attack in January 2016.

The Ramadi Barrage is Samarra Barrage's counterpart on the Euphrates River, and diverts excess of water into Lake Habbaniyah. In June 2015 Joanna Paraszczuk reported<sup>cxix</sup>: “Iraqi officials say that since IS's capture of the Ramadi dam in Iraq's Anbar Province last month, water shortages have worsened. IS has partially closed the dam, a move that has forced more water from the Euphrates into Habaniyah Lake. Provincial security officials warned recently that “dire consequences and an environmental catastrophe” would be “inevitable” unless something was done. Iraq's southern marshes are on the brink of that catastrophe.” The closing of the dam's gates provoked major water disturbances across the country and has spread concerns<sup>cxx</sup> over the terrorists' use of water as a weapon. In November 2015, the Iraqi Army launched a vast operation aiming to retake the city of Ramadi, where it all begun precisely to years before. The military campaign officially ended up in February 2016, and in the process the Ramadi Barrage has been cleared of ISIS presence, yet during the fierce fights, the terrorists didn't hesitate to blow up the bridges<sup>cxv</sup> leading to the city, to slow down the Iraqi Army.

If Mosul Dam is a world record breaking water facility in Iraq, it only overshadows Haditha Dam by a few meters. The latter is situated in western al-Anbar province on the Euphrates River and is the first structure that regulates the flow after the river gets out of Syria and enters Iraq. Second in size only to Mosul's, the multipurpose dam generates no less than 30% of Iraq's total electricity and Baghdad's entire electricity. The 8 km

long dam also regulates<sup>cxxxii</sup> the Euphrates for the whole of Iraq. Making Haditha Dam a highly coveted prey in any fight involving Iraq, so much so it was one of US Special Forces' first objectives<sup>cxxxiii</sup> in 2003. As soon as June 2003, US carried air strikes near the dam to allow the coalition forces to seize the facility. In 2014 MP and former adviser to the Ministry of Water Resources, Shirouk al-Abayachi declared<sup>cxxxiv</sup>: "if these dams – Mosul and Haditha – are outside of the control of the Iraqi state, it would be a national catastrophe. This is the ultimate danger!" The MP was reacting to ISIS' unremitting takeover attempts<sup>cxxxv</sup> of the dam throughout 2014 which forced the US Air Force to intervene<sup>cxxxvi</sup> despite the country's withdrawal from the Iraqi ground. Thus failing to prevent the terrorists' seizure<sup>cxxxvii</sup> of the strategic dam linking Baghdadi to Haditha in February 2015 while the Iraqi Forces managed to clear the city of Baghdadi from ISIS presence. Still as of 2016, ISIS continues to attack the surroundings<sup>cxxxviii</sup> in the hope to control the dam together with the vast Lake Qadisiyah reservoir.

There are about 22 major dams in Iraq of which 5 are still under construction and incomplete. Since the beginning of the hostilities with the terrorist group ISIS, the latter has seized or has tried to seize 9 of the dams including the two most important ones. Whether on the Tigris or on the Euphrates, the group deliberately tries to control the water facilities essential for both electricity and irrigation, while Baghdad desperately tries to maintain them under its command.

If few militants have been identified as capable to operate water facilities, water researcher Russel Sticklor moderates: "Managing water works along the Tigris and Euphrates requires a highly specialized skill set, but there is no indication that the Islamic State possesses it".

It is undeniable that the conflicts in Iraq have led to the use of water as a weapon, a punishment but also as a tool to keep the local population under severe dependency. Matthew Machowski explains<sup>cxxxix</sup> that "when they [ISIS] restored water supplies to Mosul, the Sunnis saw it as liberation. Control of water resources in the Mosul area is one reason why people returned". Water and by extension agriculture and electricity, are the main reasons locals find themselves incapable of resisting or raising against the terrorists who therefore managed to impose their deadly rule onto them and possessing people's survival similarly to anyone implementing a strategy aiming at controlling the water facilities in Iraq." The UN stated in 2014 that the terrorists controlled 2/5 of Iraq's wheat-producing fields.

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## **THE COUNTER-INSURGENCY FAILURE**

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Armed opposition to the US-led coalition since 2003 has been named "Iraqi insurgency", and has taken many shapes from 2003 until today. First as military "opposition", then underground "resistance", followed by sectarian violence leading to civil war and acts of terrorism. The differentiation in the phases are blurry yet both the coalition forces and the Iraqi Government resulting of the Invasion have faced intense challenge for the past decade. Therefore forcing the US headed administration in Iraq to apply some "counter-insurgency" policies that considerably contributed to feed the sectarian violence eventually leading to a civil war outbreak. Indeed, counter-insurgency measures failed<sup>cxli</sup> - and are still failing - to address the main sources of Iraqi's turmoil: basic needs procurement.

The long-time planned war against Iraq, as proved by the constant advocacy by neo-conservative Think-Tank Project for the New American Century<sup>cxlii</sup> (PNAC) for the

removal of Saddam Hussein from power, revealed itself as being poorly executed and probably poorly planned since the very beginning as it reached a peak of vagueness and hazard with the Iraqi Army disband<sup>cxlii</sup>. Since the end of the 90s the Think-Tank published several<sup>cxliii</sup> “warnings” and open letters<sup>cxliv</sup> to the US leadership, making Iraq one of the PNAC’s main obsessions<sup>cxlv</sup>. Many members of PNAC would later on come to hold responsibilities in Bush’s administration or would be granted a wide degree of influence in Washington at the time. Such as the following signatories to PNAC’s Statement of Principles<sup>cxlvi</sup>: Vice-President Dick Cheney, Secretary of Defense Donald Rumsfeld or Deputy Secretary of Defense Paul Wolfowitz. Even the famous Lewis “Scooter” Libby, Vice-President Cheney’s chief of Staff, also known for his involvement in Plame-Wilson<sup>cxlvii</sup> affair, who has been accused of leaking sensitive information such as the name of undercover CIA agent Valerie Plame to *New York Times* journalist Judith Miller, who is no other than one of the main NYT journalists<sup>cxlviii</sup> who has constantly reported that Iraq had WMDs. The repercussions of Miller’s articles<sup>cxlix</sup> based on doubtful facts and sources, such as prominent Iraqi dissident Ahmed Chalabi<sup>cl</sup>, reached such a climax that the NYT had to “apologize<sup>cli</sup>” in 2004 for its coverage of the pre-2003 Invasion: “But we have found a number of instances of coverage that was not as rigorous as it should have been. In some cases, information that was controversial then, and seems questionable now, was insufficiently qualified or allowed to stand unchallenged. Looking back, we wish we had been more aggressive in re-examining the claims as new evidence emerged -- or failed to emerge.”

No military strategist across the World ignores the knowledge inherited from Historical military invaders such as Julius Caesar, Alexander the Great<sup>clii</sup> or Napoleon<sup>cliii</sup>, who all proved that invading a country without the sufficient man-power to rebuilt a stable administration after the collapse of the invaded army, requires the aggressor to rely on the local power structures to legitimate the new rule. If completely replacing the former power structure with invaders’ man-power can work in the case of an invader largely outsize the invaded, it can in no way whatsoever work when an invader subtly outsize the invaded, particularly when the country invaded is located thousands kilometers away, on another continent, and this despite the extraordinary military power that is drove within the conquest. In other words, even if the US face no military competitors and especially in the case of Iraq, the civilian administration that ought to replace the previous one should have required considerable emphasis onto protecting the previous line of command and thus even acknowledging that Ba’athist regime remained the main “enemy” and would not have facilitated any cooperation.

Out of any military and strategic logic though, the Bush administration unequivocally decided to bypass this well established rule by destroying (de-Ba’athification<sup>cliv</sup>) or ostensibly ignoring the entire power structures<sup>clv</sup> in Iraq, whether governmental, military, religious, tribal, local or regional questioning therefore the real contributions of decade old Washington strategic planning of a US invasion of Iraq. The most surprising fact, is that Washington did so while advised otherwise<sup>clvi</sup> by the multitude of agencies working for it, such as the famous CIA, begging the question of how much ideology has been poured in the Iraq Invasion process compared to how much strategy should have been implemented. The case of Iraq, should resonate as an overall example of what should not be done when “spreading” democracy and replacing the power structure of a rogue state, putting aside any useless military boasting<sup>clvii</sup> regarding the total on-ground collapse of the Iraqi Army in front of the US Army in a little bit than a month. Yet, it is important to remind that since the very beginning of the Iraqi Invasion aiming at casting the Ba’athist power down, Shia dissidents from Eastern Iraq did not quite help the US-led coalition and fiercely opposed<sup>clviii</sup>, notably the UK Army<sup>clix</sup> in Basra<sup>clx</sup> not because

they didn't want Saddam to fall - on the contrary they never cease to fight for it – but rather because they had no trust in any Western interference since the debacle of the 90s Gulf War. Indeed, they perceived US's end of operation as abandonment and the will of US Army to prevent any conquest<sup>clxi</sup> of Baghdad by Shia militias as an act of betrayal<sup>clxii</sup> they would never forget<sup>clxiii</sup> nor pardon as Shia faced Saddam's severe reprisals<sup>clxiv</sup> for the following decade until 2003.

The US-led coalition entered therefore a theatre filled with enemies, and no real allies to rest onto.

According<sup>clxv</sup> to one of his officer, "Caesar had one main aim, keeping the tribes friendly and giving them neither the opportunity nor cause for war." Centuries after, the Bush administration couldn't possibly be further away from such military strategy. In order to plug the out of control situation, the Bush administration and the Coalition Provisional Authority, headed by Governor Paul Bremer, whose financial management<sup>clxvi</sup> suffered intense scrutiny<sup>clxvii</sup> in the following years, decided to apply the famous counter-insurgency measures that have been applied on the South American continent<sup>clxviii</sup>. To this end, two renowned US Colonels<sup>clxix</sup> were sent to Iraq in order to "advise" the Iraqi Army, Colonel James Steele and Colonel James Coffman. If both can boast about the creation<sup>clxx</sup> of very effective Wolf Brigade<sup>clxxi</sup>, and significant successes<sup>clxxii</sup> against terrorists in Iraq, the rise of sectarianism<sup>clxxiii</sup> together with great distrust among Iraqi communities can also appear in their overall achievements records. Achievements<sup>clxxiv</sup> of the then acclaimed General Petraeus<sup>clxxv</sup> are not for being praiseworthy neither, eventually leading to the "Surge" a US reinforcement in 2007 aiming at containing the spreading instability in Baghdad and al-Anbar Province.

Considering, nowadays, the situation in Iraq, the widespread<sup>clxxvi</sup> corruption<sup>clxxvii</sup> in the political arena<sup>clxxviii</sup>, the inability to stabilize large part of the country and the daily insecurity, proofs of success of the US-led Invasion to provide democracy are yet to be found. Considering that the US Army and the many US intelligence agencies are among the most capable, effective, powerful and wealthy, the reasons of these never-ending failures find their roots in the political agenda which comes along with its ideological stands. As the country's political figures have been highly efficient<sup>clxxix</sup> at "selling<sup>clxxx</sup>" the war they remained worthless at achieving it and their constant wish to bypass capable structure of commands led to the current disastrous situation.

Iraq revealed itself not being an Arabian Nights country filled with flying carpets and wandering camels, waiting for democracy to "free" the citizens, but rather as a ticking bomb inherited from decade long policies that the US Invasion only worsened. The US Army quickly enough found itself mired into an Arabian Hell filled with flying mortars and wandering IED (Improvised Explosive Device). And the policy intended to stabilize the Iraqi front failed to win the Iraqi's "heart" as it only addressed the essential security issues, with very low successes, yet without identifying what would have gained local's support for the campaign: water procurement, food independence, sanitary and health improvements.

President Bush might have taken First World War French Politician Georges Clemenceau's idiom "*War is too serious a matter to entrust to military men*" a little bit too literally.

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## THE PRIORITIES

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There is no solution to Iraq's crisis cycle that does not previously settle the many issues surrounding the country's water procurement. As proven in the paper ISIS and insecurity in general in Iraq are byproducts of the decade long policies that have been triggered by the disturbances that followed the 2003 Invasion that Saddam Hussein's regime previously managed to "silence" thanks to the fierceness of its policies and the chocking of any contestation. Water and by extension, agriculture have been tools in the hands of the power to reinforce its own grasp onto the citizens. The UN embargo designed to punish and force Saddam Hussein to comply with international rules and respect basic Human Rights ended up "helping" the dictator at achieving his full control over an exhausted population. As Iraqi American activist Dr. Dahlia Wasfi explains<sup>clxxxii</sup> referring to the PDS system: "(...) in fact his [Saddam's] power was reinforced because people were that much more desperate and dependent upon him for their survival. So we actually strengthened his rule with these years of sanctions".

The current political disinterest of the water related issues is severely damaging any peace and stability process in the country. Whether at national or international level, the implementation of a coherent water policy should be a non-negotiable priority even far before any attempt to crush the terrorist organizations currently destroying Iraq. Unfortunately, the international obsession with ISIS, flamed by the many experts<sup>clxxxiii</sup> who built their careers and "fame" onto the ashes and decapitations left by terrorists, prevents any long-term solutions and blind the country, the region and the international community to the real long-lasting threat that Iraq is heading toward.

Therefore, the priority should target International Water Sharing Policies and manage to bring Turkey, Iran, Syria and Iraq around the negotiating table all together and not separately. The issue emerging from the denomination of "transboundary" or "international" waters regarding both the Tigris and the Euphrates Rivers should be definitely settled. Also Turkey should reduce or at least include the downstream States in the implementation of its GAP project. States or entities hosting tributaries to the Rivers, such as the KRG or Iran, should also inform the countries of any cut, reduction and change made to the tributaries. A minimum water flow requirement should be reached while acknowledging the needs of every state sharing the waters of the Rivers.

That is why Syria's waters interests must be championed and protected by the international community considering that no party in Syria will "suit" all the foreign countries involved in the Syrian conflict. In other words, as the countries which make the international community's main forces are currently unable to even sit around the negotiation table, the UN must itself take the responsibility of negotiating on Syria's behalf and that of future generations to ensure that the country receives the proper amount of water, particularly on the Euphrates, from up-stream Turkey. Downstream Iraq's situation highly depends on it. Any failure to provide Syria with the minimum 500 cubic meters per second (the agreed quantity of water between Syria and Turkey), will germinate a domino effect onto Euphrates' flow entering and crossing Iraq. And this despite knowing that the majority of the water resources are flowing through territories controlled by armed groups, and therefore any international effort would be in these armed groups' favor as these latter could very well use the water security as a strong propaganda tool. Yet, populations living in armed held groups' territories cannot be punished twice, first by living under constant terror and then by sanctions imposed by the international community.

In addition, the outcomes and value of these sanctions must be questioned as it is now established that the UN-imposed embargo drove Iraqi population into deeper poverty while reinforcing Saddam's leash onto the society. And it generated a complete dependence of all Iraqis onto the PDS. Instead the UN-embargo managed to drive more anti-Western views across Iraq and the whole region, together with a widespread sentiment of injustice as the international community punished the whole societies for the deviance of their leaders only. Furthermore, the Oil for Food program handling has been mired into so much controversy that the UN and the international community have lost any credibility into mitigating conflicts and crisis in the region.

Meanwhile a high emphasis should be put onto the access and the quality of information regarding the simplest facts in Iraq, such as the exact superficies of the country, the volume of water entering, the rivers' flows, the quality of water or the owners of the fields. Policies can be implemented as and when the simplification of the fields' repartition or the reduction of the dams' projects occur.

The country should consider a reasonable development of the Oil & Gas industry that remains an important consumer of water. As Iraq will most probably become one of OPEC's biggest producers in the following years, the *Dutch Disease* should be kept in mind as a development risk. The country should also avoid entering a competition of "ruining production" with a neighboring Iran that will not fail to become once again one of the World's top producers. A similar reason-based policy should be held with the KRG in order to put a final end to the oil dispute and settle the destinies of Kirkuk. The money earned by the Oil & Gas industry should be poured into the development of other industries and in priority to the agriculture as the sector still accounts for 1/3 of the country's employment. Agriculture in Iraq can even be a powerful tool to tackle unemployment.

In the same vein, as women now represent 60% of the workforce on the fields, the public power should keep on supporting women's education together with protecting this vital workforce. As Iraq is already witnessing a drop of male workforce in the fields due to the current crisis, similarly to some European countries that faced dramatic losses during the World Wars. Therefore, it should be understood that women will be the essential force in tomorrow's Iraq and unavoidable rebuilders of the country.

There are possible lines of approach regarding the agriculture in a climate that will face more severe and lasting droughts together with high salinity, little rainfall and consequential erosion. However this must include local knowledge together with a scientific approach. The International Center for Agricultural Research in Dry Areas (ICARDA) based in Aleppo in Syria (moved to Beirut in Lebanon since 2011) has been involved in a program launched by Italian researcher Dr. Salvatore Ceccarelli called the Participatory Plant Breeding (PPB) as soon as 1995. Despite political turmoil inherited by changes of direction at the head of the Syrian Ministry of Agriculture in 2005, and several internal political difficulties leading to the withdrawal of the General Commission for Scientific and Agricultural Research (GCSAR) in 2007, ICARDA's umbrella organization, the program ran partially undercover and not in full legality until Syria's unrest in 2011 (with testimonies up to 2012) and successfully went through the severe 2008 drought. The PPB aims at combining local agricultural knowledge accumulated by word of mouths during several centuries together with a modern scientific tracking report allowing "Evolutionary Plant Breeding". The result is for scientists to assist local farmers in selecting the best seeds in regards of the various environmental constraints the farmers are working in. Thus preserving the agro-

diversity and preventing the current agricultural “fashion” (such as the so-called Green Revolution) that consists in providing the country’s farmers with a unique type of seed for the whole territory a seed that does not answer the many specificities that go on in shaping a country (climate, quality of the ground, water procurement, etc.). Syria is not Iraq though, yet many similarities can be rooted out. In addition, the PPB has been implemented in various countries such as Jordan, Egypt, Eritrea, Yemen or Iran. There is therefore no reason that it couldn’t work in Iraq.

Talking about the fact that from the beginning of agriculture until “the start of scientific plant breeding, farmers planted, harvested, stored and exchanged seeds”, Ceccarelli explains that “From the beginning of the 20<sup>th</sup> century, however, plant breeding was gradually taken out farmers’ hands: what had previously been done by very many people in very many different places, and with an emphasis on specific adaptation, was now increasingly being done by relatively few people in relatively few places, and with an emphasis on wide adaptation”. This therefore created a loss of agrobiodiversity and a top-down centralized breeding process in which farmers have to grow varieties that have been “officially released” when instead a bottom-up participatory and decentralized breeding process could adapt to any on-field specificity. During their experiment in Syria, Ceccarelli’s team and local farmers decided to focus on barley. They performed trials in widely different areas such as Kherbet El Dieb a typical dry area with an average rainfall of only 174mm. The 3 year trial (2006 until 2008), including the severe drought year of 2008, gave outstanding results. In Kherbet El Dieb “four PPB lines out-yielded the local black-seeded landrace grown by most farmers, by 12.3 to 23.2%”, but Ceccarelli adds: “the selected lines have proven themselves superior not only in most marginal and drought-affected areas”, before explaining that “the cost-benefit ratio was substantially higher for PPB than for conventional barley breeding”. Therefore “there is more to gain by implementing PPB than continuing conventional plant breeding” as “65% of the farmers said their livelihoods and economic status had improved as a result of their participation [in the PPB program]”.

Furthermore, the program can evolve in Evolutionary Plant Breeding (EPB) in order to give even more autonomy to farmers. As explained by Ceccarelli, “The concept of evolutionary plant breeding was first introduced by Suneson (1956). At its centre is the use of broadly diversified germplasm, in the form of large populations, and long-term natural selection processes in the relevant areas to produce highly adapted crops. Handling these complex populations, created by mixing a large number of diverse germplasm, is in fact simple: all that is needed is to cultivate them in locations affected by either abiotic stresses (drought, high and low temperatures, salinity, soil deficiencies) or biotic stresses (diseases, insect pests) or both, and then let natural selection slowly increase the frequency of the best-adapted genotypes. With the experience and skills developed through PPB, farmers and breeders can superimpose artificial selection for traits which are important in each specific location.” This allows the farmers to free themselves from any institutional support as they can “make their own populations, by mixing all the varieties or population available on the formal seed market”. The relevance of the implementation of such practices in Iraq thus doesn’t need any more proofs as it can even relieve the central government of time-consuming directives as only support would be needed.

Ceccarelli acknowledges that the “current knowledge on the molecular basis of drought resistance is not yet sufficient to develop more drought resistant crops or varieties” yet “conventional breeding based on specific adaptation and evolutionary strategies, and with the collaboration of farmers seems to be the only realistic avenue to develop in the

short-term drought-resistant varieties quickly available on the ground”. Together with a “need to re-address the allocation of resources”.

The program comes in direct contradiction with what agricultural policies have been implemented in Iraq and globally thanks to the many corporations that license the seeds, as it advocates for a decentralized agriculture modus operandi, with a complete autonomy of the farmers and seeds breeders. The main issue in Iraq has been one of the “100 Orders<sup>clxxxiii</sup>” promulgated by Governor Paul Bremer in 2004. Specifically, Order 81, paragraph 66<sup>clxxxiv</sup>: “Farmers shall be prohibited from re-using seeds of protected varieties or any variety mentioned in items 1 and 2 of paragraph [C] of Article 14 of this chapter.” It has been seen<sup>clxxxv</sup> as a decision forcing Iraqi farmers<sup>clxxxvi</sup> to buy seeds from Western corporation which are often accused of dramatically reducing the biodiversity. However a law passed in 2012, called “Law No. 50 of 2012 on Seeds and Seed Tubers”, puts an end to the practice and as Dr. Dahlia Wasfi explains, “the 2012 law does NOT specifically block the use of GM seeds in Iraq; it set up a regulatory body and regulations for seed industry operation in Iraq”.

Ceccarelli reminds us that “In addition to the increased uniformity of the varieties that we grow, plant breeding has also contributed to the decrease of the number of crops with only about 30 plant species supply 95% of the global demand for food (FAO, 2010) and with the four biggest staple crops (wheat, rice, maize and potato) taking the lion’s share (Esquinas-Alcázar, 2005).” [“Seeds of Future”, not yet published]. Though, “The Fertile Crescent is still home to several wild progenitors of the first species which have been domesticated, namely wheat, barley, pea, lentil, chickpea and vetch: these were all annuals that produced edible seeds.”

“Organic farming agricultural practices include integrated biological pest management, cropping systems that minimize soil erosion and reduce water loss, use of organic fertilizers and green manures, and crop rotations to minimize buildup of weeds, diseases and insect populations (Shaver, 2003).” Therefore, not only could Iraq preserve its agrobiodiversity but in doing so it can develop less water-consuming practices.

As Pr.Thomas Naff explained in his paper about the Saddam’s Main Drain: “There is a small irony attached to this story: In 1990 the governing authorities of Kuwait and Iraq engaged in serious discussions about the quite feasible possibility of transferring water from the Main Drain Canal to Kuwait City for potable domestic use because it would have been cheaper to desalinate the canal water than gulf water.” This water desalinization is actually a mission that is currently taking shape in Iraq<sup>clxxxvii</sup> and could very well produce the much needed fresh water yet must be dealt with extra care and cannot constitute the unique water procurement solution, particularly for the agriculture. “Desalination plants are an overuse of water resources in the Middle East. Seventy percent<sup>clxxxviii</sup> of desalination plants in the world are located in this area, found mostly in Saudi Arabia, the United Arab Emirates, Kuwait, and Bahrain<sup>clxxxix</sup>. While the plants produce water needed for the arid region, they can manufacture problems for health and the environment. The seawater used most in desalination plants has high amounts of boron and bromide, and the process can also remove essential minerals like calcium” says<sup>cxc</sup> Alexandra Barton. “Water desalination is a well-established technology mainly for drinking-water supply in water scarce regions such as the Near East. However, with agriculture accounting for 69 percent of all water withdrawals compared to domestic use of about 10 percent and industry 21 percent, it is the main source of potable water in the Persian Gulf countries and in many islands around the world and it is also being used in certain countries to irrigate high-value crops. However, it has proven much less economic for agricultural application than the reuse of treated



wastewater, even where the capital costs of the desalination plants are subsidized” according<sup>cxci</sup> to the FAO.

French engineer Alain Gachet runs Radar Technologies International which aims at finding underground water sources worldwide. Regarding al-Anbar region, Gachet says<sup>cxcii</sup>: “Is it a complete desert? Not so sure, because there are traces of humidity. We are still trying to understand where does this humidity come from because there are no rivers (there have never been any): this comes from deep underground”.

Solutions for Iraq water sustainability are both international and local, and water management must encompass all its aspects in order to reach stability and food and water security.

Finally Iraq should not be tempted to separate into 3 distinct entities as often heard. A “Sunnistan”, a “Shiastan” and a Kurdistan would in no case constitute a viable solution. If this solution would be preferred one will witness an amazing economic development in Kurdistan and Shiastan with a neighboring Sunnistan still struggling and therefore still very much unstable without mentioning any very blurry Syrian future. The crisis would only be postponed while Kurdistan and Shiastan would be harshly competing about Oil & Gas matters. The water issues would once again be used as weapons and not as a development tool. Also in a Global Economy polarized by huge regional powers, the negotiation possibilities of small entities remain much reduced and separating Iraq would prevent the country to be heard on the international stage.

It remains undeniable that Iraq water management is the core issue of the country’s current turmoil. ISIS is undoubtedly no more than an outgrowth of this critical water-stress situation and failing to address this main issue will result in the birth of another terrorist organization that will base its legitimacy on some semblance of basic procurement stability. Even if ISIS’ mortiferous ideology must be opposed, it remains a secondary mission to undertake and if proofs needed, it would be useful to remind that the word *Sharia* means “way” or “path” or even “a path to life giving water”.

According to the terrorist organization’s water strategy, an essential question comes to mind: Is ISIS really applying the Sharia?

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## FORECASTS

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Unfortunately past decades and present international policies have constantly demonstrated a lack of long-term vision and a protection of self-interests. Nobody wants to initiate an effort and pave the way for countries other than their own.

Erdogan’s past and increased obsession with Kurds will not push him to change or even slow-down his “precious” GAP project. As demonstrated by the absence of any “senior Turkish officials”<sup>cxci</sup> at a transboundary water conference in Istanbul in October 2014, the will to address this issue is near zero.

Syria’s reconstruction process will, likewise Iraq, require tremendous amount of water and little is to hope for any measured policies from Syria’s leaders if any.

Iran’s current return on the Global market and ease relationships with the West will provoke an economic boom that the country will not fail to take advantage of and from this side also, low expectations are to be hoped for regarding water consumption.

KRG which is currently in defiance toward Baghdad will most probably severely hold onto its harshly paid autonomy and development, so it is also very unlikely that water consumption will be reduced.

Meanwhile if the international community forces any player to reduce its consumption it will be seen yet again as western's neo-colonialism and interference. If the international community is to play a role it would be in assuring a peaceful environment for talks between the countries, yet in the background. The issue must be locally dealt with by regional powers only. Otherwise any player could withdraw with the excuse that the international community is attempting to force him to favor one player or the other chosen by the international community.

Defeating ISIS will not put an end to Iraq's catastrophic situation, and if no action is taken in parallel regarding the water crisis, it will only result in smoke screen if not a Pyrrhic victory. Therefore no strategy to destroy ISIS should take the luxury of ignoring the settlement of the water situation at the very same moment. For the result of demitting ISIS without the water issues to be likewise ruled will be even more problematic. Considering that no upstream State will ever agree on reducing its water consumption or increase its flow, the regional situation will lead to the emergence of another renegade power in Iraq after the destruction of ISIS. Moreover, the battle engaged against ISIS led to the creation of multiple militias and private armies in the hands of local warlords who will not fail to use their men in order to "protect" their interests after the demise of the terrorists.

Thus it will probably end up in a partition of Iraq that everybody foresees but nobody should praise. Iraq as we know it is dead unless the water related issues urgently compose the unequivocal top priority, way before ISIS that is, after all, only one of Iraqi water-stress' by-products.

Matthew Machowski [explains](#)<sup>cxci</sup> "When they [ISIS] restored water supplies to Mosul, the Sunnis saw it as liberation. Control of water resources in the Mosul area is one reason why people returned".

In a [Reuters article](#)<sup>cxv</sup>, Aseel Kami quotes someone in one of those water-poor areas of Iraq: "We depend on this water truck. If it did not come for any reason, on that day a glass of water would be as precious as a human soul ... we would be left without anything. No bathing and no drinking water,' said Dakheel."

That is precisely what happened in Iraq...

## Endnotes:

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<sup>iii</sup> Lee Ferran and Mazin Faiq, "[Why control of a terrifying in Iraq is life or death for half million people](#)", *ABC News*, 7 August 2014

<sup>iv</sup> Paolo Lucani, *Iraq-Agriculture sector note*, FAO, 2012

<sup>v</sup> Shukri Ahmed, *Global Information and early warning system on food and agriculture*, Special Alert No. 332, FAO, 25 June 2014

<sup>vi</sup> Tara Mohamed Anwar Omer, *Country Pasture/Forage Resource Profile*, FAO, 2006

<sup>vii</sup> The Second Annual Sulaimani Forum, *The Tigris and Euphrates dilemma: water as an instrument for cooperation across the region*, (video), 2014

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