

# International Collaboration, Partnerships or Co-operation (CPC) in Science Writing: Case of Africa and the Middle East with a Focus on Tunisia

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## ABSTRACT

Africa and the Middle East are currently the center of socio-political focus, due to unrest and instability, and whether we are from Beijing, or from Brasília, the events in these broad geographic locations affect us as citizens of the world, and, as a subset, as scientists. Most of the countries in the northern belt of Africa and the Middle-East, except where there has been an Anglo-Saxon vestigial linguistic influence, do not use English as a first language. This places scientists from countries in these regions in a clearly disadvantaged situation (through explicit or implicit bias) when attempting to publish in high level journals, mainly published by Western developed countries. Most of the scientists from these countries face serious difficulties related to language and scientific writing skills during the preparation of scientific manuscripts. This difficulty is now currently being severely compounded by a global economic recession and extreme, often violent, socio-political events that deeply disturb the effective (due to lack of resources, stability, psychological welfare) focus on science. Within this extremely complex setting, we bring you viewpoints that attempt to show the links between these socio-political events, and between current and past academic structures, that foment further instability in science, or to stabilize through the implementation of novel good means. Although the socio-political prospects of the mid-term future look probably uncertain, it is allowed to be confident that there may be pockets of strengthening scientific ties that would allow for the betterment, not only of science, but of society, through a scientific-based understanding of cross-cultural differences encompassing race, gender, and religion.

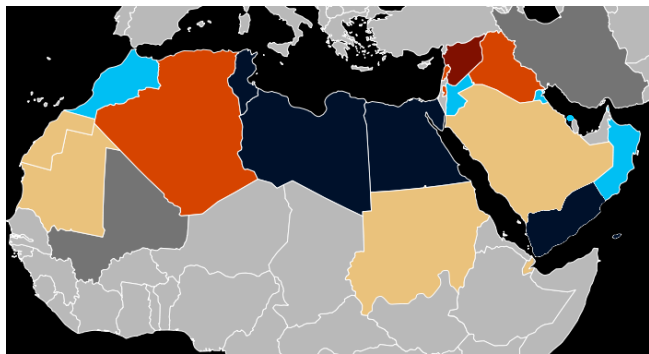
**Keywords:** Scientific collaboration, partnerships in science writing, English and science writing skills

## HOW COLLABORATION CEMENTS SCIENCE AND SOCIETY

Teixeira da Silva (2011a) showed how there exists an intrinsic link between society and science and how power in the latter can cement power of the former, and *vice versa*. Collaboration, *sensu stricto*, is the process in which two or more parties work together towards a common goal, through one or multiple *modus operandi*, but ultimately striving to reach the same goal through the sharing of the same scientific values and ideologies, even if the cultural, gender, religious or socio-political background are radically different. There is no *sine qua non* prerequisite to achieve success in science, and collaboration, partnership or co-operation (CPC) strives to advance a proposal in order to reach a common scientific goal, but which feeds back to socio-economic benefits (most tangible case) or to, in the purest sense, the advancement of scientific knowledge (Teixeira da Silva 2011b). Such a profound goal could take the form of a research project or a scientific publication. The general public, even elements of the broader scientific community, on occasion fail to understand the subtleties of scientific CPC, and most commonly associated CPC would involve more tangible concepts that affect or strengthen society such as why global warming takes place, or how to clean up an oil spill, how to improve the aroma of a yoghurt, or the scent of a flower. CPC in science covers a wide spectrum of aspects within society and can ensure the power balance associated with science (Teixeira da Silva 2011a).

## WHY ARE THE AFRICAN AND MIDDLE-EASTERN CONTEXTS SO COMPLEX?

It is evident that collaboration within a laboratory between research members is the purest form of scientific research collaboration and the easiest thus to envision. In the context of most African and Middle Eastern countries, with the exception of resource-rich Nigeria where there appears to be abundant funding for oil-related research, or Saudi Arabia, where the Kingdom itself supports science generously (e.g. The Saudi Journal of Biological Science hosted by Elsevier), or South Africa, which has an extremely advanced and well-developed science infrastructure that dates back to the pre-Mandela era, the most basic form of scientific collaboration would involve inter-laboratory research within a single country. Increasingly, low-tech, underfunded laboratories rely heavily on collaboration with Western (and more recently Eastern) countries, to ensure funding, project continuity and thus success (The Royal Society 2011). Unfortunately, this consistent dependence tends to compound the "hand-out", charity-style image for most of continental Africa simply because within Africa, in particular, there are few laboratories that would be able to self-sustain high-tech laboratories, thus often relying on funding, charitable donations and foreign funding, besides loaning. While it is often easy to point the finger at society, or at scientists themselves for not doing more to improve the infrastructure, it is becoming increasingly evident that ministries and governments, often dead-locked in corporate or governmental corruption and greed, stymie the proper development of the scientific infrastructure. Western ideologies simply can-



**Fig. 1 Countries involved in the Arab Spring (November 2012).** Radical change: Tunisia, Egypt, Libya, Yemen, and seemingly Syria. Smooth, small or partial change: Morocco, Jordan, Bahrain. Change in Iraq was imposed by the US occupation forces and is not a real revolution. Government overthrown Civil war Protests, civil disobedience and governmental changes Major protests Minor protests Related crises outside the Arab world. Source: Wikipedia (2012)

not be imported, implemented and enforced in Africa and the Middle East, since these societies, by virtue of their race, culture and religion, do not follow the mind-set that may characterize let's say, a European, American, South American, Australian or Japanese *modus operandi scientificus*.

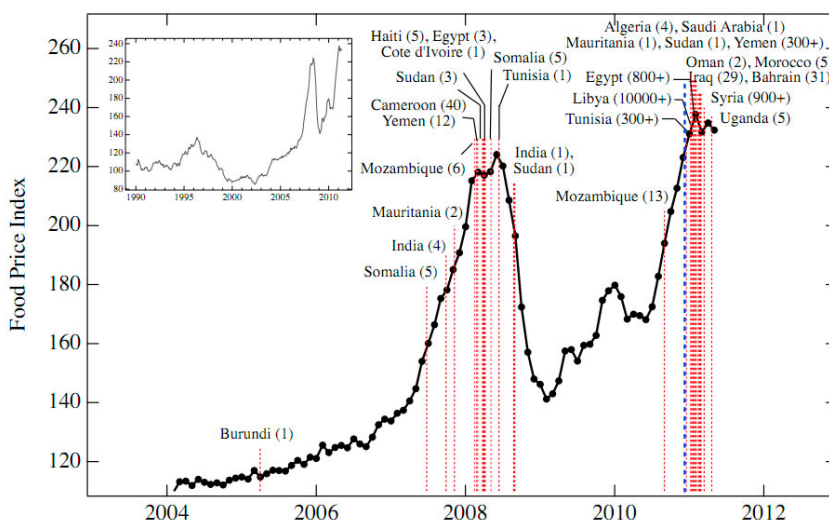
Despite the fairly elite status that scientists hold in these societies, when placed on the global competitive stage particularly that related to publishing there are serious shortfalls and deficiencies. Unrealistic, often ridiculous policies imposed by elitist members of a ministry of education, for example, without understanding the true reality within the laboratory at the grass-roots level can lead to desperation, particularly among young scientists who see themselves trapped within a society and a hierarchical structure that does not give them the freedom they need to succeed in the open-minded frame-work they would like to succeed. This situation, compounded by caste-like and extremely vertical hierarchical structures, often determined by gender, may place women or other minorities at a distinct disadvantage. Furthermore, recent socio-political instability not only breaks down families, pitting nationals one against the other, it strips the peace of spirit associated with social harmony, thus destabilizing the core psychological bases required for success and achievement.

Naturally, it would be impossible to cover this topic in detail within this paper, but without a doubt the success of science depends on the socio-economic and political stability of a country. Without safety, there is no security. Without security, there is theft and mayhem. With theft and mayhem, there is no confidence. Without confidence and a secure

society, there is no investment since investment is being diverged elsewhere and not invested where it is most required to instill stability and continuity. If there is no infrastructure and funding, scientific dreams are lost or killed. Such an uncertain outlook is easy to envision within some highly destabilized countries in Africa and the Middle East, even though the will of the people in these countries to succeed is large.

The events that have defined, save for perhaps Tunisia, and affected the so-called Western-imposed and Western-defined Arab Spring (see countries affected in Fig. 1), have resulted in a total loss of a full generation of scientific expertise, left societies in disarray, without safety, without confidence, and without security to pursue those dreams. A strong link between the lack of food security and high commodity prices and social revolt and unrest are now clearly proved (Fig. 2). Think of a young scientist who aims to be a great scientist and with a dream of pursuing excellence in their country. Perhaps their university is bombed, and the lab equipment is destroyed, or perhaps the university is looted, or raided, or used as a base for humanitarian support, thus disrupting the regular course of work. This young budding scientist has no way of recovering that equipment, that dream and possibly that situation, maybe for the next decade or two (unless some miracle happens), since the government (if in fact there is one, or if it is functional) simply does not have funding for science, having to divert it either for propping up foreign military magnates, or for paying off equally corrupt foreign banking magnates with the constant aim of maintaining such states in Africa and the Middle East in a constant state of misery and poverty, disarray, instability and confusion so as to ensure a constant flow of natural resources, whether diamonds, wood or oil, for decades to come to foreign interests. So, amidst this political and military power struggle, science and scientists have become the victim. No longer is science observed as an essential element, as a fundamental basic tool for the improvement of lives in society, but in such turbulent countries, it is seen as a luxury and an unnecessary cost. In the time that it takes to destroy some buildings, the dreams and preparations that have taken years to develop, can be destroyed in the space of a few minutes. Welcome to the reality of Africa and the Middle East. Despite this bleak, but realistic, introduction, as scientists it is up to us to find ways to counter these narcissistic objectives of the powers that be, and move ahead with what is core and important to us, providing us with our meaning of life, in science.

One of the ways in which this could be effectively achieved, thus overcoming social, economic and political constraints, is by collaborative authorship, when conducted under strict ethical guidelines and a strict set of pre-determined conditions (Teixeira da Silva 2011c, 2011d),



**Fig. 2 Link between food shortage and socio-political crisis.** Source: www.necsi.edu (2011).

despite the constant lack of ethics that surround us. Such a partnership with a suitably trained and experienced scientist who would provide a strong form of support at the level of linguistics and scientific rigor would increase the likelihood of acceptance of a manuscript, thus exposing that valuable data-set to a wider scientific audience (Teixeira da Silva 2011b), and maintain that level of scientific respect and dignity while such destabilizing factors envelop the scientist in whose countries such events are taking place. Even though Bahr and Zemon (2000) stated that “as evidenced in the sciences and social sciences, collaboration encourages author productivity and enhances article quality. As research becomes more quantitative, collaboration increases”, while Dreyfuss (2000) indicated that traditionally, scientists, artists, and professors develop ideas alone, utilizing only their own knowledge and research to complete their works although recently, due in part to an increasing need for specialization, the globalization of the marketplace, the rapid growth of the Internet, and an expansion in intellectual property law, collaborative production is replacing individual efforts, although the context in which they made these hypotheses was most likely within the context of socio-political harmony.

Neo-colonization of countries through the scientific medium and the global implementation of English is a serious off-shoot resulting from the globalization of science.

International collaborations are clearly on the increase (The Royal Society 2011; also see more detailed discussion and stats in Teixeira da Silva 2012, and references therein) with new arrivals stemming primarily from Africa, South and Central America and the former USSR. Although this novel concept of CPC, coined and implemented by Teixeira da Silva in 2011, has already been shown to have global success, highlighted through several pockets of studies throughout the world, namely China (Zeng *et al.* 2011; Teixeira da Silva *et al.* 2013b), Italy (Teixeira da Silva and Muscolo 2012), Hungary (Teixeira da Silva and Dobránszki 2012), Russia (Teixeira da Silva and Lukatkin, unpublished), Iran (Teixeira da Silva and Kamkar 2013), and South America (Teixeira da Silva *et al.* 2013a), the concept has yet to gain traction among plant scientists, who remain receptive, but skeptical (Teixeira da Silva and Van 2011).

The focus on this paper is not only to highlight the serious challenges that exist in implementing CPC in Africa and the Middle East, arising not only from socio-economic conflict and military tensions, but also to highlight specific challenges facing these continents and regions, focusing primarily on Tunisia as a role model.

## WHAT DIFFICULTIES ARE EXPERIENCED BY SCIENTISTS IN AFRICA AND THE MIDDLE EAST?

In Africa and the Middle East, the development of sciences and technologies has been for a long time very slow, but a little bit quicker in the last two decades. Difficulties in English writing are very different depending on the country. We can classify them into 4 groups:

1) Countries where English is the official language: This concerns the old British colonies (**Appendix 1**) in Africa that presently use English as the official language, regardless of their native local dialect. Scientists in these countries are the best in the English writing and have globally no problem in this field.

2) Non-Arabic speaking countries where English is the second language: There are principally the old French and Belgian colonies (**Appendix 2**) where French has been adopted/imposed as official language. Scientists of these countries practice English as a second language and can deal with this a little bit easily like most of the non-English speaking countries around the world.

3) Arabic speaking countries: Firstly it is important to remind that Arabic is the language of Islam, which, contrarily to other religions, organizes and guides the daily life of Muslims. Besides, this language is very old, very rich and had highly influenced the world during the Middle

Ages. It successfully survived the decadence centuries of the Arabic speaking people (**Appendix 3A**) and European colonization. Hence, colonizers did not succeed in imposing their language as happened in many African countries. Thus, we can classify the Arabic speaking countries into two sub-groups:

A- Arabic-speaking countries (**Appendix 4**) that were old British colonies: despite the importance of Arabic, scientists deal with English writing, generally in a good way,

B- Arabic-speaking countries and old French colonies (Tunisia, Algeria, Morocco Mauritania and Lebanon, but not Syria): in spite Arabic being the first language, French is the second language and is still very important and popularly utilized (it is here an important difference between French and British colonization impacts on colonized peoples). Hence, scientists in these countries are the most disadvantaged since English comes as a third language, if we do not consider the difference between spoken Arabic and official Arabic. It is even a fourth language for Berber scientists of these countries. Thus, except for a small number of scientists who obtained their higher education in the USA or the UK, the great majority of the remaining scientists have many difficulties in writing English, and to learn this language, they have to spend time and energy to master it moderately. That is why in Tunisia, for example, the education of English is now starting earlier (**Appendix 3B**), but always after Arabic and French. Besides, Arabization of the Tunisian education which concerns all human sciences and a certain proportion of the other sciences in high school, affects only the Humanities and Social sciences in the university (**Appendix 3C**). Hence, scientific journals are almost entirely in French. Thus, there are in total 6 scientific agricultural journals, 5 of which are in French (with Arabic and/or English abstracts):

1) *Les Annales de l'INRAT* (of the *Institut National de la Recherche Agronomique de Tunisie*, Tunis, institute created during colonization in 1913): very old journal created by French researchers in early 20<sup>th</sup> century, agricultural polyvalent journal;

2) *Les Annales de l'INRGREF* (of the *Institut National des Recherches en Génie Rural, Eaux et Forêts*, Tunis, institute created in the early 1960's): quite old journal created in the mid-1960's, polyvalent journal in rural engineering, water and forests;

3) *La Revue de l'INAT* (of the *Institut National Agronomique de Tunisie*, Tunis, institute created during colonization in 1898): not very old journal created in the 1980's, agricultural polyvalent journal;

4) *La Revue de l'IRA* (of the *Institut des Régions Arides*, Medenine, Tunisia, institute created in the mid-1970's), dry land polyvalent journal, created in the mid-1980's;

5) *Azzaytouna* [meaning *olive tree*] (of the *Institut de l'Olivier*, Sfax, Tunisia, institute created in the early 1980's): young journal specialized in olive tree research aspects, created in the early 1990's.

The 6<sup>th</sup> journal: Tunisian Journal of Plant Protection (TJPP) was created in 2006, totally in English, with Arabic and French abstracts, presently hosted in *Ecole Supérieure d'Agriculture du Kef*, El-Kef, Tunisia, which is a graduate school created in early 1980's. This orientation was not followed without difficulties because of the resistance of the researchers which are not or weakly English speaking. It is however the only Tunisian agricultural scientific journal with an international Editorial Board (**Appendix 5**). It exists on-line (<http://www.iresa.tn/tjpp>) and is becoming more and more international by publishing papers emerging from France, Morocco, Algeria, Libya, Egypt, Kenya, Uganda and India. However, unlike TJPP and because of the language, the French journals are almost not consulted outside Tunisia, perhaps rarely in the Maghreb countries, but surely not in France where they are considered to be of a low level, with no Impact Factor<sup>®</sup> (IF<sup>®</sup>).

## TUNISIA: MODEL NATION IN THE MAKING

The Arab world (or Arab homeland/nation for many people) has been living a quite good development during the 20<sup>th</sup> century in all fields, except in politics in which different kinds of dictatorships have become established, apart from Lebanon. It is from Tunisia at late 2010/early 2011, that the revolutions in Arab countries (Arab spring) started to extend according to different models going from the most peaceful in Tunisia to the most bloody in Libya and presently in Syria (Fig. 1). The difference between these recent revolutions and the old ones is that they will lead to the establishment of “democratic” (non-dictatorial) systems aimed at improving society through freedom and transparency within the frame of civil states. The underlying philosophy is that Arabs are very optimistic because when people are free from the choice of their leaders, they normally choose only good ones, no matter they have a laic or an Islamic basis. For example, Turkey is now ruled by an Islamic party that was able to, within few years, to take the country from a very under-developed situation to the 16<sup>th</sup> economic rank in the world (Wikipedia 2012). It is a general feeling that Arab people deeply wish to unite to have the chance to evolve positively. This willingness will be put in practice by leaders that Arab people will choose in the frame of a democratic system. This dream is possible and will lead to a united, modern, strong and civil Arab country, in one Arab Republic or a kind of United Arab Republics or States.

In the future, education and research policy will be used to benefit of the country. Funds will certainly be more available and well managed by better chosen persons. In post-revolution Tunisia, university educational institutions are already managed by elected officials instead of nominated officials in the pre-revolution period. This measure must also now be applied to research centers. This only requires time to traverse and overcome the turbulence of the first temporary state before elections of October 2011, and the second temporary state after elections during which the constitution will be established in late 2012 or early 2013. After the next elections (probably mid-2013), Tunisians hope to emerge from the current state and situations to start the real work of the construction of a new, modern, developed society, respectful of liberty. Around Tunisia, Libya is now constructing its new democratic system and will consequently have a great and promising future. Tunisia will have with Libya a real complementary cooperation between the two countries as well as with the other Maghrebian countries. However, the scientific Tuniso-Libyan collaboration will need time regarding the use of French in Tunisia and English in Libya; the use of the Arabic language as a common base will partially resolve this problem. But, no language problem will be posed with the other Maghrebian countries which are French-speaking.

Without any precise data, it can be noted that Tunisian scientists aim to publish in international journals, preferably with a good IF<sup>®</sup>. They reserve their best works written in English for IF<sup>®</sup> journals. Manuscripts in English of an intermediate level are sent to less strict international journals or to TJPP since its international Editorial Board tends to be harder to please. Modest papers in French are published in local French-speaking journals.

In Tunisia, it is commonly accepted to put as co-authors all contributors that have participated in the research work (conception, manipulation, interpretation, statistic analysis or writing). The adviser (the lab boss) and/or the lab supervisor intervene in one way or another in at least the conception and/or writing. It is generally admitted that with a BSc (or equivalent), the advisor (with the lab supervisor or not) takes charge of writing of articles with his/her name first, followed by the name of the concerned student, then followed by the rest of the working team. In contrast, post-graduate students (MSc and PhD) write the paper text that will be revised by the supervisor and corrected by the advisor. In this case, the post-graduate student will have his

name first, then the other authors. The sequence of the author names is very important since it influences the promotion of researchers which deposit their application dossier for a higher position. Hence, the first name is the most important, followed by the second. From the third name, it is considered that it concerns a low(er) level of participation. However, there is still certain ambiguity about the last name: it can refer to the advisor if he/she likes/prefers it or to an ordinary last author. When someone helps strictly in the English writing, he is only acknowledged and does not become a co-author, which corresponds to the findings of Teixeira da Silva and Van (2011). There are no rules concerning responsibilities in research and publishing. However, it is quite commonly admitted that it is the adviser who decides about publishing with the consensus of all the team members.

When a scientist participates in a paper, there is no immediate reward such as a wage increase or a position promotion. The interest of publishing is to develop a serious dossier to present it to an evaluation committee to apply for a higher position. Hence, competition for professional evolution are inciting researchers to publish more and more and this will lead to a better scientific development in the country. However, one problem remains: Tunisians start to be aware that a lot of papers have no direct impact on the general development of the country. Evaluation committees need to take this aspect into account in the future.

Over many years, each evaluation committee has become composed of 5 members, 3 of which are elected by university professors (Decrees, 1998 and 2003). Every committee is sovereign and has to organize its proper method of evaluation (i.e., each committee has its own point system and there is no general model) although, usually, all committees take into account some permanent aspects with more or less importance which are: profile (background of education, trainings, etc.), teaching (taught material, courses, labs, supervising or advising, etc.), research (published papers, oral communications, posters, international cooperation, projects, etc.), social influence (impact on the national agricultural development, field day participation, technician education, international activities, etc.). The IF<sup>®</sup> of journals is gaining more and more importance since most committees consider it by giving higher degrees to papers from higher IF<sup>®</sup> journals. Almost all Tunisian universities authorize the PhD defense only after the student publishes at least 2 papers in IF<sup>®</sup> journals. In this situation, TJPP is favored over all other Tunisian journals because it is considered as an international journal with an intermediate position between local journals (lower) and foreign IF<sup>®</sup> journals (higher).

Regarding fraud and plagiarism, all evaluation committees are trying to do their best. They use all means to verify the authenticity of a candidate's work. They are helped by legal texts and software utilized to detect plagiarism. If falsification is found and reported by the evaluation committee, it is punished by refusing the defense by the student and by refusing the recruitment or promotion of the candidate by prohibiting him/her to apply for any other competitive examination during 5 consecutive years, and eventually being treated by a Disciplinary Board to take other disciplinary measures. Over the past 15 years approximately, evaluation committees in agricultural sciences have been multiplied by the authority in such a way to make them as specialized as possible after detecting falsified papers (Plant protection; Animal production and fishing; Plant production and environment; Agricultural economics; Rural engineering, water and forest; and Food industry). Hence, the risk that falsified dossiers pass through is reduced to a minimum. Very rare cases have been detected and were treated individually. However, in general, a decree on plagiarism was published in the Official Gazette of the Republic of Tunisia with the aim of fighting falsification of articles and theses (Decree, 2008).

Many problems restrict research activities and need to be treated after the revolution in transparency and with free

expression. These include:

- Human resources are increasingly reduced because of no personnel to replace outgoing staff;
- Administrative and financial management is very complicated and heavy; it does not respond to lab requirements in terms of speed and adaptability;
- Materials and equipment are not always sufficient and their acquisition needs generally a lot of time because it is always time consuming to make a tender and to proceed through the Markets Board;
- Research centers and university institutions in the countryside are marginalized in both human and financial resources;
- The National Agricultural Research System (so called in Tunisia: *Institution de la Recherche et de l'Enseignement Supérieur Agricoles*: <http://www.iresa.tn>) must be re-organized in a way to improve the work conditions for scientists in all research and high education establishments.

## CONCLUDING REMARK

Under the dictatorships in the pre-revolution (< December 2010) Arab countries, every capital city (central) exerted a crushing centralizing power toward the countryside which was marginalized. This situation had nothing to do with developed countries in which inhabitants in small villages can live their whole life in their village without the need to go to big cities or the capital. In contrast, in Tunisia and many other developing countries, even inhabitants living in a big city must always move to the capital for many requirements (administration, education, health, culture, etc.). This situation will certainly change in the future because the new leaders promise to give a larger autonomy to the countryside with elections of all of their officials.

## ADDENDUM

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**Appendix 1:** List of old (former) British colonies (focus on Africa and Middle East).

Source: [http://en.wikipedia.org/wiki/List\\_of\\_former\\_European\\_colonies](http://en.wikipedia.org/wiki/List_of_former_European_colonies) (modified)

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***In Africa***

Anglo-Egyptian Sudan (Sudan)  
 Basutoland (Lesotho)  
 Bechuanaland (Botswana)  
 British East Africa (Kenya)  
 British Somaliland (Northern Somalia)  
 British Togoland (eastern Ghana)  
 Cameroons (split between Nigeria and Cameroon)  
 Egypt  
 Gambia  
 Gold Coast (Ghana)  
 Nigeria  
 Northern Rhodesia (Zambia)  
 Nyasaland (Malawi)  
 Sierra Leone  
 South Africa  
 South-West Africa (Namibia incl. Walvis Bay)  
 Southern Rhodesia (Zimbabwe)  
 Swaziland  
 Tanganyika (mainland Tanzania)  
 Uganda  
 Zanzibar (insular Tanzania)

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***In Middle East***

Aden Protectorate (Yemen)  
 Bahrain  
 Egypt  
 Kuwait  
 Oman  
 Palestine  
 Qatar  
 South Arabia  
 Transjordan (Jordan)  
 Trucial Coast (United Arab Emirates)

\* Gray: Arab countries

\* White text: Arabic partially speaking countries

\* Light gray: English-speaking countries

**Appendix 2:** List of main old (former) French and Belgian colonies (focus on Africa and Middle East).

Source:

[http://en.wikipedia.org/wiki/List\\_of\\_French\\_posSESSIONS\\_and\\_colonies](http://en.wikipedia.org/wiki/List_of_French_posSESSIONS_and_colonies) (simplified)

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**French**

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***In Africa***

**French North Africa**

French Morocco (now Morocco)  
 French Algeria (now Algeria)  
 Egypt  
 French Tunisia (now Tunisia)  
 Libya

**French West Africa**

Ivory Coast  
 Senegambia and Niger  
 Dahomey or French Dahomey (now Benin)  
 French Sudan (now Mali)  
 Guinea or French Guinea  
 Mauritania  
 Niger  
 Senegal  
 French Upper Volta (now Burkina Faso)  
 French Togoland (now Togo)  
 Nigeria  
 Gambia

**French Equatorial Africa**

Chad  
 Oubangui-Chari (currently Central African Republic)  
 The Republic of Congo or French Congo  
 Gabon  
 French Cameroon (91% of current Cameroon)  
 São Tomé and Príncipe

**French East Africa**

Eritrea  
 Madagascar  
 Mauritius  
 Djibouti (French Somaliland)  
 Mayotte  
 Seychelles  
 Chagos Archipelago  
 The Scattered Islands  
 Comoros  
 Reunion

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***In Middle East***

Israel  
 Lebanon or French Lebanon  
 Syria  
 Yemen

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**Belgian**

Democratic Republic of Congo (ex-Zaire)  
 Rwanda  
 Burundi

\* Gray: Arab countries

\* White text: Arabic partially speaking countries

\* Light gray: French-speaking countries



**Appendix 3 A: Brief history of Arabization.**

**A** During the 7<sup>th</sup> century and later, the Islam extension through the holy war and/or peaceful way has allowed Arabs to conquer the Persian Empire in the East and the Roman Empire in the West and to settle large Arab Empires from the Andalusia in the present Spain to the China borders (the most important empires were firstly the Omayyad's Khilafa then the Abbasside's Khilafa). An Arab-Muslim civilization was then developed and has led the world during around 8 centuries through a great improvement of all of sciences with a top evolution in the Andalusia. These sciences were developed starting from the previous sciences, particularly those of old Greeks. An example of the science development in agriculture in Andalusia was the "Book of Agriculture" written by the scientist "Y.I.M. Ibn Al'Awam" (11<sup>th</sup>/12<sup>th</sup> centuries) and translated in the 19<sup>th</sup> century to French by J.J. Clément-Mullet (*Le Livre de l'Agriculture*). All aspects of agriculture were treated in this book which is considered by some present Spanish scientists as the first thesis in the world in agricultural sciences, since the author described agriculture techniques in many other countries of the world (bibliography), presented his own experiments (materials and methods) and gave his practical recommendations (results). For example, regarding the plant protection field, he described disease symptoms and proposed rational control methods such as treating infected organs by vinegar (acid disinfection properties), helping plant by adding manure (indirect method of control that favors plant to develop resistance), applying crop rotation (cultural control method), etc. Since the 15<sup>th</sup> century, the Arab-Muslim world started to fall in decadence and civilization regression until retrieving itself at the 20<sup>th</sup> century extremely under-developed and entirely colonized by the Occidental countries. The European renaissance started to develop 5 centuries ago using and then improving all sciences found in Arab-Muslim countries which were the basis of the modern agricultural, industrial, cultural and social Occidental revolutions.

**B** During the 1970's, English started to be learned at the 10<sup>th</sup> year of education in Tunisia. Progressively, it has been changed to be taught presently at the 6<sup>th</sup> year, while French always started at the 3<sup>rd</sup> year. Another important remark is to indicate that now, the baccalaureate exam (high school final national exam) obligatory includes the examination on the 3 languages Arabic, French and English in all specialties (sciences, human sciences, economics, etc.). In the past, this language exam concerned only some specialties and not necessarily all of the 3 languages.

**C** When we speak about "Arabization" of education and sciences in Tunisia, and in some other Arab countries, it is just a translation of sciences from French (or English) to Arabic, with no relation with the Islamic religion. It is true that religious sciences have sometimes been changed in a way to improve morals and to strengthen deontology in the society, but it is completely different from the "Islamization" ideology carried by some political movements. Islamization movements do exist but may not be very popular in a civil country like Tunisia. They seem to be limited to some layers of the people and would finish to be digested by the moderate Islamic movements which defend an Islamic civil society ruled by human laws. Presently, many Tunisians think that the model of the society proposed by the largest moderate Islamic party in Tunisia (Annahdha) is now practically applied in Turkey where a tolerant moderate Islamic party is ruling in a laic country through democratic elections and in a frame of liberty. If this is the willing of the majority of the people, why not? If it is good: ok; if not: in the coming democratic elections, the people will make the change.

**Appendix 4: List of countries where Arabic is the/an official language.**

Source: [http://en.wikipedia.org/wiki/List\\_of\\_French\\_posSESSIONS\\_and\\_colonies](http://en.wikipedia.org/wiki/List_of_French_posSESSIONS_and_colonies)

The following is a list of the countries where Arabic is the/an official language. In some of these countries, Arabic is spoken by a minority of the people.

Country	Population	Note
Algeria	34,895,000	Co-official language, along with Berber
Bahrain	807,000	
Chad	10,329,208	Co-official language, along with French
Comoros	691,000	Co-official language, along with French and Comorian
Djibouti	864,000	Co-official language, along with French
Egypt	79,089,650	
Eritrea	5,224,000	Co-official language, along with English and Tigrinya
Iraq	31,234,000	Co-official language, along with Kurdish
Palestine	7,653,600	
Jordan	6,407,085	
Kuwait	3,566,437	
Lebanon	4,224,000	
Libya	6,420,000	
Mauritania	3,291,000	
Morocco	32,200,000	Co-official language, along with Berber
Oman	2,845,000	
Qatar	1,696,563	
Saudi Arabia	25,731,776	
Somalia	9,359,000	Co-official language, along with Somali
Sudan (without South Sudan)	43,939,598	
Syria	22,505,000	
Tunisia	10,432,500	
United Arab Emirates	4,975,593	
Yemen	23,580,000	

NOTE: Arabic is not an official language in Iran, even though it is spoken by a small part of the people which is Arab and also by certain educated Persian persons.

**Partially recognized and unrecognized states**

Country	Note
SADR	Claiming sovereignty over the territory of Western Sahara
Somaliland	Claiming sovereignty over northern Somalia, <i>de facto</i> independent ; Co-official language, along with Somali

**Appendix 5: Information about TJPP.**

TJPP treats all aspects of plant protection (pathology, entomology, acarology, nematology, physiological disorder, weeds, etc.). Incidentally, nematology is considered to be a part of Zoology in France, unlike Anglo-Saxon culture where it is a Pathology branch. This situation creates one more small difference between Arab countries which were British or French colonies. There are no specialized agricultural reviews in Tunisia, except TJPP and the French speaking review "*Azzaytouna*". All other agricultural journals are polyvalent where very different aspects are published in French scientific papers. Apart from TJPP, no other Tunisian agriculture journal is on-line (<http://www.iresa.tn/tjpp>).