

# THE NORTH AFRICAN MILITARY BALANCE

## Force Developments & Regional Challenges

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## Introduction

There is no military balance in North Africa in the classic sense of the term. While there are rivalries and tensions between Algeria, Libya, Morocco, and Tunisia, no state in the Maghreb now actively prepares for war with its neighbors, and the prospects of such conflicts are limited. Several countries have had border clashes in the past, and Algeria and Morocco still take opposing sides in the struggle for control of the former Spanish Sahara, but none of the Maghreb states have approached the point of serious conflicts with each other since achieving independence.

The Maghreb states only project token forces outside the Maghreb. While several states from the Maghreb have sent symbolic military support to past Arab-Israeli forces, such levels of force commitment had no real military significance.

This does not mean, however, that the region has been peaceful. Libya has had major regional ambitions in the past, and fought a war with Chad on its southern border, but its military adventures largely failed. Libya made mass arms purchases in the 1970s and 1980s, but never developed the manpower and support base to use them effectively and has been unable to sustain its arms buys because of economic problems and sanctions. With sanctions now lifted, Libya is once again on the market, but efforts to recapitalize its forces have been minor and major sales/deliveries have yet to materialize.

Morocco has had minor border clashes with Algeria in the past, although none escalated to the point of major military significance. Morocco has long fought a war to annex the former Spanish Sahara, fighting against local forces called the Polisario. This has been a low intensity conflict, although Algeria has provided the Polisario with sanctuary and varying levels of support.

The bloodiest war in the region since independence has been a civil conflict: The Algerian Civil War lasted well over a decade and pitted a corrupt military junta, which had ruled behind the façade of an elected government, against Islamists who effectively won a popular election in the early 1990s, and were then deprived of power. When civil war broke out, violent extremist elements among these Islamists quickly came to dominate the fighting, while the military increasingly relied on equally violent repression. The civil war consumed so many resources that it led to major cuts in Algerian military modernization, although arms purchases rebounded as the military confronted and reduced the Islamist threat.

Today, the military balance in North Africa consists largely of efforts to create military forces that can defend a nation's borders, maintain internal security, and serve the purposes of national prestige. Their key focus is internal extremism and terrorism, although such challenges are scarcely new.

Libya supported terrorist and extremist movements in the past, and has been guilty of state terrorism. It ended such activities in recent years, however, and despite some of the idiosyncrasies of its leadership, has made a successful effort to be seen as a moderate and pragmatic regime that is primarily interested in economic development and better relations with the West. Libya is also struggling with its own Islamic extremists. Morocco and Tunisia have never supported terrorism or extremism, and Algeria's military junta fought Islamic extremists and terrorists for more than a decade. Algeria,

Morocco, Libya and Tunisia face a common threat from transnational Islamist groups in the Maghreb looking to emulate Al-Qaeda and Al-Qaeda in Iraq.

Proliferation has also been a problem. Algeria made contingency plans to acquire nuclear weapons in the late 1980s, and has examined options for acquiring long-range missiles. There is no current evidence, however, that Algeria has implemented major programs to actually acquire such capabilities or to deploy such forces. Libya has sought chemical and nuclear weapons and long-range missiles, and was reported to have 80 Scud B missile launchers and up to 350-500 missiles in 2005. It may have also examined options for acquiring biological weapons. It ceased all such efforts in 2003, and opened up its nuclear facilities to inspection by the US and International Atomic Energy Agency (IAEA).

## I. Comparative Resources & Security Dynamics

The countries of the North African balance have all had different objectives as they tackle varying efforts to recapitalize, modernize and replace increasingly aging pools of forces. These efforts are driven by a range of military and non-military national factors including national security objectives, population growth, economic capacity and natural resources..

### *The Impact of Non-Military Factors*

Resources, demographics, and social change all play a critical role in shaping regional security forces, and resources are limited compared to other parts of the MENA region. The larger states and those with larger economies have been able to spend more on security forces, but security spending is a strain on state finances and national economies throughout the region. High population growth and lags in development also present internal security risks in every North African state.

Although Algeria and Libya have considerable petroleum resources, all of the Maghreb states have increasingly been affected by sharp population growth, lags in development, economic and social infrastructure, and job creation. As a result, social, economic, and demographic factors play an important role in shaping both national forces and the need to deal with internal security threats.

**Figure 1** compares GDP and per capita GDP by country. Not counting Egypt, Algeria is the largest economy in the region, but it also has a large population and a relatively low per capita income. Morocco and Tunisia have smaller economies and low per capita incomes. This inevitably affects each country's ability to create modern military forces. The pressure on each country's budget also remains a key factor.

**Figure 2** shows that Algeria must deal with serious budget deficits, while Libya, Morocco, and Tunisia face only comparatively limited problems with budget deficits.

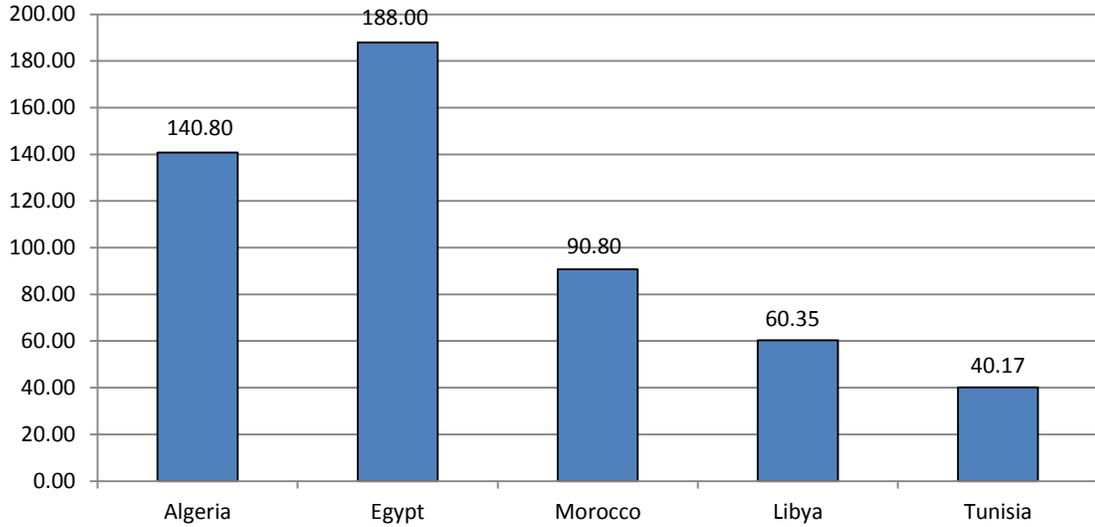
Economics interact with demographics in different ways. For example, **Figure 2** shows that while Libya has the smallest population in the regional balance, the country's relatively high national GDP, rents from energy exports, and limited redistribution of national wealth give it added flexibility in investing in military forces. At the same time, **Figure 2** also shows that Algeria and Morocco have the population capacity to sustain conscription while **Figures 1** and **2** show that the Algerian and Moroccan economies are large enough to sustain moderate patterns of economic investment in military capacity, and cyclical patterns of new military orders and agreements, in spite of low per capita incomes and other economic strains.

Yet macroeconomics and demographic "snapshots" tell only part of the story. A budget deficit of 26% may have real world implications for Tunisia's economy – the smallest in the balance, but it has had limited to no impact on Algeria, which had a 20% deficit in 2009. As the largest economy in the Maghreb, Algeria can more effectively shoulder the cost of military recapitalization. As later data will show, rents from the sale of abundant natural resources play an important role in facilitating force recapitalization.

**Figure 1: Comparing North African GDP Data in 2009**

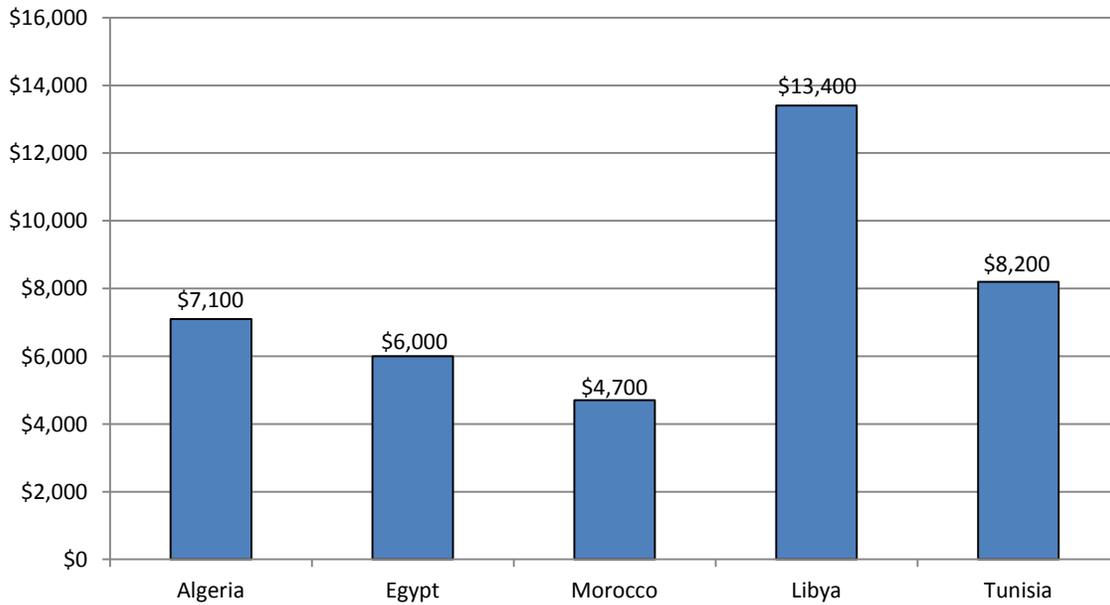
**Comparative North African GDP**

(Estimates in constant 2009 \$US billions)



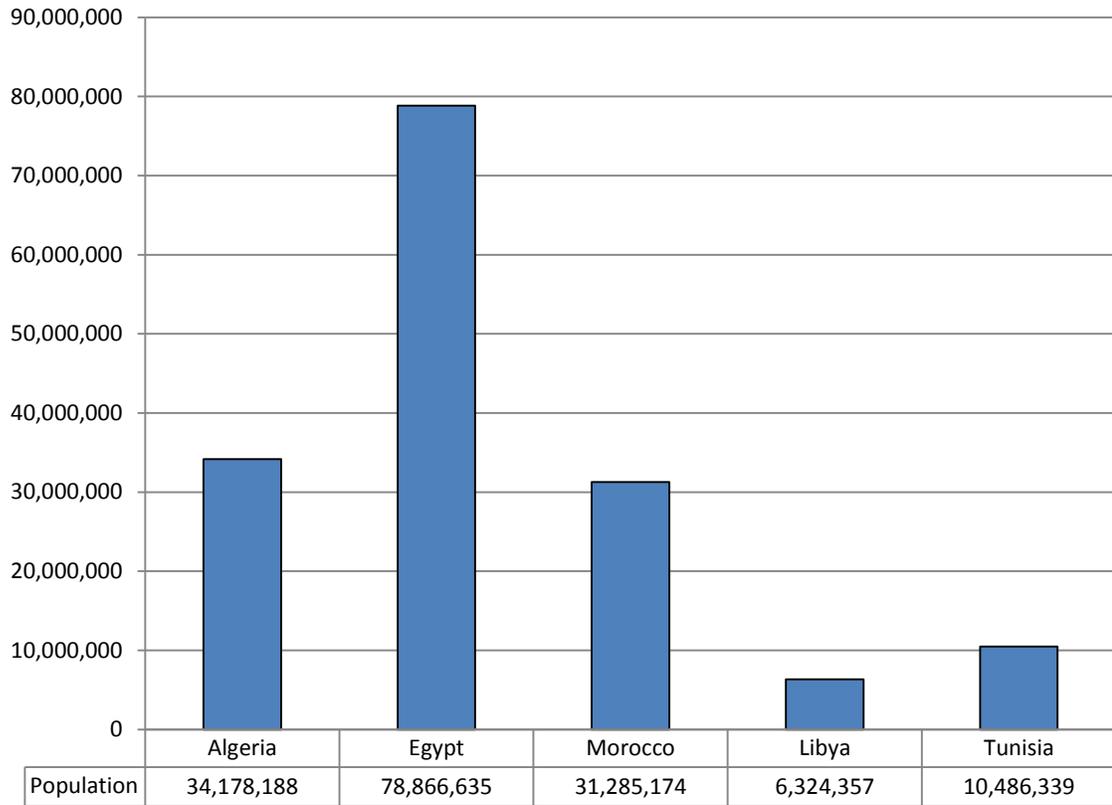
**Comparative North African Per Capita GDP**

(Estimates in constant 2009 \$US dollars)



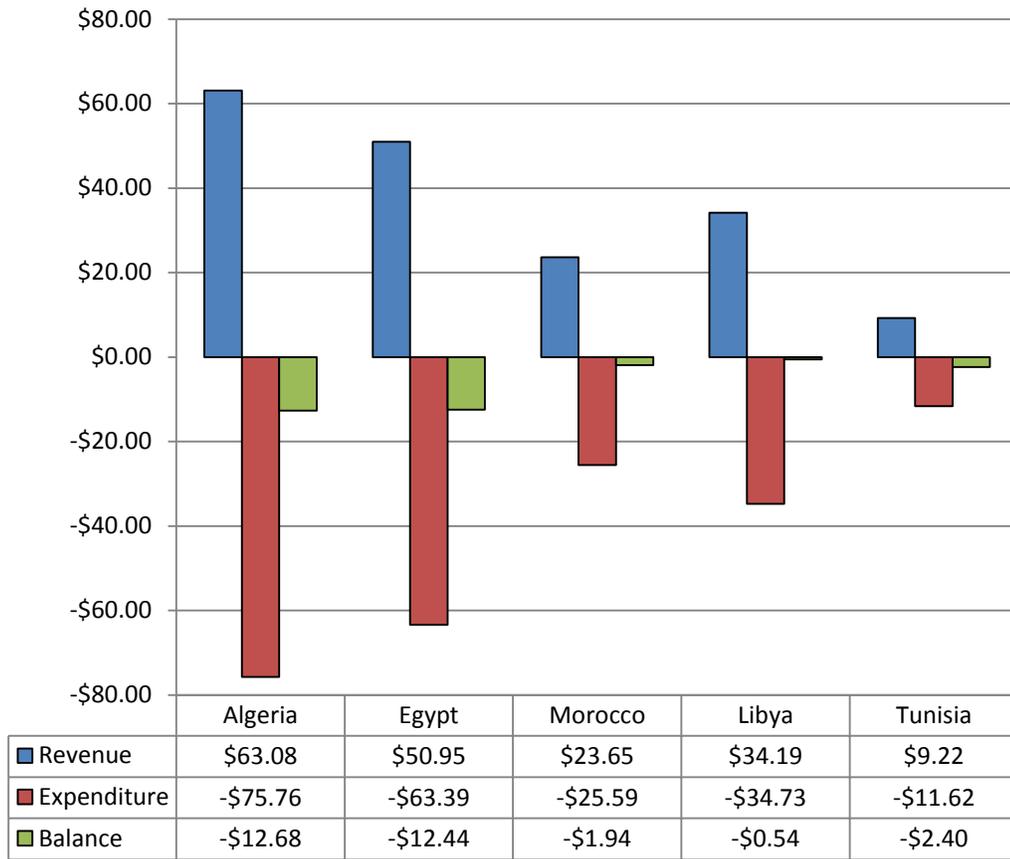
Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, various editions.

**Figure 2: Comparative North African Population in 2010**



Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, July 2010 estimates.

**Figure 3: Comparative North African National Budgets**  
(In constant 2009 \$US billions)



Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, 2009 estimates.

### The Security Dynamics of Algerian and Libyan Petroeconomics

As in much of the developing world, “petroeconomics” have a mixed impact. As **Figures 3 to 5** show, Algeria and Libya have large petroleum resources and incomes, and as **Figure 6** shows this helps give them a favorable trade balance. At the same time, it scarcely solves either their economic problems or frees them from problems in funding national security.

The CIA estimates that Algeria’s economy ranked 48<sup>th</sup> in the world in 2009, but its per capita income ranked only 127<sup>th</sup>, and experts agree that income distribution is very poor and favors a narrowly based elite.<sup>1</sup> Petroleum has been a mixed blessing. In the case of Algeria, the CIA notes that there have been acute swings in petroleum income while Algeria’s economic policies have done much to block outside investment and the diversification of its economy:<sup>2</sup>

“Hydrocarbons are the backbone of the economy, accounting for roughly 60% of budget revenues, 30% of GDP, and over 95% of export earnings. Algeria has the eighth-largest reserves of natural gas in the world and is the fourth-largest gas exporter; it ranks 15th in oil reserves. Weak global hydrocarbon prices during 2009 contributed to a 40% drop in government revenue, although the government continues to enjoy a financial cushion provided by about \$150 billion in foreign currency reserves and a large hydrocarbons stabilization fund. Algeria's external debt is only about 1% of GDP. The government's efforts to diversify the economy by attracting foreign and domestic investment outside the energy sector, however, has had little success in reducing high unemployment and improving living standards. A Complementary Finance Law, enacted in July, imposed tight restrictions on imports and required that new foreign investment must be in the form of joint ventures with at least 51% share of ownership by Algerian partners. That law and a January, 2009 ban on importing pharmaceutical products that are also locally produced have contributed to some domestic goods shortages and prompted foreign investors and businesses to reconsider activities in Algeria. Development of the banking sector, the construction of infrastructure, and other structural reforms are hampered by corruption and bureaucratic resistance.”

Moreover, in 2007, a massive rise in world petroleum prices gave Algeria an unheard-of \$29 billion budget surplus – helping to trigger military spending in spite of a failure to redistribute this income to its stratified society, especially the poor, and fund broader and more balanced development. As is the case in the Gulf, Algeria and Libya states have “boom and bust” petroleum economies – although their large populations place far greater limits on discretionary spending.

In the case of Libya, the CIA notes that:

“The Libyan economy depends primarily upon revenues from the oil sector, which contribute about 95% of export earnings, 25% of GDP, and 60% of public sector wages. The weakness in world hydrocarbon prices in 2009 reduced Libyan government tax income and constrained economic growth. Substantial revenues from the energy sector coupled with a small population give Libya one of the highest per capita GDPs in Africa, but little of this income flows down to the lower orders of society... Climatic conditions and poor soils severely limit agricultural output, and Libya imports about 75% of its food. Libya's primary agricultural water source remains the Great Manmade River Project, but significant resources are being invested in desalinization research to meet growing water demands.”

At the same time, the CIA reports that Libya’s economy ranked 74<sup>th</sup> in the world in 2009, and its per capita income ranked 83<sup>rd</sup>. While experts agree that that Libya’s income distribution is poor and favors a narrowly based power elite.<sup>3</sup> Moreover, the CIA does see positive trends in Libya’s economic development:

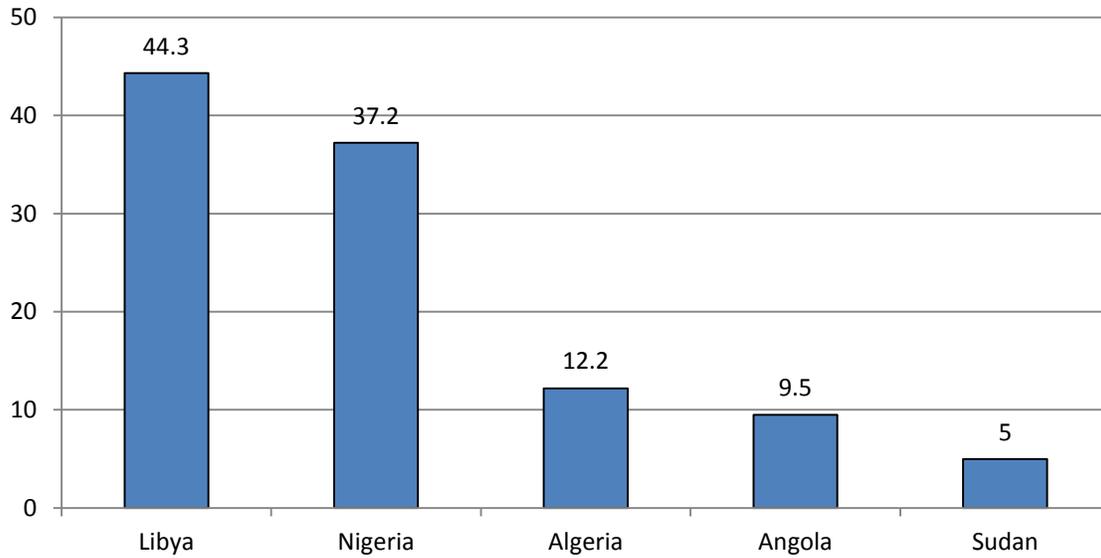
“Libyan officials in the past five years have made progress on economic reforms as part of a broader campaign to reintegrate the country into the international fold. This effort picked up steam after UN sanctions were lifted in September 2003 and as Libya announced in December 2003 that it would abandon programs to build weapons of mass destruction. The process of lifting US unilateral sanctions began in the spring of 2004; all sanctions were removed by June 2006, helping Libya attract greater foreign direct investment, especially in the energy sector. Libyan oil and gas licensing rounds continue to draw high international interest; the National Oil Corporation (NOC) set a goal of nearly doubling oil production to 3 million bbl/day by 2012. In November 2009, the NOC announced that that target may slip to as late as 2017. Libya faces a long road ahead in liberalizing the socialist-oriented economy, but initial steps - including applying for WTO membership, reducing some subsidies, and announcing plans for privatization - are laying the groundwork for a transition to a more market-based economy. The non-oil manufacturing and construction sectors, which account for more than 20% of GDP, have expanded from processing mostly agricultural products to include the production of petrochemicals, iron, steel, and aluminum.”

As was previously mentioned, Algeria and Libya have very significant petroleum resources and sources of income. If they chose to make suitable changes to current national plans, and pursued paths towards economic development that successfully build the national economy, this could affect national security funding and internal stability in the future.

**Figure 3: African Proven Oil & Gas Reserves in 2010**

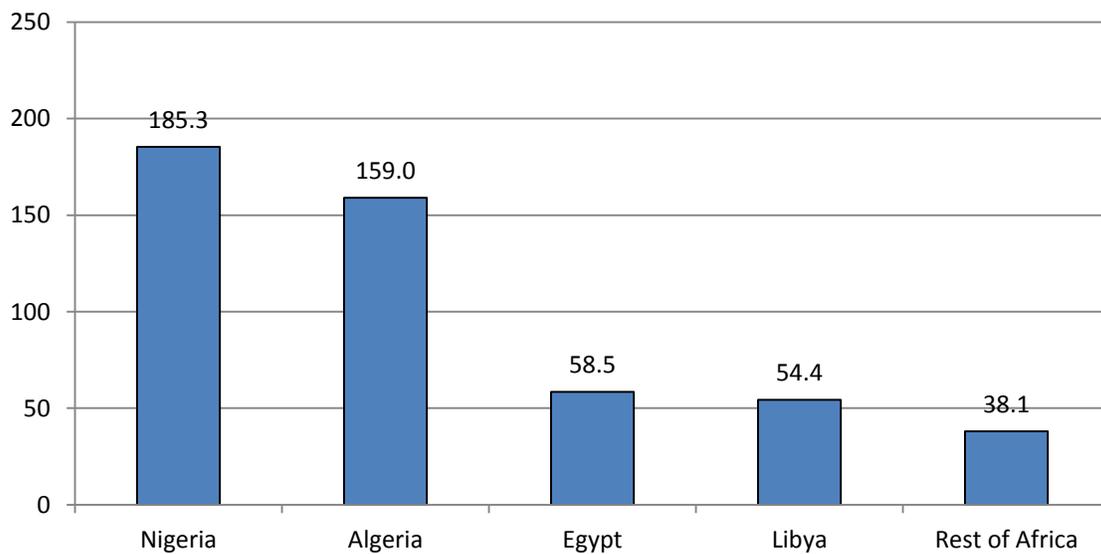
**Top African Oil Proven Reserve Holders in 2010**

(In billions of barrels)



**Top African Natural Gas Proven Reserve Holders in 2010**

(In trillions of cubic feet)

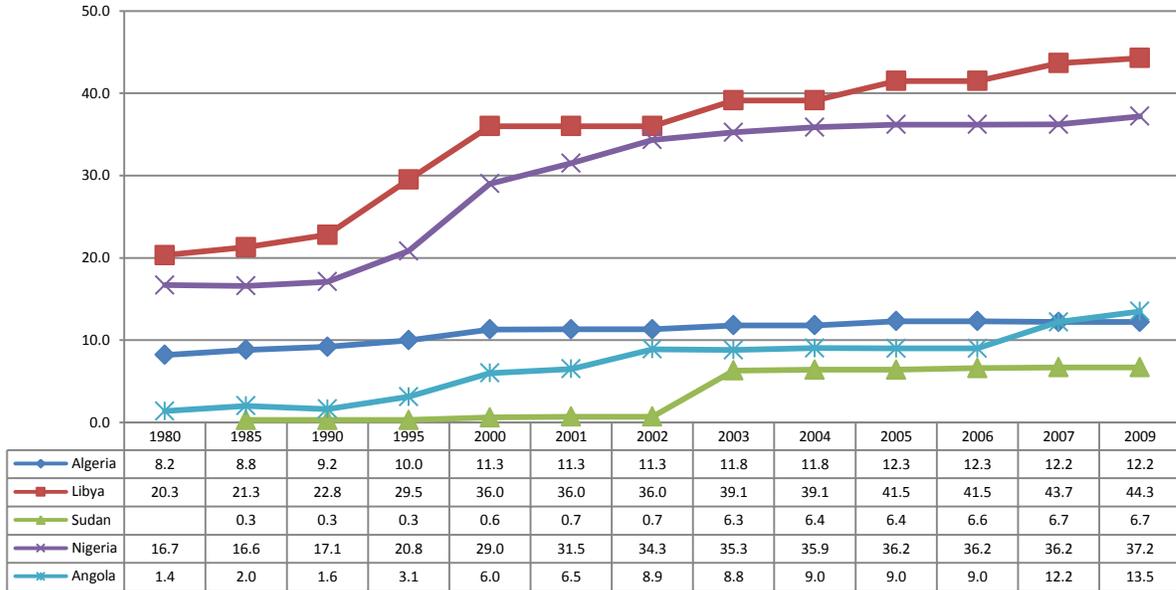


Source: Adapted by Aram Nerguizian from data provided by the *Oil & Gas Journal* and the Energy Information Administration.

**Figure 4: Historical Evolution of African Oil & Gas Reserves 1980-2009**

**Top African Oil Proven Reserve Holders**

(In billions of barrels)



**Top African Natural Gas Proven Reserve Holders**

(In trillions of cubic meters)



Source: Adapted by Aram Nerguizian from data provided by the *Oil & Gas Journal*, BP's *Statistical Review of World Energy 2010* and data from the Energy Information Administration.

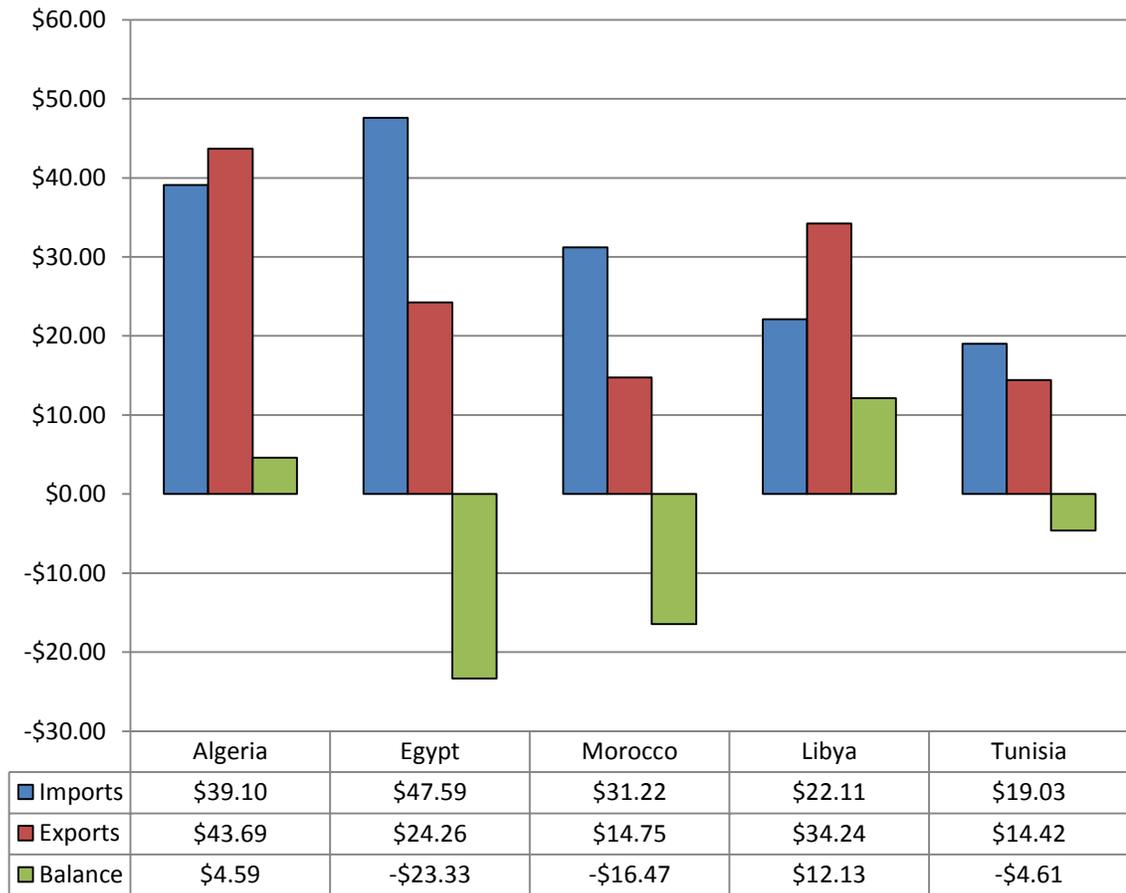
**Figure 5: Comparative Petroleum Income**

| Country      | OPEC Net Oil Export Revenues |       |       |              |                       |       |       |              |
|--------------|------------------------------|-------|-------|--------------|-----------------------|-------|-------|--------------|
|              | Nominal (Billion \$)         |       |       |              | Real (Billion 2005\$) |       |       |              |
|              | 2009                         | 2010  | 2011  | Jan-Oct 2010 | 2009                  | 2010  | 2011  | Jan-Oct 2010 |
| Algeria      | \$42                         | --    | --    | \$45         | \$38                  | --    | --    | \$40         |
| Angola       | \$42                         | --    | --    | \$46         | \$38                  | --    | --    | \$40         |
| Ecuador      | \$6                          | --    | --    | \$6          | \$5                   | --    | --    | \$5          |
| Iran         | \$53                         | --    | --    | \$59         | \$48                  | --    | --    | \$52         |
| Iraq         | \$38                         | --    | --    | \$39         | \$34                  | --    | --    | \$34         |
| Kuwait       | \$45                         | --    | --    | \$47         | \$40                  | --    | --    | \$42         |
| Libya        | \$34                         | --    | --    | \$36         | \$31                  | --    | --    | \$31         |
| Nigeria      | \$46                         | --    | --    | \$54         | \$41                  | --    | --    | \$48         |
| Qatar        | \$24                         | --    | --    | \$30         | \$21                  | --    | --    | \$26         |
| Saudi Arabia | \$153                        | --    | --    | \$164        | \$137                 | --    | --    | \$145        |
| UAE          | \$53                         | --    | --    | \$54         | \$47                  | --    | --    | \$48         |
| Venezuela    | \$33                         | --    | --    | \$33         | \$30                  | --    | --    | \$29         |
| OPEC         | \$571                        | \$748 | \$840 | \$613        | \$510                 | \$658 | \$726 | \$540        |

| Country      | OPEC Per Capita Net Oil Export Revenues |         |         |              |               |         |         |              |
|--------------|---|---------|---------|--------------|---------------|---------|---------|--------------|
|              | Nominal (\$)                            |         |         |              | Real (2005\$) |         |         |              |
|              | 2009                                    | 2010    | 2011    | Jan-Oct 2010 | 2009          | 2010    | 2011    | Jan-Oct 2010 |
| Algeria      | \$1,243                                 | --      | --      | \$1,311      | \$1,110       | --      | --      | \$1,155      |
| Angola       | \$3,291                                 | --      | --      | \$3,514      | \$2,940       | --      | --      | \$3,098      |
| Ecuador      | \$411                                   | --      | --      | \$400        | \$367         | --      | --      | \$352        |
| Iran         | \$804                                   | --      | --      | \$876        | \$719         | --      | --      | \$773        |
| Iraq         | \$1,305                                 | --      | --      | \$1,320      | \$1,166       | --      | --      | \$1,164      |
| Kuwait       | \$16,683                                | --      | --      | \$16,959     | \$14,907      | --      | --      | \$14,949     |
| Libya        | \$5,418                                 | --      | --      | \$5,532      | \$4,841       | --      | --      | \$4,877      |
| Nigeria      | \$326                                   | --      | --      | \$372        | \$291         | --      | --      | \$328        |
| Qatar        | \$25,204                                | --      | --      | \$30,472     | \$22,515      | --      | --      | \$26,856     |
| Saudi Arabia | \$5,339                                 | --      | --      | \$5,629      | \$4,770       | --      | --      | \$4,962      |
| UAE          | \$10,955                                | --      | --      | \$10,966     | \$9,788       | --      | --      | \$9,666      |
| Venezuela    | \$1,238                                 | --      | --      | \$1,226      | \$1,106       | --      | --      | \$1,081      |
| OPEC         | \$1,547                                 | \$1,994 | \$2,198 | \$1,635      | \$1,382       | \$1,754 | \$1,898 | \$1,442      |

Source: The Energy Information Administration [http://www.eia.doe.gov/cabs/OPEC\\_Revenues/Factsheet.html](http://www.eia.doe.gov/cabs/OPEC_Revenues/Factsheet.html), November 2010.

**Figure 6: North African Trade Balance in 2009**  
(In constant 2009 \$US billions)



Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, 2009 estimates.

### **The Security Dynamics of Moroccan and Tunisia's Economies**

Morocco faces acute economic pressures on military and other spending – more so because of demographics than economic policy. The CIA estimates that Morocco's economy ranked 58<sup>th</sup> in the world in 2009, and its per capita income ranked only 149<sup>th</sup>.<sup>4</sup> At the same time, the CIA estimate of Moroccan economic policy is more favorable than for either Algeria or Libya:

“Economic policies pursued since 2003 by King Mohammed VI have brought macroeconomic stability to the country with generally low inflation, improved financial sector performance, and steady progress in developing the services and industrial sectors. The National Initiative for Human Development (INDH), a \$2 billion initiative launched by the King in 2005, has improved social welfare through a successful rural electrification program, an overhaul of the tourism and agriculture sectors, and the gradual replacement of urban slums with decent housing. Despite the INDH's success, Morocco continues to grapple with a high illiteracy rate, a low education enrollment rate, and a high urban youth unemployment rate of around 30%. Moroccan exports have dropped sharply since mid-2008 as a result of the decline in global phosphates prices--the bulk of Moroccan exports by value--and the global economic slowdown. The recession in Europe--Morocco's main export market--also prompted a decline in the flow of foreign tourists and remittances, two primary sources of foreign currency. A record agricultural harvest, strong government spending, and domestic consumption, however, combined to offset losses from weak exports and helped GDP grow by 5.1% in 2009. Despite structural adjustment programs supported by the IMF, the World Bank, and the Paris Club, the dirham is only fully convertible for selected transactions. In 2006, Morocco entered a Free Trade Agreement (FTA) with the US, and in 2008 entered into an advanced status in its 2000 Association Agreement with the EU. Morocco's primary economic challenge is to accelerate and sustain growth in order to reduce high levels of unemployment and underemployment. Long-term challenges include improving education and job prospects for Morocco's youth, closing the income gap between the rich and the poor, confronting corruption, and expanding and diversifying exports beyond phosphates and low-value added products.”

Tunisia also faces acute pressures on its military and other spending – again more because of demographics than economic policy. The CIA estimates that Tunisia's economy ranked 70<sup>th</sup> in the world in 2009, and its per capita income ranked only 119<sup>th</sup>.<sup>5</sup> The CIA estimate of Tunisian economic policy is relatively favorable but again note the severe impact of demographic pressure:<sup>6</sup>

“Tunisia has a diverse economy, with important agricultural, mining, tourism, and manufacturing sectors. Governmental control of economic affairs while still heavy has gradually lessened over the past decade with increasing privatization, simplification of the tax structure, and a prudent approach to debt. Progressive social policies also have helped raise living conditions in Tunisia relative to the region. Real growth, which averaged almost 5% over the past decade, declined to 4.6% in 2008 and to 0.3% in 2009 because of economic contraction and slowing of import demand in Europe - Tunisia's largest export market. However, development of non-textile manufacturing, a recovery in agricultural production, and strong growth in the services sector somewhat mitigated the economic effect of slowing exports. Tunisia will need to reach even higher growth levels to create sufficient employment opportunities for an already large number of unemployed as well as the growing population of university graduates. The challenges ahead include: privatizing industry, liberalizing the investment code to increase foreign investment, improving government efficiency, reducing the trade deficit, and reducing socioeconomic disparities in the impoverished south and west.”

### The Impact of Demographic Challenges

Far more is involved, however, than the economics of defense spending. Population growth is so rapid that all of the Maghreb countries face major strains on their employment situation, educational systems, economies, infrastructure, and quality of governance. This population pressure is summarized in the historical trends and projections shown in **Figure 7**.

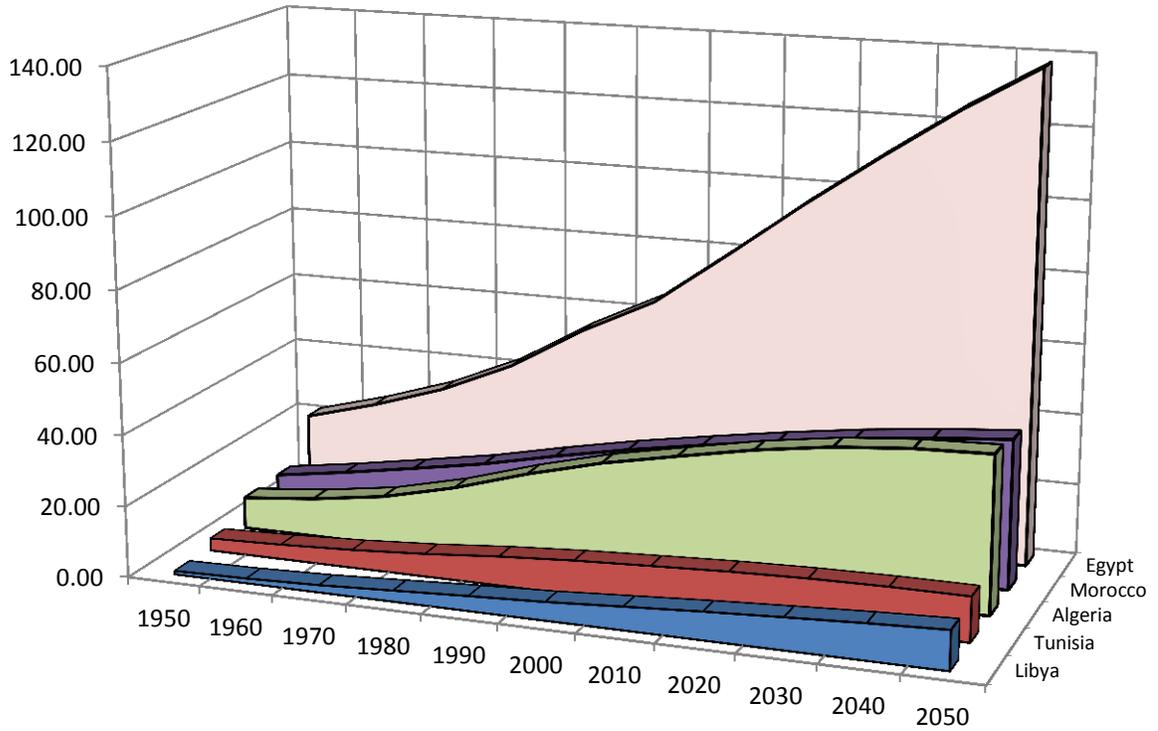
There is no clear correlation between extremism and terrorism and population growth, unemployment, underemployment, failures to provide effective government services, and breakdowns in education. It is clear, however, that all can contribute to the problem. Moreover, as **Figure 7** shows, a well-established pattern of high population growth is difficult to halt and can easily outpace even well run efforts to expand the economy and government services. It also creates a young and volatile population that is often alienated from a society that fails to give it opportunities and help. The CIA estimates that 25.4% of the population of Algeria is 14 years of age or younger. The figures for Egypt are 33%, 28.7% for Morocco, 33% for Libya, and 22.7% for Tunisia. Tunisia is the only North African country whose percentage presents only a moderate challenge to development and internal stability.

Unfortunately, very little meaningful work has been done to measure such strains. **Figures 8** through **10** make a rough attempt to measure the level of unemployment, but such data are largely meaningless since they do not measure the level of underemployment or jobs that are created solely for political ends and have no productive output. There is no meaningful data on income distribution, and only very poor data on the quality of education (literacy and levels of formal education are increasingly weaker crude measures of employability). Most of the data on employment lags – the time necessary to find a job – are uncertain, as are data on under or unemployment by age – particularly for young men.

Surveys provide only limited insight into how people perceive the quality of governance, economic hope, security, the impact of hyperurbanization, the need to immigrate, rule of law, corruption, and the other factors that can lead to alienation and extremism. About all that can be said is that there is little or no correlation between most macroeconomic measures of the entire economy and stability.

These are critical weaknesses in addressing the economics of national security, which are far more important in most countries than actual levels of defense spending. They are certainly critical missing indicators in dealing with North Africa and any other region with high population growth, weak governance, high levels of de facto unemployment, and low per capita incomes.

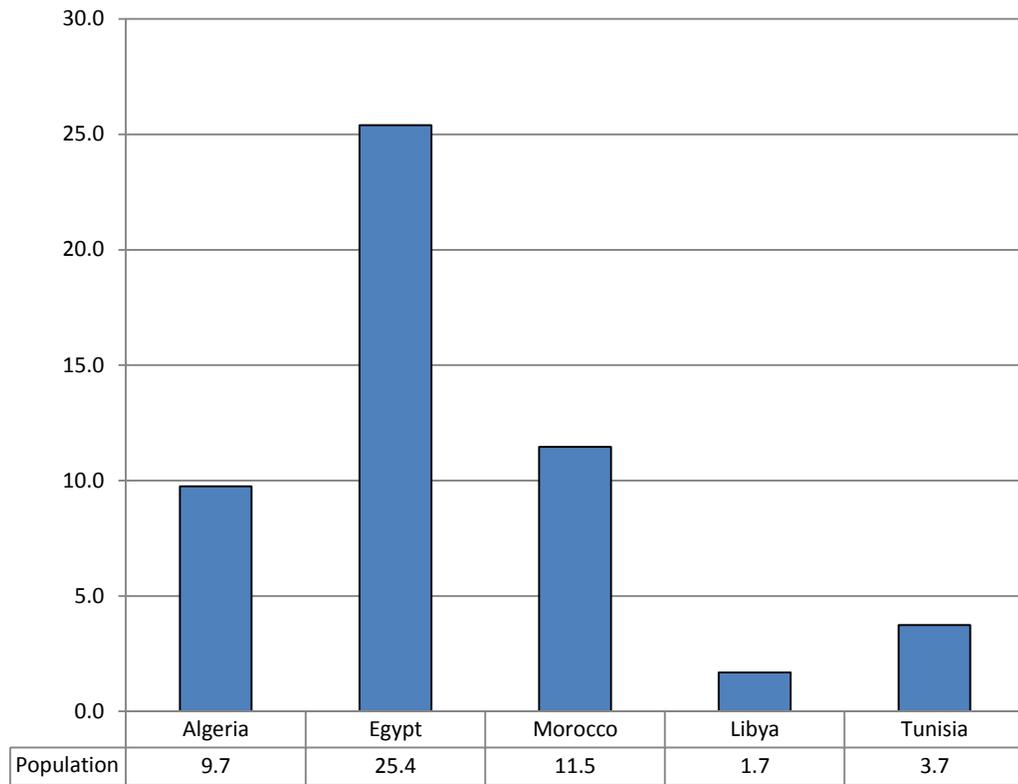
**Figure 7: North African Population Growth 1950-2050**  
(In millions)



|         | 1950  | 1960  | 1970  | 1980  | 1990  | 2000  | 2010  | 2020  | 2030   | 2040   | 2050   |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| Libya   | 0.96  | 1.34  | 2.00  | 3.07  | 4.15  | 5.13  | 6.46  | 7.76  | 8.90   | 9.98   | 10.87  |
| Tunisia | 3.52  | 4.15  | 5.10  | 6.44  | 8.20  | 9.57  | 10.59 | 11.56 | 12.22  | 12.52  | 12.51  |
| Algeria | 8.89  | 10.91 | 13.93 | 18.81 | 25.09 | 30.43 | 34.59 | 38.59 | 41.64  | 43.43  | 44.16  |
| Morocco | 9.34  | 12.42 | 15.91 | 19.49 | 24.00 | 28.11 | 31.63 | 34.96 | 37.89  | 40.27  | 42.03  |
| Egypt   | 21.20 | 26.85 | 33.57 | 42.63 | 54.91 | 65.16 | 80.47 | 96.26 | 111.06 | 125.24 | 137.87 |

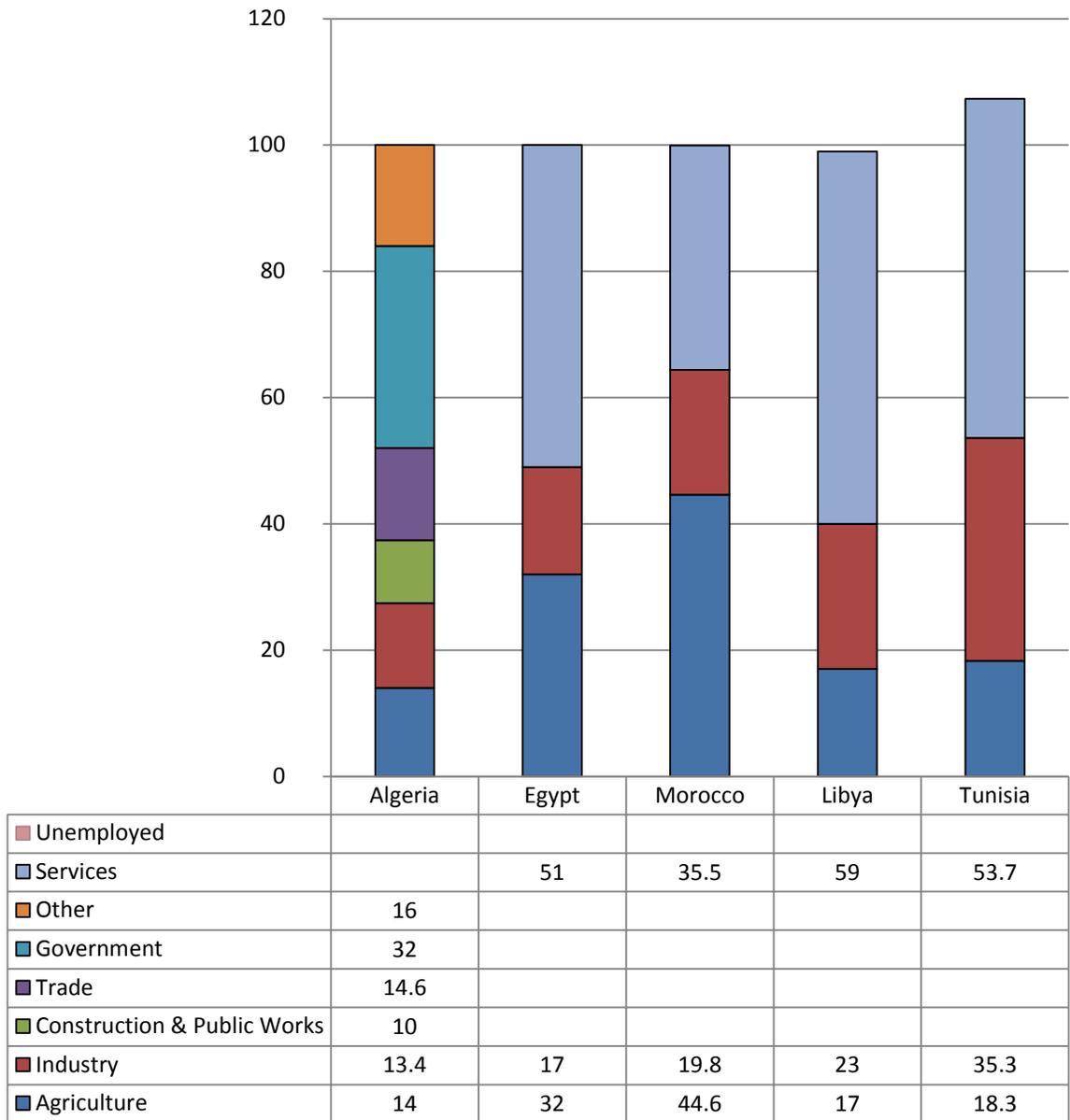
Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the US Census Bureau.

**Figure 8: North African Labor Force Dynamics in 2009**  
(In millions)



Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, 2009 estimate.

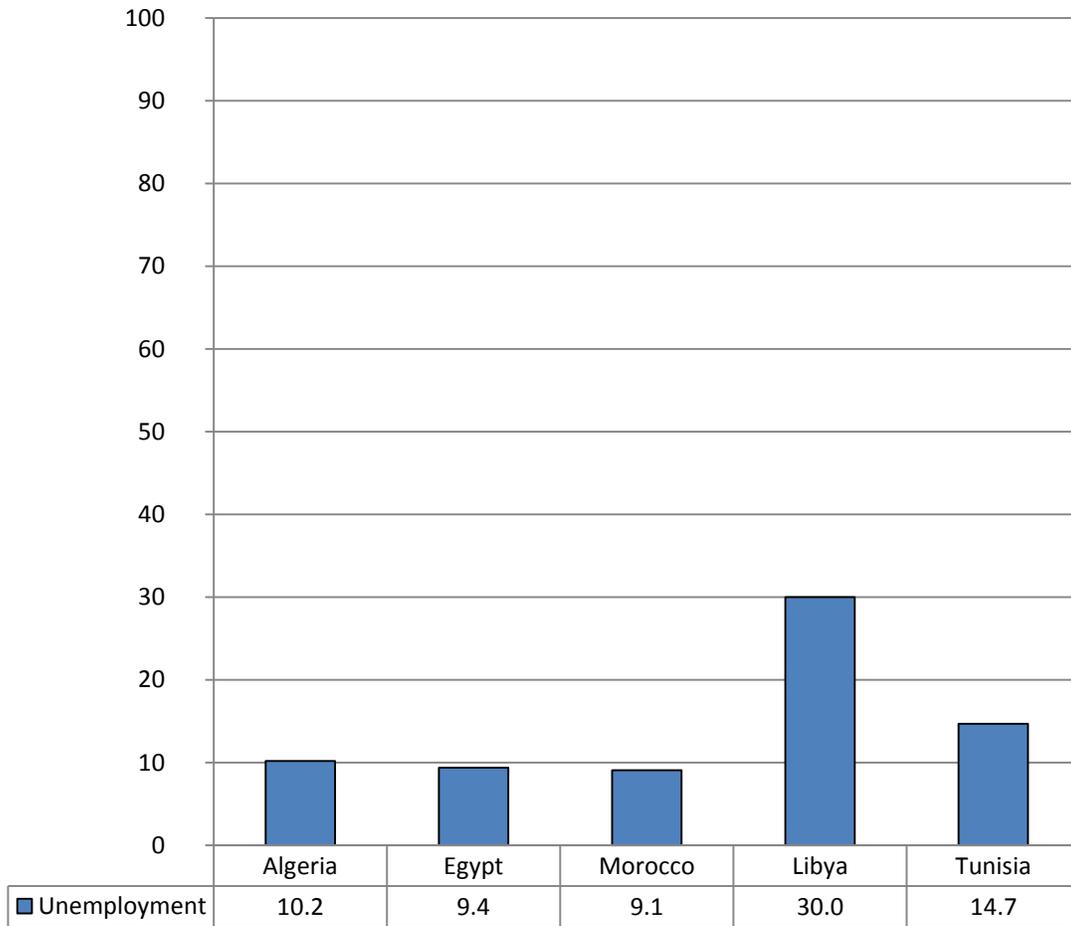
**Figure 9: North African Occupational Structure**  
(Percentages for various years)



Note: Figures are estimates and may not add up to 100% consistently. Percentages for Algeria are 2003 estimates. Percentages for Egypt are 2001 estimates. Percentages for Morocco are 2009 estimates. Percentages for Libya are 2004 estimates. Percentages for Tunisia are 2009 estimates.

Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, various editions.

**Figure 10: North African Unemployment Estimates**  
 (Percentages for various years)



Note: Unemployment percentages are for 2009 estimates except for percentages for Libya, which are from 2004.

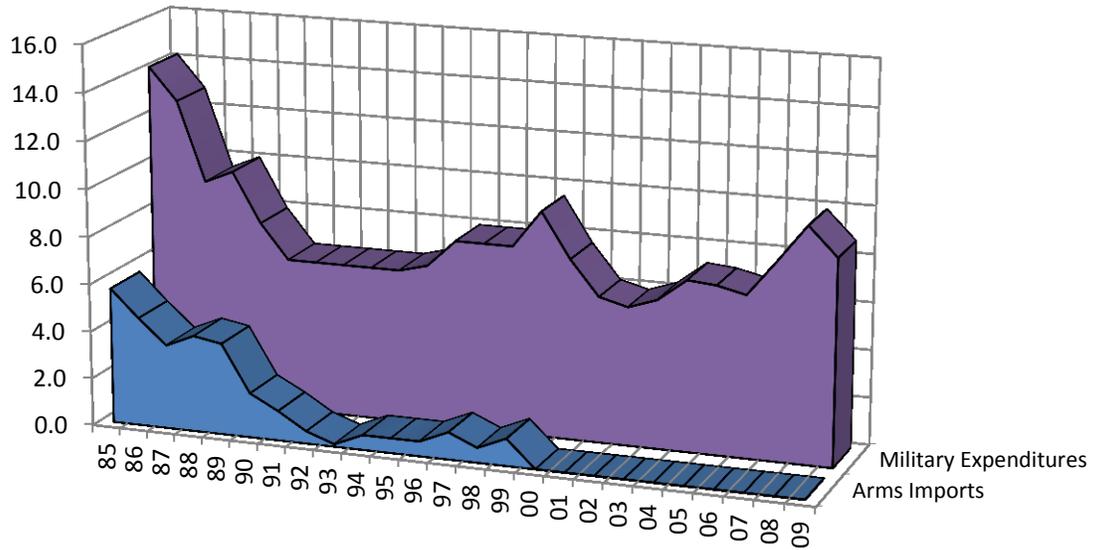
Source: Adapted by Charles Loi & Aram Nerguizian from data provided by the *CIA World Factbook*, various editions.

### *Comparative Trends in Military Expenditures*

The trends in actual military spending have been erratic at best. After gaining independence, the Maghreb states followed the same pattern of rapid military build-up that characterized virtually all of the newly independent states in the Near East and Southwest Asia. They embarked on a wasteful military build-up and increased their military forces sharply after the Arab-Israeli conflict in 1973. This eventually led them to spend more than their national incomes could sustain. In the mid-1980s, military spending began a moderate decline, followed by a sharper decline after the collapse of the Soviet Union. Spending rose again in the late-1990s and has spiked with major acquisitions on the part of Algeria and Morocco starting in 2006.

- **Figure 11** shows the trends in military expenditures and arms imports in constant dollars. The massive decline in spending after the mid-1980s is clearly apparent, as is the fact that arms imports dropped far more quickly than military expenditures. The rise in military expenditures in the late 1990s was driven largely by the Algerian civil war, and low intensity conflict between Morocco and the Polisario. This helps explain why arms imports remained comparatively low through the early 2000s, and it is clear that military modernization was badly undercapitalized for more than a decade. Spending rose once again in 2003, however, as Algeria and Morocco sought to offer contracts for upgrades and new systems.
- **Figure 12** shows the same trends in terms of military effort as a percentage of GDP, central government expenditures, and arms imports as a percent of total imports. While North African states failed to properly capitalize their military forces, they did significantly reduce the impact of military spending on their economies, national budgets, and imports. The apparent spike in military spending as a percentage of GDP in 2009 is largely a false positive, given IISS data for 2009 does not include 2009 military expenditures for Tunisia and Libya. While Tunisian spending is unlikely to experience major upward shifts, orders and future deliveries of major military systems will likely lead to an upward shift in Libyan defense expenditures in the future.
- **Figure 13** shows the more recent trends in military expenditures in current US dollars, drawn from a different source. Algeria clearly dominates regional military spending, driven in part by civil war and partly by the ambitions and bureaucratic momentum of its ruling military junta fueled by its oil and gas exports. Morocco has maintained high spending levels, largely because of the continuing cost of its war with the Polisario and to keep pace with Algerian patterns of new order of modern systems. Libyan military spending continued to decline because of its impact of its economic problems and past US and UN sanctions, however Libya's gradual international rehabilitation has increased income from the sale of energy resources and its potential impact future patters of military spending. Tunisia has never attempted to build-up major military forces.
- **Figure 14** highlights the sharp decline in arms imports as a percent of total imports. On the one hand this reveals a significant drop in the impact of arms imports on local economies. On the other hand, it illustrates just how sharply North African states – none of which has significant domestic military industries – have undercapitalized the modernization of their military forces.
- **Figure 15** highlights Libya and a special case. It shows just how the serious impact of sanctions on Libya was between the mid-1980s and 2009, and the sharp imbalance between continued military spending and inadequate arms imports during most of the 1990s.

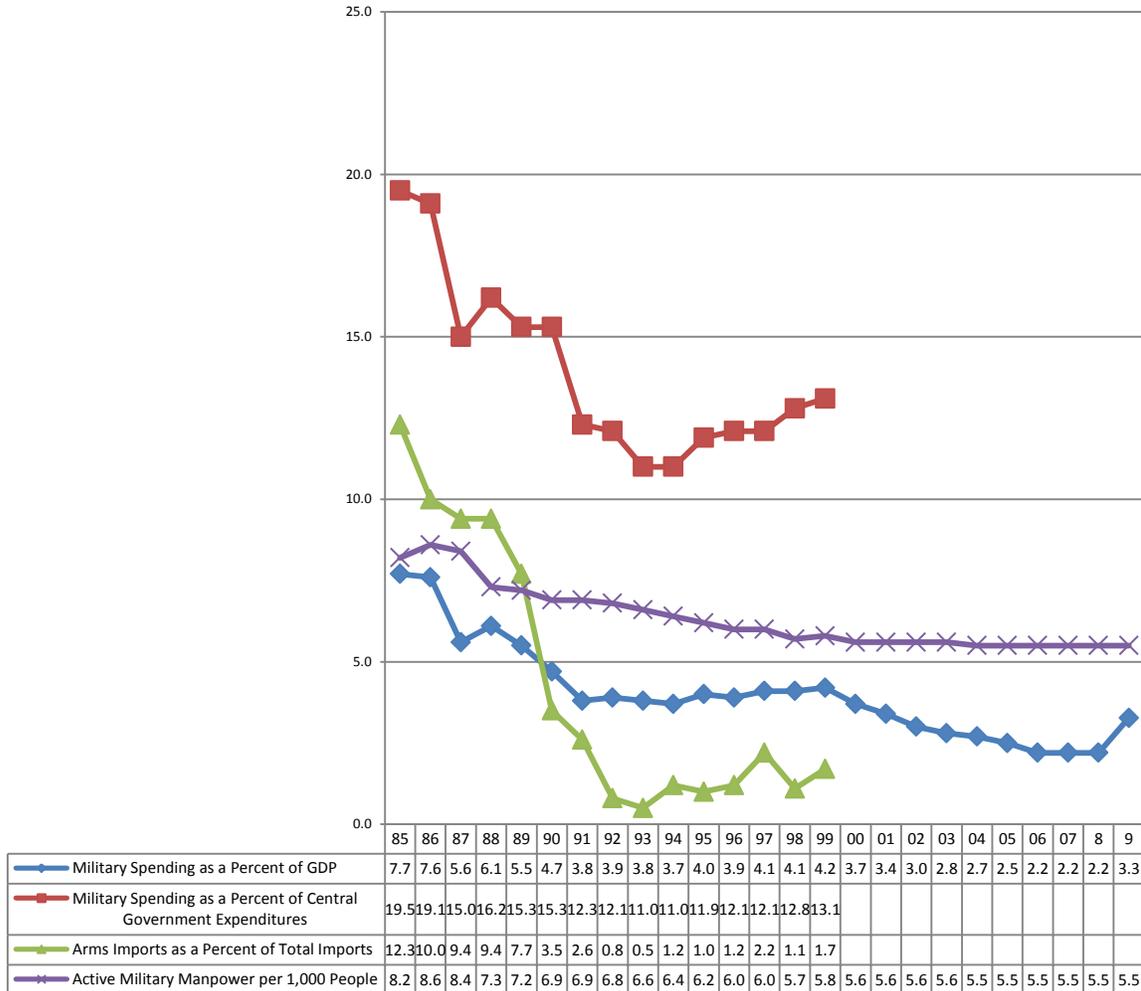
**Figure 11: North African Military Expenditures and Arms Transfers in Constant Dollars Have Dropped to Low Levels by Global Standards**  
 (Algerian, Libyan, Moroccan, and Tunisian spending in Constant 2010 \$US Billions)



|                         | '85  | '86  | '87 | '88  | '89 | '90 | '91 | '92 | '93 | '94 | '95 | '96 | '97 | '98 | '99 | '00 | '01 | '02 | '03 | '04 | '05 | '06 | '07 | '08 | '09 |
|-------------------------|------|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ■ Arms Imports          | 5.7  | 4.6  | 3.5 | 4.1  | 3.9 | 1.9 | 1.2 | 0.5 | 0.1 | 0.6 | 0.6 | 0.6 | 1.1 | 0.6 | 1.1 |     |     |     |     |     |     |     |     |     |     |
| ■ Military Expenditures | 14.2 | 12.8 | 9.5 | 10.0 | 7.9 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.8 | 7.9 | 7.9 | 7.9 | 9.5 | 7.6 | 6.1 | 5.8 | 6.2 | 7.2 | 7.1 | 6.8 | 8.3 | 9.9 | 8.7 |

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from Bureau of Arms Control in the US State Department (formerly US State Department, Bureau of Arms Control), *World Military Expenditures and Arms Transfers*, various editions, the IISS, *The Military Balance*, various editions.

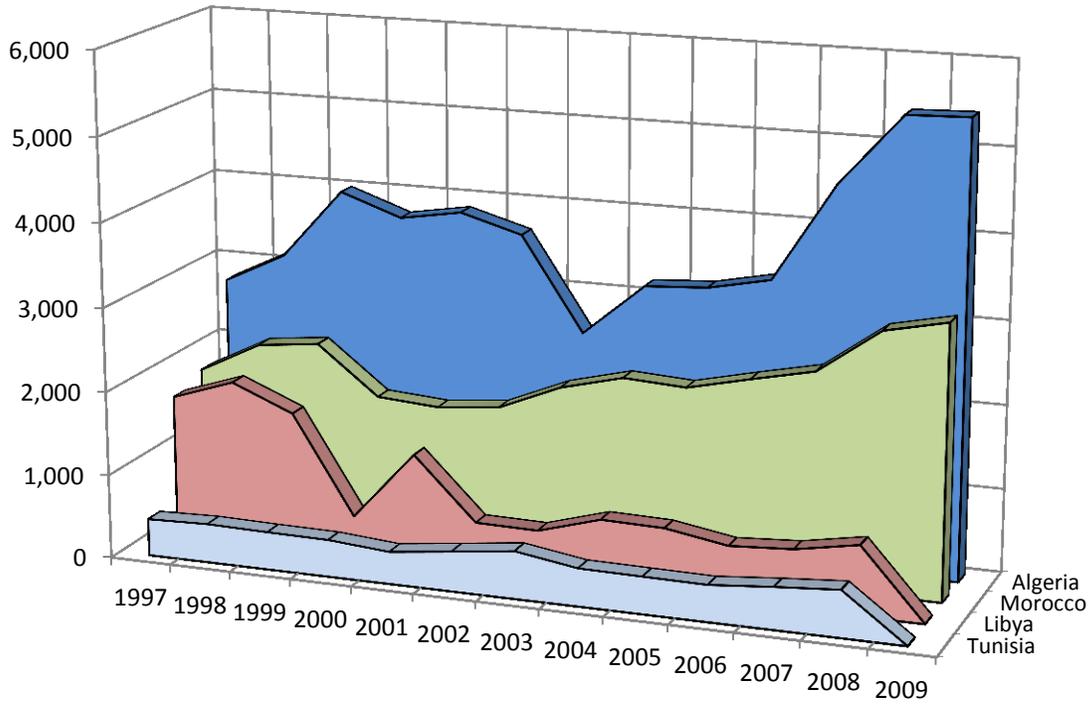
**Figure 12: North African Military Efforts Declined as a Percent of GDP, Government Expenditures, Imports, and Total Population: 1985-2009**  
(Algerian, Libyan, Moroccan, and Tunisian)



Note: Unavailability of Libyan and Tunisian military spending data for 2009 artificially inflate military spending as a percent of GDP data for 2009.

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from Bureau of Arms Control in the US State Department (formerly US State Department, Bureau of Arms Control), *World Military Expenditures and Arms Transfers*, various editions, the IISS, *The Military Balance*, various editions.

**Figure 13: North African Military Expenditures by Country: 1997-2009**  
(in Constant 2010 \$US Millions)

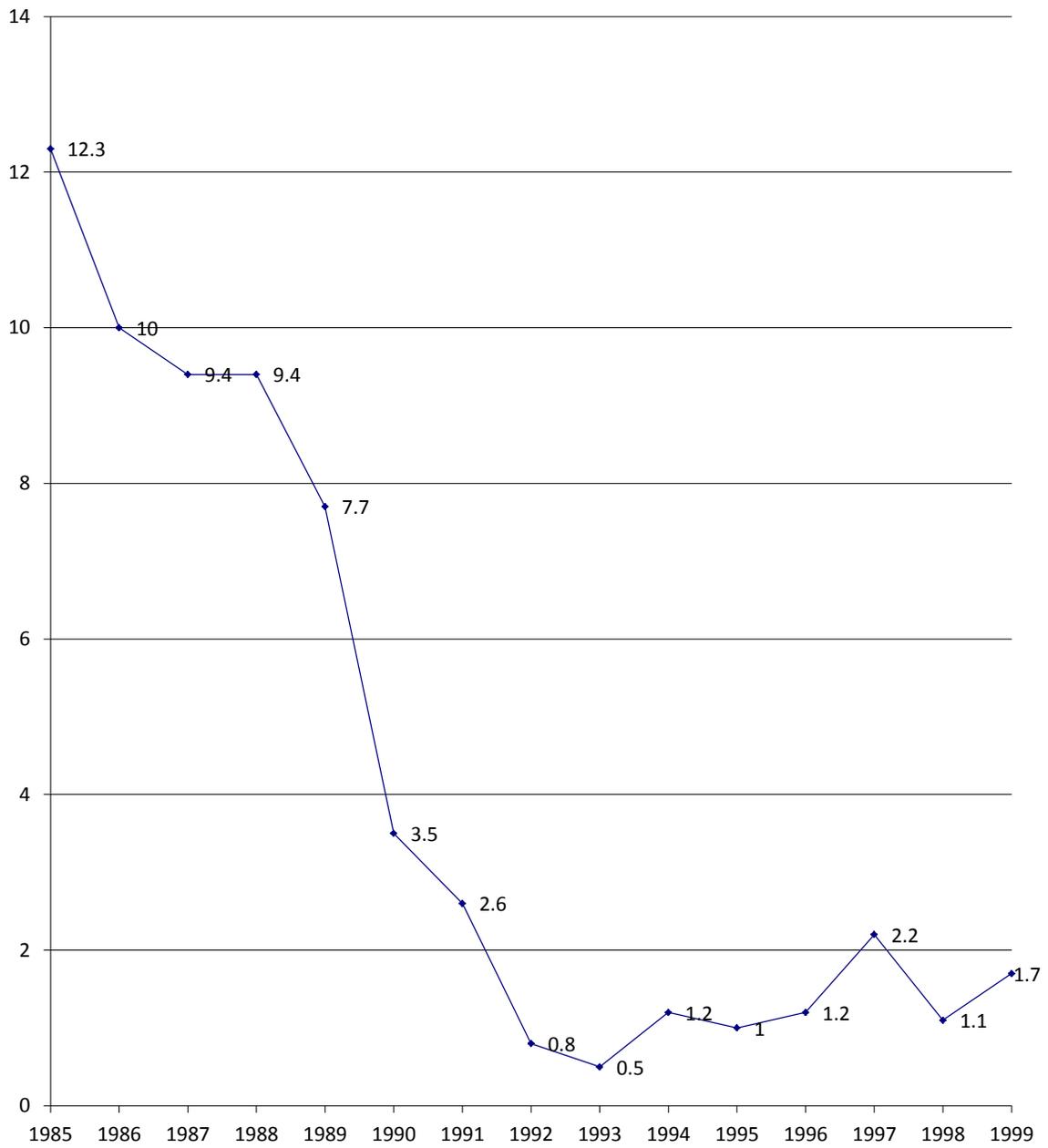


|         | 1997  | 1998  | 1999  | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Tunisia | 441   | 464   | 451   | 442   | 385   | 475   | 566   | 451   | 442   | 434   | 500   | 556   |       |
| Libya   | 1,718 | 1,967 | 1,666 | 497   | 1,322 | 587   | 576   | 791   | 775   | 651   | 697   | 833   |       |
| Morocco | 1,853 | 2,228 | 2,311 | 1,738 | 1,686 | 1,759 | 2,072 | 2,259 | 2,217 | 2,389 | 2,551 | 3,092 | 3,254 |
| Algeria | 2,779 | 3,144 | 3,982 | 3,727 | 3,852 | 3,644 | 2,530 | 3,159 | 3,206 | 3,362 | 4,539 | 5,382 | 5,406 |

Note: The IISS does not report military expenditures, but they report military budgets, which do not include any procurement costs.

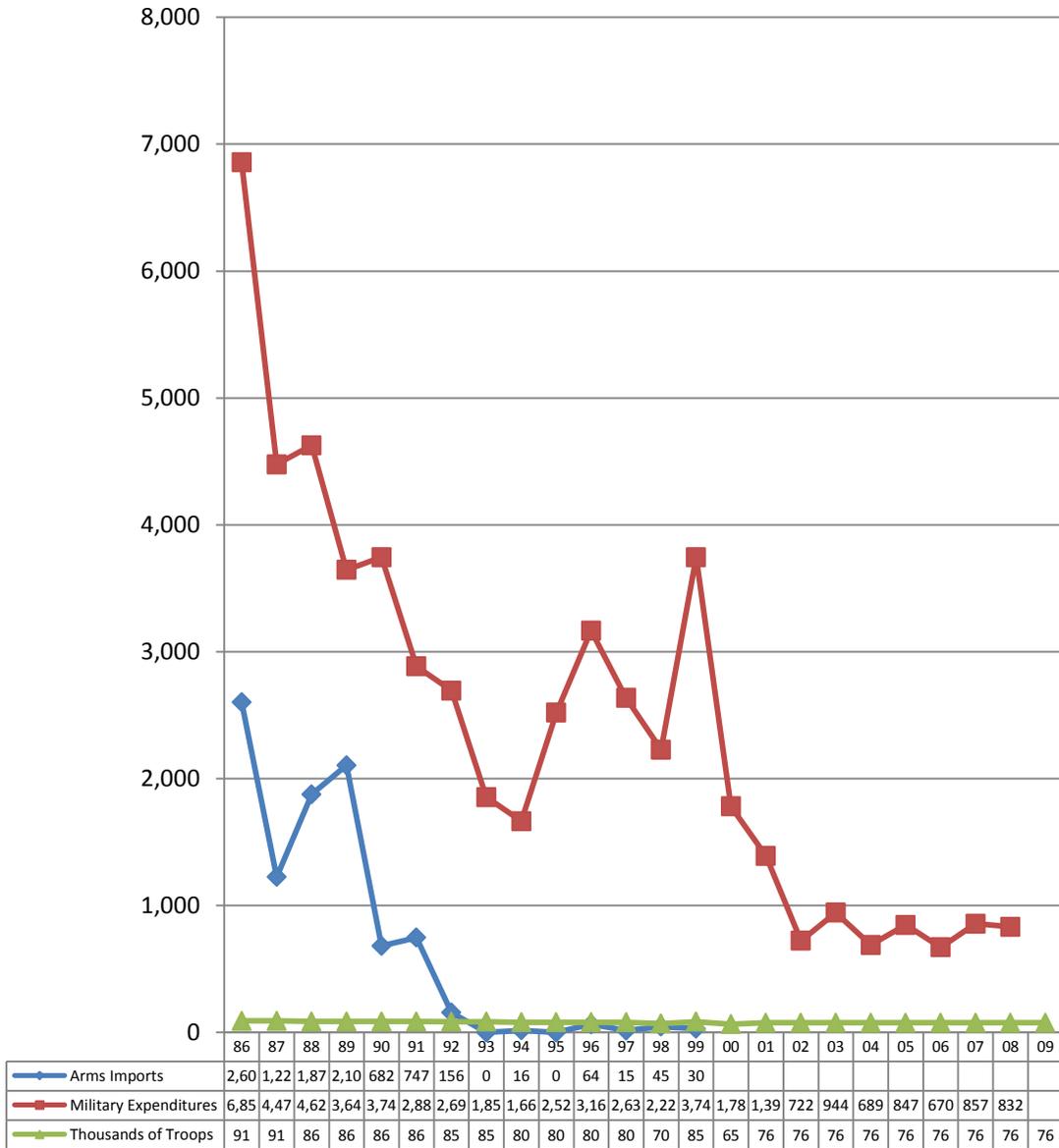
Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors

**Figure 14: North African Arms Imports as a Percent of Total Imports: 1985-1999**



Source: Adapted by Anthony H. Cordesman from Bureau of Arms Control in the US State Department, *World Military Expenditures and Arms Transfers*, various editions. North Africa does not include Egypt.

**Figure 15: The Decline in Libyan Spending and Arms Imports: 1986-2009**  
(In Constant 2010 \$US Millions)



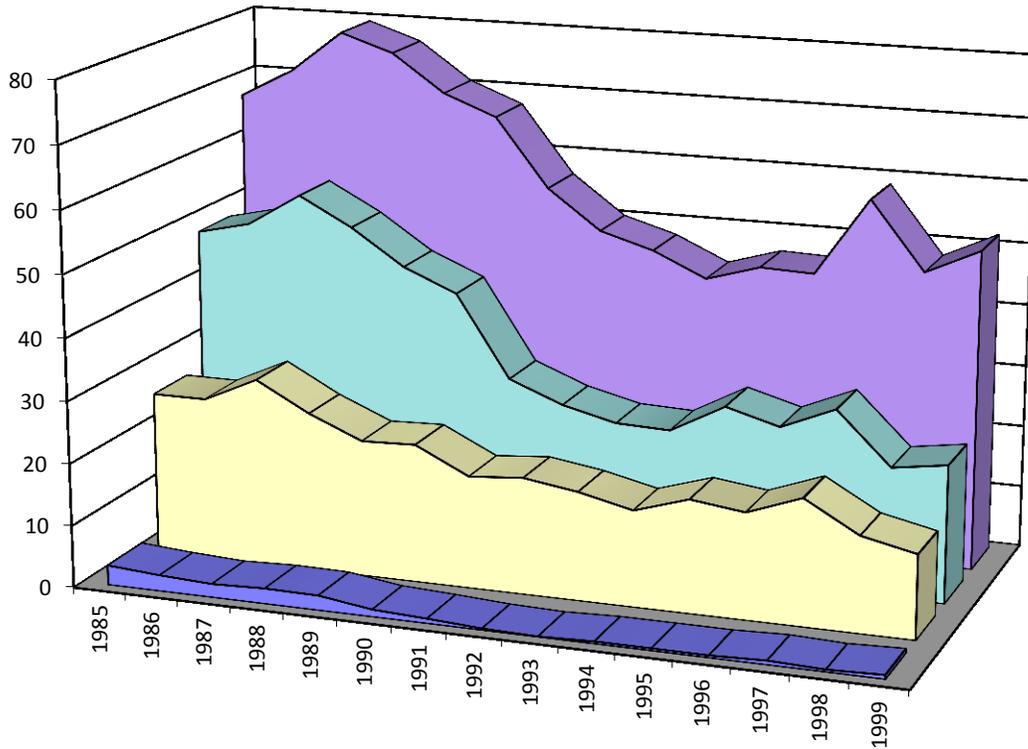
Source: Adapted by Anthony H. Cordesman from US State Department, *World Military Expenditures and Arms Transfers*, GPO, Washington, various editions. Some data adjusted or estimated by authors.

### *Trends in Regional Arms Imports*

The trends in arms imports provide another important measure of military effort and recapitalization, and measures that show how well given countries are modernizing and recapitalizing their forces. Assessing regional trends suffer from the limitations of open source reporting on national defense expenditures, procurement and foreign assistance. Data on force recapitalization are particularly uncertain when compared to those for military spending, and almost all come from declassified U.S. intelligence estimates provided by the Department of State and the IISS. However, there is sufficient data to provide a snapshot of regional trends over the past decade.

- **Figure 16** shows how the regional trends in North African arms imports compared with those in other regions between 1985 and 1999. It is clear that North Africa was never a driving part of the world arms trade in spite of the ambitions of several regional states.
- **Figure 17** provides current data on new arms orders and deliveries. Of all the countries in the regional balance, only Algeria has benefited from consistent and overlapping deliveries of major systems over the 1994-2009 period. While Algeria made consistent new orders between 1994 and 2002, new agreements increased significantly over the 2006 to 2009 period. Delivery of new systems also significantly increased in the 2006-2009 period. Libya experienced a consistent, precipitous decline in arms orders and deliveries during the 1994-2005 period, although this trend may now be reversed as the result of the lifting of sanctions and new orders from Russia and the EU. Morocco shows a less steep decline and a significant increase in new orders over the 2006-2009 period. Tunisia has made no major orders over the 1994-2009 period and only shows deliveries during 1994-1997 and 2002-2005 periods – although the amounts involved are so small that they scarcely constitute a military build-up.
- **Figure 18** shows recent arms imports by supplier country. Morocco and Tunisia are the only countries to have received US arms, and there have been no recent Tunisian orders. Morocco has depended largely on Europe for its arms, although again new orders dropped sharply between 1987 and 2002, before increasing again in 2003-2006. Libya has only placed limited orders, and has not placed significant orders with any country capable of supplying it with the most advanced weapons. It did step up its new orders during 1999-2002, however, reflecting an easing of UN sanctions and the ability to import arms from developing countries that are less careful about UN sanctions. Algeria has relied largely on Russia and East Europe, and placed significant new orders during 2003-2008. Libya may also see major deliveries starting in 2011-2012 if deals with Russia take the form of actual contracts.

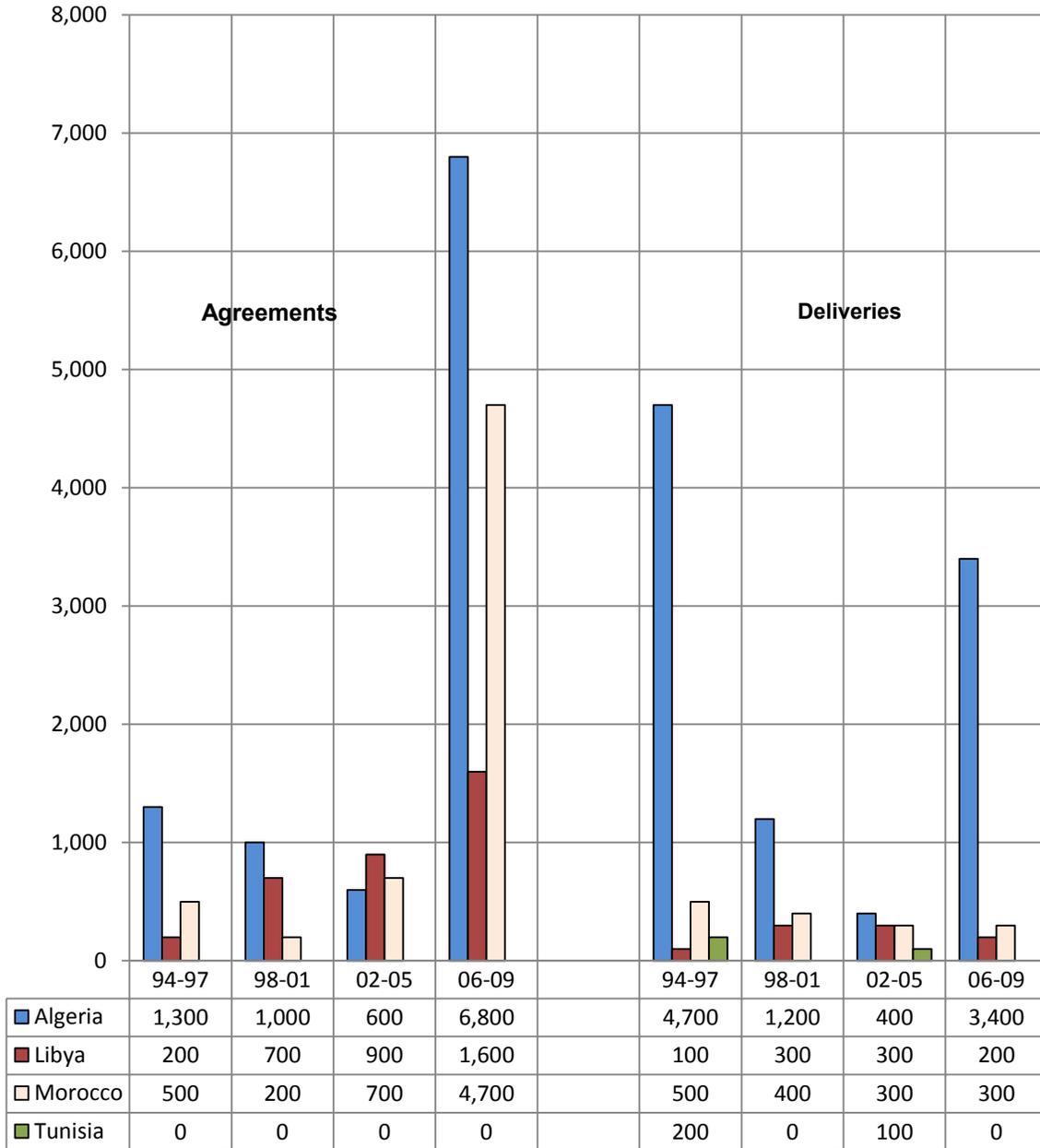
**Figure 16: North African Arms Deliveries Are Declining, and Are a Minor Portion of the World Market: 1985-1999**  
 (Arms Deliveries in Constant 1999 \$US Billions)



|              | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| North Africa | 3.2  | 2.6  | 2.2  | 2.5  | 2.4  | 1.2  | 0.8  | 0.3  | 0.1  | 0.4  | 0.4  | 0.4  | 0.7  | 0.4  | 0.7  |
| Middle East  | 26.2 | 26.2 | 30.2 | 25.6 | 22   | 22.3 | 18.1 | 18.8 | 17.5 | 15.5 | 18.2 | 17.1 | 20.3 | 15.4 | 13.5 |
| Developing   | 48.7 | 50.7 | 56   | 51.5 | 45.8 | 42.2 | 29.1 | 25.7 | 23.6 | 23.3 | 28   | 25.6 | 29.3 | 20.9 | 22.2 |
| World        | 67.9 | 72.5 | 79.3 | 76.5 | 70.5 | 67.2 | 56.2 | 49.9 | 47.4 | 43.5 | 46.1 | 45.8 | 58.4 | 47.5 | 51.6 |

Source: Adapted by Anthony H. Cordesman from Bureau of Arms Control in the US State Department, *World Military Expenditures and Arms Transfers*, various editions. Middle East does not include North African states other than Egypt.

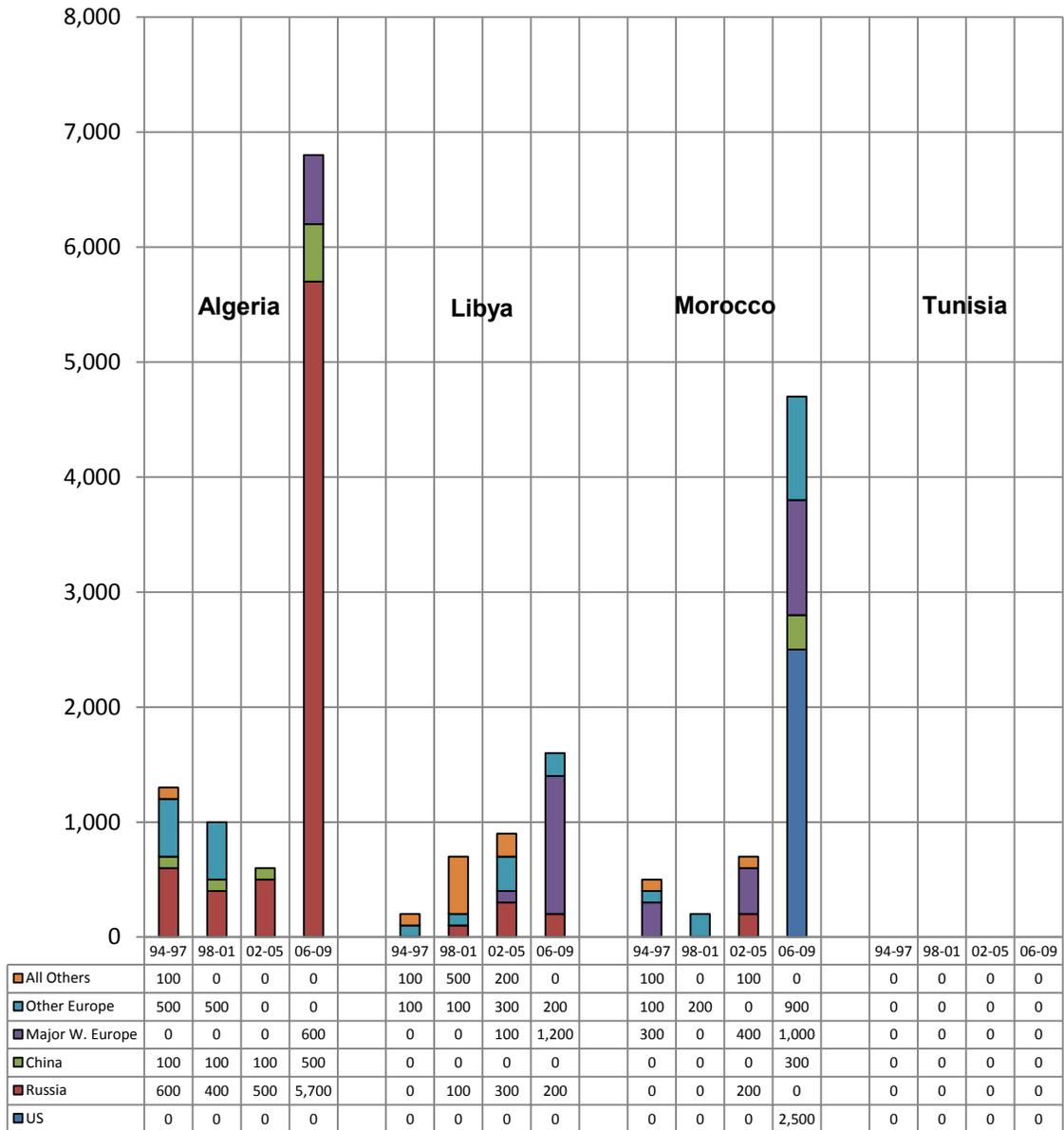
**Figure 17: North African New Arms Agreements and Deliveries by Importing Country: 1994-2009**  
(In \$US Current Millions)



0 = Data less than \$50 million or nil. All data rounded to the nearest \$100 million.

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian, CSIS, from Richard F. Grimmett, *Conventional Arms Transfers to the Developing Nations*, Congressional Research Service, various editions.

**Figure 18: New North African Arms Orders by Supplier Country: 1994-2009**  
(Arms Agreements in \$US Current Millions)



0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian, CSIS, from Richard F. Grimmett, *Conventional Arms Transfers to the Developing Nations*, Congressional Research Service, various editions.

### *National Patterns in Modernization and Recapitalization*

The data on arms transfers and modernization reflect significant national patterns in military recapitalization. **Figures 19 and 20** show select major orders by countries in the regional balance, and help put the previous spending data in context. The data presented in these figures are based on open source and IISS data and are by no means comprehensive. They do, however, help to illustrate the procurement paths of countries in the regional balance. As the next sections will show, the 2006-2010 period may prove to be a period of capital-intensive force modernization if not meaningful recapitalization with potentially long term implications for the future of the North African conventional military balance.

#### **Algeria**

Algeria's major drive for new acquisitions and the trade-in or replacement of aging and obsolescent systems is significant both for Algeria and the regional military balance. Until the late 1980s, Algeria gave its more advanced units with heavy armor and advanced aircraft adequate funding, but sharply underfunded its overall manpower and support structure. Since the late 1980's it has had to concentrate its resources on fighting a steadily intensifying civil war and this meant it had to sharply under fund its equipment modernization. In the post-civil war era, a strategy has yet to emerge to provide regular forces with the resources they need to be effective in combat beyond select units.

Algeria did a relatively good job of buying armor before its civil war began in the late 1980s, but it spent too much on artillery quantity and too little on artillery and infantry mobility and quality. It bought a poor mix of relatively low quality anti-tank weapons and air defense systems. Since that time, it has increased its paramilitary forces to over 187,200 men to deal with its civil war – compounding all of its military planning, force structure, and force modernization problems.

The Algerian Air Force has only bought a limited number of modern air defense fighters. It has long sought to buy new aircraft, however, and the receipt a total of 28 Su-30MKs by 2010 is not an insignificant development in the regional air power balance. As was stated earlier, its surface-to-air missile defenses are early to late 1970s technology and are now vulnerable to commercially available electronic warfare capabilities and any force with modern anti-radiation missiles. These too will be updated as will be discussed in the next section.

#### **Morocco**

Morocco's continuing low-level tensions with Algeria and Mauritania, and its nearly two decade long war with the Polisario over the control of the Western Sahara are the key factors shaping its force recapitalization efforts. It is interesting to note, however, that Morocco's arms purchases were not particularly well suited to dealing with a low-level guerrilla threat until 1982-1983.

As late as 1992, Morocco's combat engineering efforts reflected a sounder pattern of purchases for dealing with the Polisario than did its weapons buys. These problems were partly the result of the fact that the Moroccan army was still focusing on a possible confrontation with Algeria, rather than on the conflict with the Polisario.

Regional competition with Algeria continues to spur new Moroccan orders., However, Morocco has maintained a higher real average of spending per man in its career forces than the other Maghreb states. However, it still under funds and under-trains its conscripts and enlisted men and remains unable to fund adequate force modernization. Morocco has bought so many different types of major land weapons over the years that that it finds it difficult to keep its support costs at reasonable levels, to provide proper training, and to maintain suitable C<sup>4</sup>I battle management capability.

### **Libya**

Libya has invested in equipment and facilities rather than a sound manpower, infrastructure, and support base. Its poorly trained conscripts and "volunteers" suffered a decisive defeat in Chad at the hands of lightly armed Chadian forces. Its forces have since declined in quality.

Libya's military equipment purchases have been chaotic. During the Cold War and the period before Libya was placed under UN sanctions, its arms buys involved incredible waste and over-expenditure on equipment. They were made without regard to providing adequate manpower and support forces, and they did not reflect a clear concept of force development or combined arms. As bad as Libya's military forces were, no neighbor could ignore the build-up of a vast pool of military equipment, although ties with its neighbors are warmer than in the past.

Libya has to keep many of its aircraft and over 1,000 of its tanks in storage. Its other army equipment purchases require far more manpower than its small active army and low quality reserves can provide. Its overall ratio of weapons to manpower is militarily absurd, and Libya has compounded its problems by buying a wide diversity of equipment types that make it all but impossible to create an effective training and support base.

### **Tunisia**

Tunisia has provided reasonable wages for its career officers, but has done little to turn its many 12-month conscripts into effective soldiers. However, money still severely limits the size and modernization of the Tunisian force structure. Tunisia began to acquire modern armor and fighter aircraft in 1985, but still has bought only limited numbers of weapons. It has done a reasonably good job of expanding its army and air force, but its force size and equipment holdings are inadequate for combat with either of its larger neighbors.

**Figure 19: Select U.S. Foreign Military Sales Congressional Notifications to North African States 2001-2010**  
(In current US dollars)

| <b>Country Recipient</b> | <b>Date</b>       | <b>Weapon System/ Equipment</b>   | <b>Cost</b>   |
|--------------------------|-------------------|---|---------------|
| <b>Morocco</b>           | August 3, 2007    | 60 M109A5 155mm self-propelled howitzers, 30 HMMWVs with equipment, training and services   | \$29 million  |
| <b>Morocco</b>           | December 18, 2007 | 24 F-16C/D Block 50/52 aircraft with weapons systems, equipment, training and services  | \$2.4 billion |
| <b>Morocco</b>           | December 18, 2007 | 24 T-6B Texan aircraft with equipment, training and services  | \$200 million |
| <b>Morocco</b>           | July 30, 2008     | Support equipment and weapons for F-16 C/D Block 50/52 including 30 AIM-120C-7 AMRAAM, 60 AIM-9M SIDEWINDER, 20 AGM-88B/C HARM, 73 AGM-5D/G/H MAVERICK, 50 JDAM and other weapons systems, components, equipment, training and services | \$155 million |
| <b>Morocco</b>           | May 18, 2009      | One Gulfstream G-550 with equipment and services  | \$142 million |
| <b>Morocco</b>           | September 9, 2009 | Support equipment and weapons for F-16 C/D Block 50/52 including 40 LAU-129A launchers, 20 AGM-65D MAVERICK, 60 Enhanced GBU-12 PAVEWAY II kits and other weapons systems, components, equipment training and services                  | \$187 million |
| <b>Morocco</b>           | October 26, 2009  | CH-47D CHINOOK helicopters with equipment, training and services  | \$134 million |
| <b>Tunisia</b>           | July 2, 2010      | 12 SH-60F multi-mission utility helicopters with equipment, training and services   | \$282 million |

Note: Costs are letter of offer and acceptance (LOA) estimates that are subject to change and re-costing. Includes only major defense equipment and excludes sales under \$50 million.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from DSCA data on 36(b) Congressional arms sales notifications.

**Figure 20: Select Military Sales to North African States from Non-U.S. Sources**  
(In current US dollars)

| <b>Country Recipient</b> | <b>Country Supplier</b> | <b>Order Date</b> | <b>Expected First Delivery</b> | <b>Weapon System/ Equipment</b>  | <b>Contract Value</b> |
|--------------------------|-------------------------|-------------------|--------------------------------|--|-----------------------|
| Algeria                  | Russia                  | 2006              | -                              | 300 T-90S MBTs (potential delay in delivery due to order suspension)                                   | \$1 billion           |
| Algeria                  | Russia                  | 2006              | -                              | 250 T-72 MBT upgrades (potential delay in delivery due to order suspension)                            | \$200 million         |
| Algeria                  | Russia                  | 2006              | -                              | 400 BMP-2 IFV upgrades (potential delay in delivery due to order suspension)                           | \$200 million         |
| Algeria                  | Russia                  | 2006              | -                              | 8 S-300PMU-2 batteries (potential delay in delivery due to order suspension)                           | \$1 billion           |
| Algeria                  | Russia                  | 2006              | -                              | 24 Tunguska-M1 (SA-19) AD guided missile systems (potential delay in delivery due to order suspension) | \$500 million         |
| Algeria                  | Russia                  | 2006              | -                              | 216 Kornet-E (AT-14) ATGM systems (potential delay in delivery due to order suspension)                | \$50 million          |
| Algeria                  | Russia                  | 2006              | -                              | Metis-M1 (AT-13) ATGM systems (potential delay in delivery due to order suspension)                    | \$50 million          |
| Algeria                  | Russia                  | 2006              | 2010                           | 28 SU-30 MKA ground attack fighters  | \$1.5 billion         |
| Algeria                  | Russia                  | 2006              | 2009                           | 16 YAK-130 trainers and simulators   | \$200 million         |
| Algeria                  | Russia                  | -                 | 2010                           | 38 Pantsyr S1 air defense systems  | \$500 million         |
| Algeria                  | France                  | 2008              | 2009                           | 21 FPB 98 fast patrol craft  | \$200 million         |
| Algeria                  | United Kingdom          | 2009              | 2010                           | 100 AW101 Merlin/AW139 helicopters   | \$5 billion           |

|                |                |      |      |  |               |
|----------------|----------------|------|------|--|---------------|
| <b>Libya</b>   | United Kingdom | 2008 | -    | Libyan Tactical Command Information System (LTCIS) | \$128 million |
| <b>Libya</b>   | Russia         | 2008 | -    | 48 T-90S MBTs                                      | -             |
| <b>Libya</b>   | Russia         | 2009 | -    | T-72 MBT modernization & spares                    | -             |
| <b>Morocco</b> | Russia         | 2004 | -    | Tunguska-M1 gun/missile SHORAD system              | \$100 million |
| <b>Morocco</b> | France         | 2006 | -    | Mirage F1CH/EH upgrades                            | \$460 million |
| <b>Morocco</b> | Netherlands    | 2008 | 2011 | 3 SIGMA frigates                                   | \$824 million |
| <b>Morocco</b> | France         | 2008 | 2012 | 1 FREMM frigate                                    | \$676 million |
| <b>Morocco</b> | Italy          | 2008 | 2010 | 4 C-27J transport aircraft                         | \$166 million |

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from provided by the IISS, *The Military Balance*, various editions, *Jane's* and discussion with U.S. experts. Some data adjusted by the authors.

### ***Ground Forces Recapitalization and Modernization***

Moroccan efforts to recapitalize ground forces, while ongoing, remain uncertain. The country's last major armor recapitalization was during the mid-1990s with the delivery of 100 T-72B MBTs from Belarus with deliveries starting in 2000. *Jane's* reported Morocco's 2010 defense budget had allocated funds to potentially procure 140 late model M60s from the U.S. and 125 T-90s from Russia.<sup>7</sup>

BAE Systems RO Defense was chosen in 2001 to refurbish Moroccan holdings of L118 105 mm light field guns. Morocco also intends to expand its holdings of SP artillery. In August, 2007, the Defense Security and Cooperation Agency notified the US Congress of a possible sale under the Foreign Military Sale (FMS) program of 60 M109A5 155-mm SP howitzers to augment Morocco's existing artillery force.<sup>8</sup>

In addition to augment its holdings of SP artillery, Morocco is also seeking to expand its holdings of more modern SHORAD system and placed a 2004 order for the Tunguska-M1 gun/missile short-to-medium range SP air defense system with the Russian arms export entity Rosoboronexport.<sup>9</sup> Estimated at \$100 million at the time, the order's completion cannot be verified.

The Algerian military is currently receiving a number of major land, air, sea and C4I systems over next few years, and acquisitions are set to continue through 2010-2013. Russia is Algeria's largest arms and systems supplier, with a March 2006 deal outlining Russian defense exports worth \$7.5 billion and the cancellations of Algeria's debt to the former Soviet Union, estimated at \$4.5 billion. The move will revitalize Algeria's aging fleet of MBTs, AIFVs, multi-role combat aircraft and major SAM systems.<sup>10</sup>

As part of the 2006 arms sales, Russia was expected to equip Algeria with some 300 modern T-90S MBTs. *Jane's* later reported in 2008 that as many 180 T-90s may be delivered. It is unclear whether shipment of new units is underway, and whether the 2011 deadline set in 2006 will be met, however the IISS reported in 2010 that Algeria had 187

T-90S MBTs in inventory. The emphasis remains the delivery of new equipment in addition to upgrade kits for Algeria's current fleet of 325 T-72s.<sup>11</sup>

Algeria will also be upgrading its fleet of BMP-2s to the BMP-2M standard. The BMP-2M will have automatic day and night fire-control systems with automatic tracking, and armament suit that includes four 9M 133 Kornet-E ATGMs, a 2A42 30-mm canon, and 7.62-mm machine gun. The addition of the Kornet-E will allow upgraded BMP-2s to defeat 1,000-1,200-mm armor using either a hollow-charge or thermobaric warhead from an effective range of 5.5-kilometers. The 2A42 canon can field either armor piercing or high explosive rounds from up to 2.2 or 1.6-kilometers respectively. The combination of tracking, guided AT missiles and improved targeting would give the BMP-2M added flexibility and the ability to take on tasks usually associated to heavier units and MBTs.<sup>12</sup>

While the civil war is over, Algeria will still need C4I capabilities to better coordinate threat analyses, emergency and human resource management and overall support to the diffusion of major command decisions. The announcement in early 2008 that Algeria will be expanding on the initial phase and coverage of the country's United Information and Telecommunications Network Project (RUNITEL 1). While RUNITEL added coverage, capacity and C<sup>4</sup>I capabilities mainly to the capital, the next phase RUNITEL 2 – which is to be implemented by Italian firm SELEX Sistemi Integrati – will mainly cover regions 3, 4 and 6 – Algeria's resource-rich southern regions.<sup>13</sup>

Algeria also intends to expand its holdings of both major and short-to-medium range SAM systems. An initial order for 18 96K9 Pantsir-S1 SP SHORAD systems was reached in 2006. As was previously mentioned, Algeria has also purchased eight batteries of the very capable S-300PMU-2 heavy air defense system, as well as 24 Almaz-Antei 2S6M Tunguska 30-mm/SA-19 SP short-range air defense platforms. The scheduling of deliveries of these modern systems, however, remains unclear.<sup>14</sup>

With U.N sanctions now lifted, Libya is actively trying to recapitalize its aging pool of armor and other ground systems. In exchange for cancelling Libya's \$4.5 billion Soviet era debt, Libya placed new orders in 2008 that included the modernization of more than 100 T-72 MBTs and the acquisition of 48 modern T-90S MBTs to supplement the 180 T-90s Libya currently has in inventory.<sup>15</sup>

Libya is also looking to expand its holdings light armored vehicles. In 2004, *Jane's* reported that Libya had ordered 25 AB3 Black Iris armored vehicles from Jordan. In February 2009 the U.A.E.'s Bin Jabr Group secured a contract to provide the Libyan army with 120 Nimr 4x4 armored vehicles. The Nimr was specifically engineered to operate in desert conditions in the MENA region.<sup>16</sup>

Libya signed a deal with the UK in May 2008 to acquire tactical communications and data systems and accompanying support training. The system is similar to the British military's Bowman kit and is meant for Libya's mechanized Elite Brigade. It is as yet unclear whether Libya will seek to equip other elements of the army with similar equipment, in which case it would still be unclear whether Libya can make good use of them to augment its C<sup>4</sup>I capabilities.<sup>17</sup> Furthermore, Libya signed a \$128 million deal with General Dynamics UK in 2008 to procure the Libyan Tactical Command Information System (LTCIS). An integrated voice and data brigade battle management system (BMS), LTCIS is intended to equip Libya's 'elite' 32 Brigade.<sup>18</sup>

Not unlike Algeria, Libya also intends to procure several batteries of S-30PMU2 Favorit heavy SAMs, in addition to some 20 Tor-M1 and Buk-M1-2 SAM systems.<sup>19</sup>

France and Libya signed a deal in July 2007 to provide the army with Milan ADT-ER ATGMs and Tetra communications equipment, but it was unclear as to whether these systems have been delivered.<sup>20</sup> Libya was also interested in procuring 96K9 Pantsir-S1 SP SHORAD systems, but it remained unclear as to whether any orders had been placed.<sup>21</sup>

### ***Air Forces Recapitalization and Modernization***

In September 2005, France was awarded a \$420 million contract to upgrade Morocco's aging fighters. Work on the upgrade started in 2006 and covers 27 of Morocco's F-1CH/EHs, and was carried out by French firms Sagem Defense Securite and Thales Airborne Systems. The upgrades are expected to give Morocco's F-1s full operational capabilities to meet expected future air-to-air and air-to-surface combat threats.<sup>22</sup>

Morocco will further augment its air-to-air and air-to-surface capabilities by acquiring 24 F-16C/D Block 50/52 fighter aircraft. It was initially expected that France would provide Morocco with a squadron of 18 its next-generation fighter the Rafale in a \$3.1 billion deal. The \$2.4 billion FMS includes the 24 aircraft, engines, spare parts, spare APG-68(V)9 radar sets, countermeasure systems, radar warning receivers, the Joint Helmet Mounted Cueing System, SINCGAR radios, conformal fuel tanks, GPS and GPS/INS, AN/AAQ-33/28 targeting pods, TARS (RECCE) pods, Advanced IFF, EW suites and a unit trainer.<sup>23</sup> In a last-minute addition, four Goodrich DB-110 recce systems will also be included in the sale. These systems allow high-resolution imaging in both day and night conditions using both visible light and infrared sensors. The system has an effective operational range of 70 nautical miles and can be used to transmit real time data to support tactical operations, battle damage assessments and alternate target selection.<sup>24</sup>

In 2010, IISS reported that Morocco's 24 F-16s remained on order and had yet to be delivered.<sup>25</sup> This seems to be corroborated by data provided by the Congressional Research Service that shows that U.S. deliveries to Morocco remained limited in 2009.<sup>26</sup> In late 2009 Jane's reported that Morocco should begin receiving its F-16s in the 2010-2011 timeframe,<sup>27</sup> however major FMS systems cases can take anywhere from 3-7 years to implement and it will be some time before Morocco both receives and effectively integrates these new holdings into its air force order of battle.

Morocco's air-to-air and air-to-surface munitions were also slated to be upgraded and augmented to match the F-16 purchase. DSCA reported to Congress that Morocco an FMS that included:<sup>28</sup>

- 30 AIM-120C-5 AMRAAM air-to-air missiles
- 60 AIM-9M Sidewinder air-to-air missiles
- 20 HARM anti-radiation/radar missiles
- Eight AGM-65D/G Maverick air-to-surface missiles
- 45 AGM-65H Maverick air-to-surface missiles

- 50 JDAM tail kits, including 20 GBU-31 for Mk-82 500-lb bombs and 30 GBU-38 for Mk-84 2000-lb bombs
- 20 GBU-24 Paveway III kits
- 50 GBU-10 Paveway II kits
- 150 GPU-12 Paveway II kits
- 60 Enhanced GBU-12 Paveway II bombs
- 300 Mk-82 training bombs
- 60,000 20-mm training projectiles
- 4,000 ALE-47 self-protection chaff and equipment
- 4,000 ALE-47 self-protection flares and equipment

The FMS was estimated to be as high as \$155 million, and coupled with F-16s would not only give Morocco's air force significant capabilities in terms of air-to-air and air-to-surface targeting, tracking and precision attack, it would also provide Morocco with non-negligible anti-radar capabilities in the form of the HARM anti-radiation missile – a capability that Algeria and Tunisia did not possess at the time, while Libya's anti-radar missiles are older or obsolescent systems.

On September 9, 2009, Morocco requested the purchase of additional support equipment for its fleet of F-16C/Ds. According to the DSCA, the \$187 million deal includes:<sup>29</sup>

- 40 LAU-129A launchers
- 20 AGM-65D Maverick missiles
- Four AGM-65D Maverick training missiles
- 60 Enhanced GBU-12 Paveway II kits
- 28 M61 20 mm Vulcan cannons
- One ground based simulator
- 40 LAU-119A missile rails
- Six AN/AAQ-33 SNIPER targeting pods with ground stations
- 30 AN/AVS-9 night visions goggles

In addition to its need for modern fighter and ground attack aircraft, the Moroccan air force lacks advanced combat training capability. In 2009 Morocco finalized the purchase of as many as 24 T-6C Texan II training aircraft and supporting equipment and electronics including GPS/inertial navigation systems (INS) from the US. The FMS may cost as much as \$200 million. The T-6C is expected to supplement or replace the air force's existing T-37 trainers, which are high-maintenance, exhibit high fuel consumption and low mission rates. The T-6s are expected to reduce Moroccan fuel requirements for training by as much as 66 percent.<sup>30</sup> However, this does not address Morocco's continuing maintenance problems and a heavy dependence on foreign technicians.

Morocco has also turned to the U.S. to supplement its rotary transport capability. In October 2009, DSCA notified Congress that Morocco had requested to purchase three Boeing CH-47 Chinook heavy/medium lift transport helicopters. The \$134 million deal will also include more powerful Honeywell T55-GA-714A turboshaft engines as well as other systems, parts, and support.<sup>31</sup>

While Morocco's recent orders will impact the future regional balance, Algeria is the only country in the region to have already acquired modern compact aircraft. By 2010, Algeria took delivery of most if not all of its total of 28 Su-30MKAs as part of a \$7.5 billion arms sale from Russia. The arms sale was not without incident, with Algeria returning a number of MiG-29s delivered to Algeria in 2007 on the basis the aircraft were sub-standard and secondhand rather than new aircraft. In early 2008, Algeria decided to return the first batch of MiG-29MTs to Russia and to cancel the delivery of the remaining aircraft. Jane's reported in mid-2010 that Algeria may take delivery of an additional 16 Su-30MKAs by the end of 2010.<sup>32</sup>

Algeria's receipt of additional modern aircraft is part of a broader effort to counteract serious long-term modernization problems. Many U.S. and French experts seriously question the merit of past Algerian attempts to try to reconfigure its aging Soviet systems to use Western technology. These experts feel that re-engineering Soviet fighters and trying to upgrade Soviet electronics and avionics would raise the life cycle cost of such equipment above the cost of new Russian or Western equipment.

Accordingly, the purchase of new equipment is ultimately the most practical and pragmatic option for the air force. Furthermore, in a departure from past sales and deliveries, Russia has offered to trade-in Algeria's fleet of aging and obsolescent MiG-21s, MiG-23s, MiG-25s and some 20 used MiG-29s it had acquired from Belarus and Ukraine. The scheme is a one-for-one arrangement, and it is noteworthy that Algeria no longer has MiG-21s in service or in storage – by far its oldest fighters. At least in this case, Algeria has opted for new systems rather than costly upgrades.<sup>33</sup>

In addition to combat aircraft, Algeria was also expected to take delivery of its 16 Yakovlev Yak-130 advanced jet trainers by the end of 2010.<sup>34</sup> The Russian sale is part of the Russian deal that included the sale of the fighter aircraft mentioned above in addition to anti-air and ground systems mentioned earlier. According to IISS, all 16 trainer aircraft are now in inventory.<sup>35</sup> Both Morocco and Algeria have committed to building up their fleets of modern trainer aircraft. However, as with advanced combat aircraft, Algeria is the first to take delivery of its new trainers.

Algeria's purchase of modern utility helicopters is also unique in the region, both in terms of scope and the potential impact on local production and offsets. In addition to six AW101 Merlin SAR helicopters, the 2009 deal worth some \$5 billion will see Anglo-Italian helicopter manufacturer AgustaWestland deliver some 25 A109s, 5 AW139s, and 15 additional Merlins by the end of 2010. The deal also envisages co-production with the Algerian Ministry of Defense that will include 27 more Merlins and some 45 additional utility helicopters that will be assembled either jointly with Agusta Westland or entirely in Algeria. The deal will lead to Algeria having a clear regional edge not only in terms of capacity and capability for SAR and light transport, but also in terms of domestic industrial capacity, training and logistics support facilities.<sup>36</sup>

Algeria has also worked to modernize its fleet of attack helicopters. Between 1999 and 2002, 34 of the country's Mi-24 attack helicopters were upgraded to "Mk III Super Hind" specifications by South Africa's Advanced Technologies and Engineering (ATE). Upgrades included newer weapons systems, forward-looking infrared (FLIR) targeting sights and full night-vision goggle (NVG) capable cockpits.<sup>37</sup>

While Russia will continue to play an important role in supplying the Algerian air force, recent major order from other sources, especially from Western Europe, mark an important departure for Algeria. Russian systems currently account for some 85 percent of Algeria's current air inventory, however *Jane's* reported that since 2001 some 40 percent of new orders have originated from other sources. Algerian disappointment and subsequent return of "sub-standard" MiG-29s may explain at least in part Algeria's openness to diversify its air recapitalization efforts.<sup>38</sup>

While it is clear that Libya hopes to modernize or replace its fleet of aging aircraft, the path ahead will be long and capital intensive. A deal was reached in 2006 with France to bring 12 of Libya's original 25 Mirage F-1s to operational status. The refurbishing deal would restore flight electronics and airframes as well as add new engines. The update package is not dissimilar from the ASTRAC upgrade suit that is currently underway to update Moroccan Mirage F-1s. Updating Libya's F-1s would not be completed before 2009 and France seemed to be downplaying offering a major upgrade suit in the hopes that Libya may opt to buy 14 Dassault Rafales.<sup>39</sup>

Here too Russia hopes to make a major sale to Libya, offering 12 Su-35 Flanker multi-role fighters and potentially Su-30MK2s and MiG-29SMTs. *Jane's* reported that in 2009 Libya intended to buy 12 to 15 Su-35s, four Su-30 multirole fighters and six Yak-130 advanced jet trainers as part of a deal estimated to be worth \$1 billion.<sup>40</sup> In 2010 officials from Russia's arms exporter Rosoboronexport confirmed that an initial order of Su-35s fighters and Kamov Ka-52 Alligator attack helicopters should be completed by the end of the year with options for subsequent orders. French sources reported in June 2008 that Libya was still inclined to acquire the Rafale, but this remains to be confirmed and as with its attack helicopters, it is not clear if Libya has the personnel and support infrastructure to make proper use of such modern systems, let alone a mix of modern Russian and French aircraft.<sup>41</sup>

Tunisia has made no effort to recapitalize its aging fleet of fighters and training aircraft. However, DSCA notified Congress in July 2010 that Tunisia had requested the refurbishment of 12 SH-60F multi-mission utility helicopters, which would be sold to Tunisia as grant excess defense article (EDA). The cost of the helicopters after refurbishment is expected to be \$282 million and will include spares, training and contractor support. If the sale goes ahead, the helicopters will be operated by the country's air force in support of the national coastal patrols service. The potential sale is timely, given that Tunisia hopes to retire its fleet of 11 HH-3s and 15 AB-205s by 2015.<sup>42</sup>

### ***Naval Forces Recapitalization and Modernization***

On February 8, 2008, Dutch firm Schelde Naval Shipbuilding secured an \$824 million contract with the Moroccan Navy for the construction of three SIGMA-class corvettes, one of which is to be the larger 105-meter variant while the remaining two are to be smaller at 98-meters with delivery estimated for 2011-2012. The ships are likely to be

armed with a single Oto Melara 76/62 gun, four MBDA MM40 Exocet surface-to-surface missiles and MBDA's vertical-launched (VL) MICA point-defense system.<sup>43</sup> The three ships will also be equipped with the TACTICOS combat management system, a SMART-S Mk2 surveillance radar, a LIKOD Mk2 tracking radar, a KINGKLIP hull-mounted sonar, along with an IFF system and an electronic support and countermeasure suit.<sup>44</sup> The first of the three Moroccan SIGMA's – the larger 105-meter variant equipped with tactical command facilities and additional accommodations – was launched on July 12, 2010 and is expected to enter service in late 2011 with its two smaller sister vessels launching in 2011.<sup>45</sup>

On April 18, 2008, Morocco finalized a deal to acquire a FREMM multi-mission frigate from France. The deal was expected to fall through, given Morocco's decision to acquire three SIGMA corvettes, however, given Morocco's decision to opt for U.S. 24 F-16s instead of the more expensive 18 Dassault Rafales, Rabat's decision may have been motivated by a desire to buttress continued good relations with France. Slated for delivery in 2012-2013, the new 5,800-ton class of vessels is meant to boost France and Italy's naval anti-submarine, anti-surface, anti-air and land-strike capabilities, and there will be versions to meet all these roles.<sup>46</sup> Valued at \$750 million, Morocco's commitment to acquire a FREMM-based frigate from France coincided with Rabat's decision to go ahead with an F-16 purchase from the US over the French Rafale.<sup>47</sup>

Despite its limited defense budget, the acquisition of three SIGMA-class corvettes and one FREMM-class frigate would double Morocco's fleet of major missile-armed naval assets by 2013, not taking into account a sizeable increase in overall major ship quality.

Not unlike Morocco, Algeria has also placed offers to acquire combat systems from other European suppliers. The navy hoped to acquire variants of the French FREMM multirole frigate – an effort mirroring Morocco's effort to upgrade its naval asset pool – and Italian firm SELEX Sistemi Integrati will upgrade Algeria's C<sup>4</sup>I capabilities. Given Algerian concerns that Morocco also will be purchasing the FREMM platform, it remains unclear whether order with France's DCNS will go through.<sup>48</sup>

Algeria is currently negotiating to acquire six FREMM-class multirole frigates from France.<sup>49</sup> While the sale remained to be finalized in 2010, these are very modern ships and their potential acquisition would give the Algerian Navy a decisive force numbers and quality advantage over Morocco, Libya or Tunisia.

Reports surfaced that Algeria also hoped to replace its ageing inventory of smaller Osa and Kebir class patrol craft. Jane's reported that Algeria may have ordered 21 French-made FPB 98 patrol craft worth some \$200 million in 2007 with deliveries expected to take place in 2012.

In addition to purchasing new surface vessels, Algeria also hopes to augment its submarines with the purchase of two additional Project 636/Kilo class diesel-electric submarines – potentially bringing the fleet strength up to four vessels by 2012. Algeria's existing Kilos are aging 1980s systems and are currently undergoing refits to extend their service to around 2020. It was unclear in 2010 as to whether Russia will replace its first two Kilos in the future, or whether Russia will continue to be Algeria's principal submarine supplier in the future.<sup>50</sup>

While Algeria moves to secure delivery of new vessels, the navy has moved ahead with plans to modernize its Koni class light frigates and Nanuchka II class missile corvettes, which are aging Soviet-era ships. Two of Algeria's Konis – which were sent to Russia for upgrades in 1997 and 2007 respectively – should be back in service by the end of 2010 with the addition of torpedoes and modern electronics. Algeria's three Nanushka II class vessels have also undergone upgrades including the replacement of SS-N-2C anti-ship missiles with the more sophisticated quad-launcher sea-skimming SS-N-25s.<sup>51</sup>

Libya is slated to receive one ATR-42MP maritime patrol craft to be provided by Italian firm Alenia Aeronotica. Equipped with a search radar, an electro-optical sensor and airdrop equipment, this aircraft will augment the navy's coast patrol and SAR capabilities, and should be delivered by 2009. *Jane's* also reported in 2009 that Libya had signed a \$200 deal with Russia to buy three Molniya class fast attack boats.<sup>52</sup>

Tunisia has yet to recapitalize its holdings of naval assets, however, reports in 2010 indicated that the Tunisian navy hoped to manufacture the country's first indigenously built 14-meter patrol boats at its base in Bizerta.<sup>53</sup> While these are not insignificant efforts for Tunisia to develop local capacity, they will not have any significant impact on the North African naval balance.

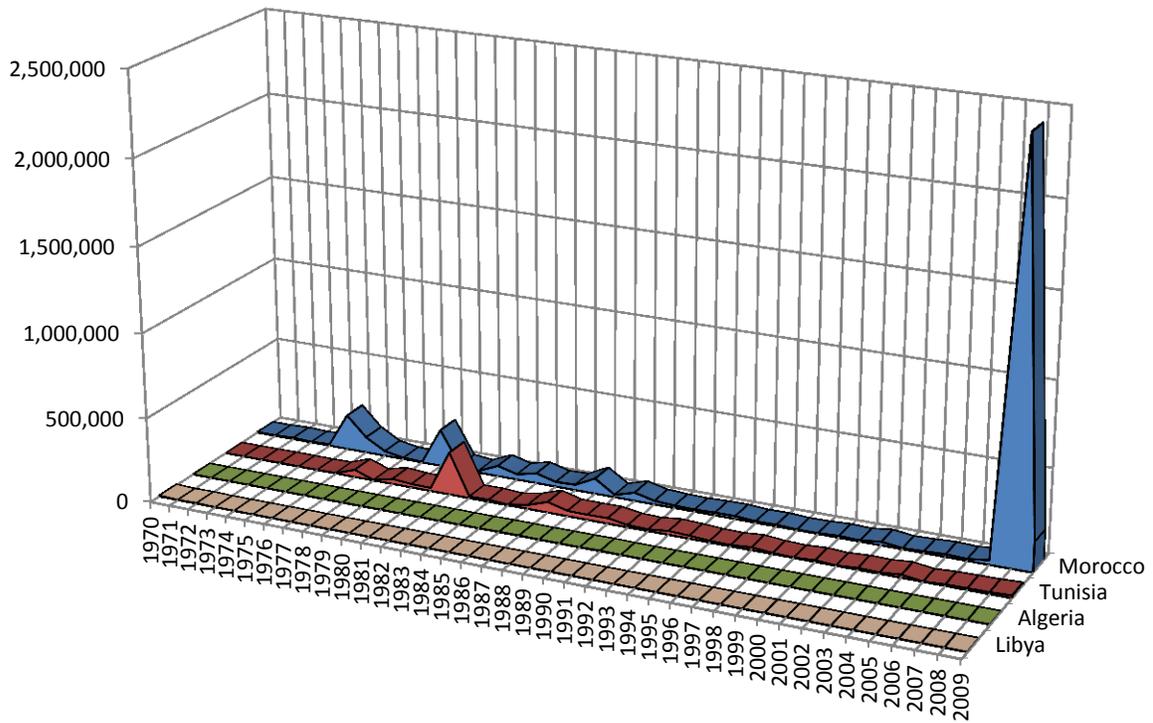
### ***The Limited Impact of Foreign Military Aid***

Not counting Egypt, Morocco and Tunisia are the only major recipients of U.S. military equipment and training in North Africa. This is made clear in **Figures 20 to 21** as well as in our discussion of force recapitalization by military branch. While there were reports that Algeria may opt to procure military systems from the U.S., DSCA indicated that it had received no formal requests from Algiers for purchases under FMS as of mid-2010.<sup>54</sup>

**Figure 21** shows U.S. sales agreements to North Africa in historical context. Most major purchases took place in the early 1980s with recent Moroccan purchases of advanced fighter aircraft marking an upward shift in U.S. sales to the region. However, U.S. FMS agreements with Morocco and Tunisia totaling \$3.8 billion and \$772 million respectively over the 1950 to 2009 period is eclipsed by the overall trend of U.S. sales to other Middle East partners such as Israel, Saudi Arabia, Egypt and members of the Gulf Cooperation Council (GCC).<sup>55</sup>

It is noteworthy, however, that unlike major Middle East FMS recipients like Egypt and Israel, Morocco and Tunisia do not rely heavily on U.S. Foreign Military Financing (FMF) assistance to fund national purchases from the U.S. **Figure 22** shows the pattern of U.S. military financial aid to the Maghreb over the past decade. While levels of assistance have increase after the events of September 11, 2001 – partly in parallel to U.S. counter-terrorism prerogatives in Africa and the Sahel – these funding levels do not account for a significant portion of past, present and near-term Moroccan and Tunisian purchases and force recapitalization efforts. Like Saudi Arabia and other Gulf states, national funds continue to drive present and future patterns of military agreements with the U.S. This gives both Morocco and Tunisia far more flexibility in shaping U.S. sales.

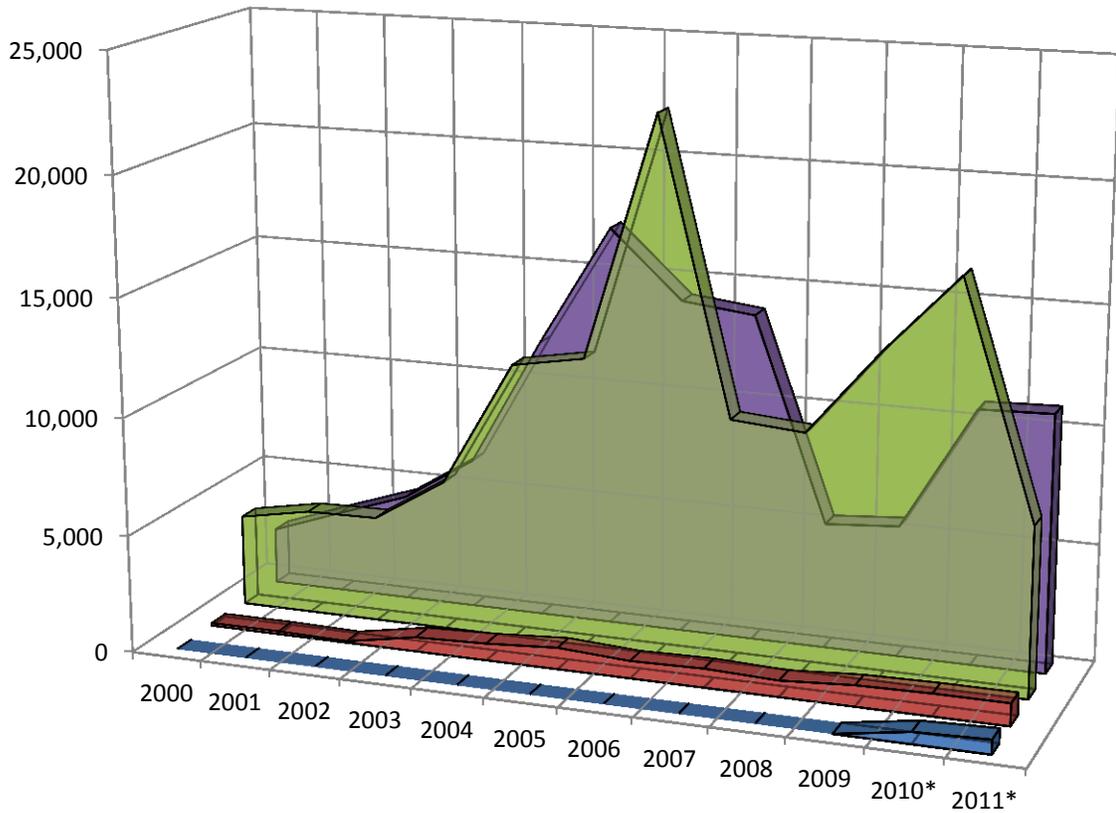
**Figure 21: U.S. Foreign Military Sales Agreements to North Africa 1970-2009**  
 (In thousands of current US dollars)



Note: Includes Foreign Military Sales (FMS) and Foreign Military Construction Sales (FMCS) agreements. Does not include deliveries.

Source: Adapted by Aram Nerguizian from the *Defense Security Cooperation Agency Fiscal Year Series*, updated on September 30, 2009 and discussions with U.S. security assistance and security cooperation experts.

**Figure 22: US Military Assistance to North African States 2000 to 2011**  
(In thousands of current US dollars)



|         | 2000  | 2001  | 2002  | 2003  | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010*  | 2011*  |
|---------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| Libya   | 0     | 0     | 0     | 0     | 0      | 0      | 0      | 0      | 0      | 0      | 500    | 600    |
| Algeria | 115   | 121   | 67    | 612   | 722    | 920    | 743    | 806    | 696    | 898    | 950    | 950    |
| Tunisia | 3,906 | 4,461 | 4,513 | 6,400 | 11,726 | 12,267 | 22,538 | 10,300 | 10,056 | 13,700 | 16,950 | 7,200  |
| Morocco | 2,404 | 3,494 | 4,541 | 6,475 | 11,937 | 17,048 | 14,231 | 13,882 | 5,338  | 5,571  | 10,800 | 10,900 |

\* Data for 2010 reflect estimates; data for 2011 reflect requested amounts.

Note: Data shown include Foreign Military Financing (FMF) and International Military Education and Training (IMET).

Source: Adapted by Aram Nerguizian from *Congressional Budget Justification for Foreign Operations*, various fiscal years.

## **The Conventional Military Balance**

**Figure 23** provides a summary comparison of the present strength of Algerian, Libyan, Moroccan and Tunisian conventional military forces. It should be noted, however, that there are significant uncertainties in data available from unclassified sources. It is possible to quantify some key measures of this balance in spite of these problems, but any assessment of the conventional balance must address the fact that strength measured in force numbers can be very different from strength measured in terms of force quality.

Force size has only limited meaning as a measure of military capability or merit, unless it can be related to force quality. Leadership, the ability to conduct joint and combined operations, morale, and the ability to sustain complex cycles of rapid maneuver warfare are just a few of the aspects of force quality that can overcome superiority in force quantity.

As the previous funding data have shown, nations have not pursued consistent patterns in developing their conventional forces. Countries like Algeria and Libya have gone through periods of intense military build-up followed by periods where modernization has been limited or negligible. The conventional balance is time- and resource-intensive, and the long-term patterns of regional expenditures, weapons deliveries and recapitalization initiatives play a key role in forming the conventional balance. This means that nations can only make critical changes in the strengths and weaknesses of their forces over time and through careful planning, adequate resources, and well-managed force development. This has presented further problems because most countries have emphasized force numbers and modernizing key weapons systems over ensuring that their forces have the proper training, support, logistics, and sustainability.

### ***Broad Patterns in Conventional Force Development***

The newly independent Maghreb states followed the same pattern of rapid military build-up that characterized virtually all of the newly independent states in the Near East and Southwest Asia. They embarked on a wasteful military build-up and increased their military forces sharply after the Arab-Israeli conflict in 1973. This eventually led them to spend more than their national incomes could sustain.

As the previous chapter has shown, military spending began a moderate decline in the mid-1980s, followed by a sharper decline after the collapse of the Soviet Union. Spending rose again in the late-1990s, however, with major acquisitions on the part of Algeria, followed by Morocco, which committed to major acquisitions starting in 2006. Libya also is seeking to place major new arms orders in 2010 in the wake of Russia's cancellation of the country's Soviet-era debt. These more recent arms orders, however, have been more an effort to modernize national forces than part of an arms race.

Morocco's forces are shaped by the fact that its only major external threat is Algeria, which no longer presents a significant risk. Its military spending is driven largely by its war with Polisario for control of the Western Sahara, and by factors like bureaucratic momentum, regional rivalries with Algeria and Spain, and the search for status and prestige. This spending consumes some 3-4% of Morocco's GDP, and 11-12% of its national budget. This is not high by regional standards, but Morocco has a sharply rising

population, massive unemployment, and desperately needs resources for economic development. Military spending and the war in the Western Sahara are a major burden on the country.

Algeria had long been dominated by a corrupt and inefficient military junta, sometimes called “the Power,” which ruled the country behind the façade of an elected government. From the early 1990s through 2002, Algeria was engaged in a violent civil war with Islamic extremists, after more moderate Islamic political factions were denied power following their victory in an election. The civil war was vicious on both sides, often involving large-scale atrocities. While the government and the armed forces won the conflict, sporadic violence and minor skirmishes continued to take place. Algeria continues to have cold and sometimes contentious relations with its main regional rival, Morocco. While the main point of contention remains the status of the Western Sahara, the rivalry is also a symptom of a broader contest for regional autonomy if not hegemony in the Maghreb.

Libya has sought to shed its image as an extremist state and supporter of terrorism in recent years. It reached a settlement over its terrorist attacks on UTA Flight 722 and Pan Am Flight 103, and halted all support of terrorist groups. It agreed in late 2003 to give up its efforts to acquire and deploy weapons of mass destruction and allow inspection by the International Atomic Energy Agency (IAEA). Libya did so partly because of years of frustration and failure in various political and military adventures and partly because of the impact of UN and US sanctions and growing economic problems, as well as the need to deal with a low-level Islamic extremist insurgent threat.

Tunisia has always been a defensive military power. Until recently, its major threat has been Libya. At this point, it faces no serious external threat. However, as in the cases of Algeria, Morocco and Libya, Tunisia has also experienced an increase in jihadist activity. Its armed forces are designed largely for border defense, internal security, and protection of key economic facilities. Tunisia lacks the active force and equipment strength necessary to deploy significant strength on either border in peacetime, and keeps most of its units near urban centers. It does, however, have special units in the Sahara brigade that cover the border and provide a light screen of security forces. Again, as in the cases of its North African neighbors, Tunisia is increasingly involved in mainly maritime NATO exercises, intelligence gathering and counterinsurgency training and operations.

Figure 23: Algerian, Libyan, Moroccan, and Tunisian Forces in 2010

| Category/Weapon                     | Algeria | Libya      | Morocco  | Tunisia |
|-------------------------------------|---------|------------|----------|---------|
| <u>Manpower</u>                     |         |            |          |         |
| Total Active                        | 147,000 | 76,000     | 195,800  | 35,800  |
| (Conscript)                         | 80,000  | 25,000     | 100,000  | 27,000  |
| Total Regular                       | 67,000  | 51,000     | 95,800   | 13,800  |
| Royal/Special Guard and Other       | 0       | ?          | 1,500    | -       |
| Total Reserve                       | 150,000 | 40,000     | 150,000  | -       |
| Total Active and Reserve            | 297,000 | 116,000    | 345,800  | 35,800  |
| Paramilitary                        | 187,200 | ?          | 50,000   | 12,000  |
| <u>Land Forces</u>                  |         |            |          |         |
| Active Manpower                     | 127,000 | 50,000     | 175,000  | 27,000  |
| (Conscripts)                        | 80,000  | 25,000     | 100,000  | 22,000  |
| Reserve Manpower                    | 150,000 | -          | 150,000  | -       |
| Total Active and Reserve Manpower   | 177,000 | 50,000     | 325,000  | 27,000  |
| Main Battle Tanks                   | 1,082   | 980(1,225) | 380(200) | 84      |
| AIFVs/Armored Cars/Lt. Tanks        | 1040    | 1,000+     | 186      | 48      |
| APCs/Recce/Scouts/Half-Tracks       | 840     | 1,065      | 1,149    | 328     |
| ATGM Launchers                      | 200+    | 3,000      | 790      | 590     |
| SP Artillery                        | 170     | 444        | 282      | -       |
| Towed Artillery                     | 375     | 647+       | 118      | 115     |
| MRLs                                | 144     | 830        | 35       | -       |
| Mortars                             | 330     | 500        | 1,706    | 161     |
| SSM Launchers                       | -       | 45         | 0        | 0       |
| AA Guns                             | 875     | 490        | 407      | 127     |
| Lt. SAM Launchers                   | 288+    | 424+*      | 119      | 86      |
| <u>Air &amp; Air Defense Forces</u> |         |            |          |         |
| Active Manpower                     | 14,000  | 18,000     | 13,000   | 4,000   |
| (Air Defense Only)                  | NA      | ?          | -        | -       |
| Reserve Manpower                    | -       | -          | -        | -       |
| (Air Defense Only)                  | NA      | ?          | -        | -       |
| <u>Aircraft</u>                     |         |            |          |         |
| Total Fighter/FGA/Recce             | 203     | 349        | 89       | 15      |
| Bomber                              | 0       | 7          | 0        | 0       |
| Fighter                             | 55      | 229        | 19       | 12      |
| FGA                                 | 134     | 113        | 47       | 3       |
| Other Combat Unit (OCU)             | -       | -          | -        | 6       |
| Recce/ELINT                         | 14      | 7          | 6        | 0       |
| Airborne Early Warning (AEW/EW)     | 0       | 0          | 2        | 0       |
| Maritime Reconnaissance (MR)        | 6       | 0          | 0        | 0       |
| Combat Capable Trainer              | 59      | 230        | 19       | 19      |
| Tanker                              | 6       | 0          | 2        | 0       |
| Transport                           | 39      | 85+        | 44       | 22      |
| <u>Helicopters</u>                  |         |            |          |         |
| Attack/Armed/ASW                    | 33      | 35         | 19       | 0       |
| Other                               | 142     | 101        | 73       | 43      |
| Total                               | 175     | 136        | 92       | 43      |
| <u>SAM Forces</u>                   |         |            |          |         |
| Batteries                           | 3       | -          | -        | -       |
| Heavy Launchers                     | 140     | 216+       | -        | -       |
| Medium Launchers                    | -       | -          | -        | -       |
| AA guns                             | 725     | some       | -        | -       |
| <u>Naval Forces</u>                 |         |            |          |         |
| Active Manpower                     | 6,000   | 8,000      | 7,800    | 4,800   |
| Regular Navy                        | 6,000   | 8,000      | 6,300    | 4,800   |

|                                 |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|
| Naval Guards                    | -     | -     | -     | -     |
| Marines                         | -     | -     | 1,500 | -     |
| Reserve Manpower                | -     | -     | -     | -     |
| Total Active & Reserve Manpower | 6,000 | 8,000 | 7,800 | 4,800 |
| Submarines                      | 2     | 2     | 0     | 0     |
| Destroyers/Frigates/Corvettes   | 9     | 3     | 3     | 0     |
| Missile                         | 9     | 3     | 3     | 0     |
| Other                           | 0     | 0     | 0     | 0     |
| Missile Patrol                  | 9(3)  | 10    | 4     | 12    |
| Coastal/Inshore Patrol          | 11    | 4     | 23    | 13    |
| Mine                            | 0     | 4     | 0     | 0     |
| Amphibious Ships                | 3     | 4     | 4     | 0     |
| Landing Craft/Light Support     | 10    | 12    | 5     | 6     |
| MPA/ASW/Combat Helicopter       | 0     | 7     | 3     | 0     |

\* Extensive, but unknown amounts inoperable or in storage.

Note: Figures in parenthesis are additional equipment in storage. SSM launchers are major systems.

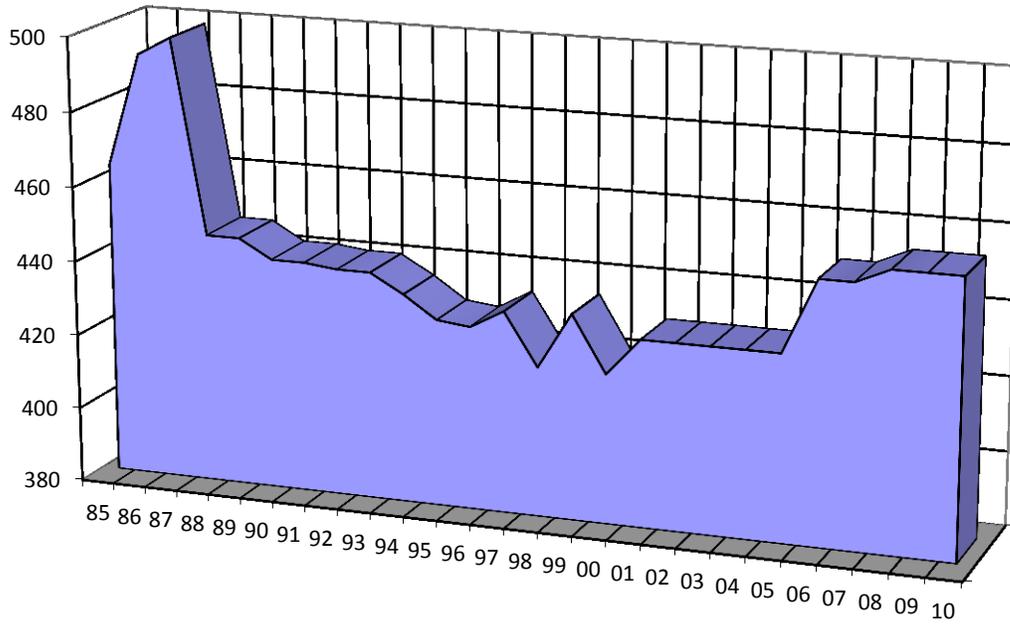
Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from data provided by US experts, and IISS, *The Military Balance*, various editions.

### ***Comparative Manpower Quantity and Quality***

**Figures 24 and 25** reveal other imbalances in North African military efforts. Most countries maintained larger manpower and equipment pools than they could afford to sustain. All of the Maghreb states except Tunisia bought more military equipment during the 1970s and 1980s than they can now adequately support. Like many less developed countries, the Maghreb states confused weapons numbers and the "glitter factor" of buying advanced weapons technology with military effectiveness. Algeria, Libya, and Morocco saturated their military forces with weaponry between 1972 and 1985 without buying proper support, sustainability, and Command, Control, Communications, Computers, and Intelligence (C<sup>4</sup>I) equipment. They created teeth-to-tail ratios about two to three times the proper ratio for military effectiveness.

**Figure 26** shows the most recent data on North African military manpower by service. It should be noted that the training and equipment levels for almost all reserve forces in Maghreb countries are so low that manpower numbers have little real military value. Algeria's force structure reflects a heavy emphasis on the paramilitary forces needed to fight its civil war. Morocco's large army reflects the need to maintain large forces to protect the south from Polisario attack. As later figures show, Libya has very low manning levels for its total equipment holdings. Tunisia's distribution of military manpower is what might be expected of a small and defensive military power.

**Figure 24: Trends in Total North African Military Manpower**  
 (Algerian, Libyan, Moroccan, and Tunisian Military Manpower in Thousands)

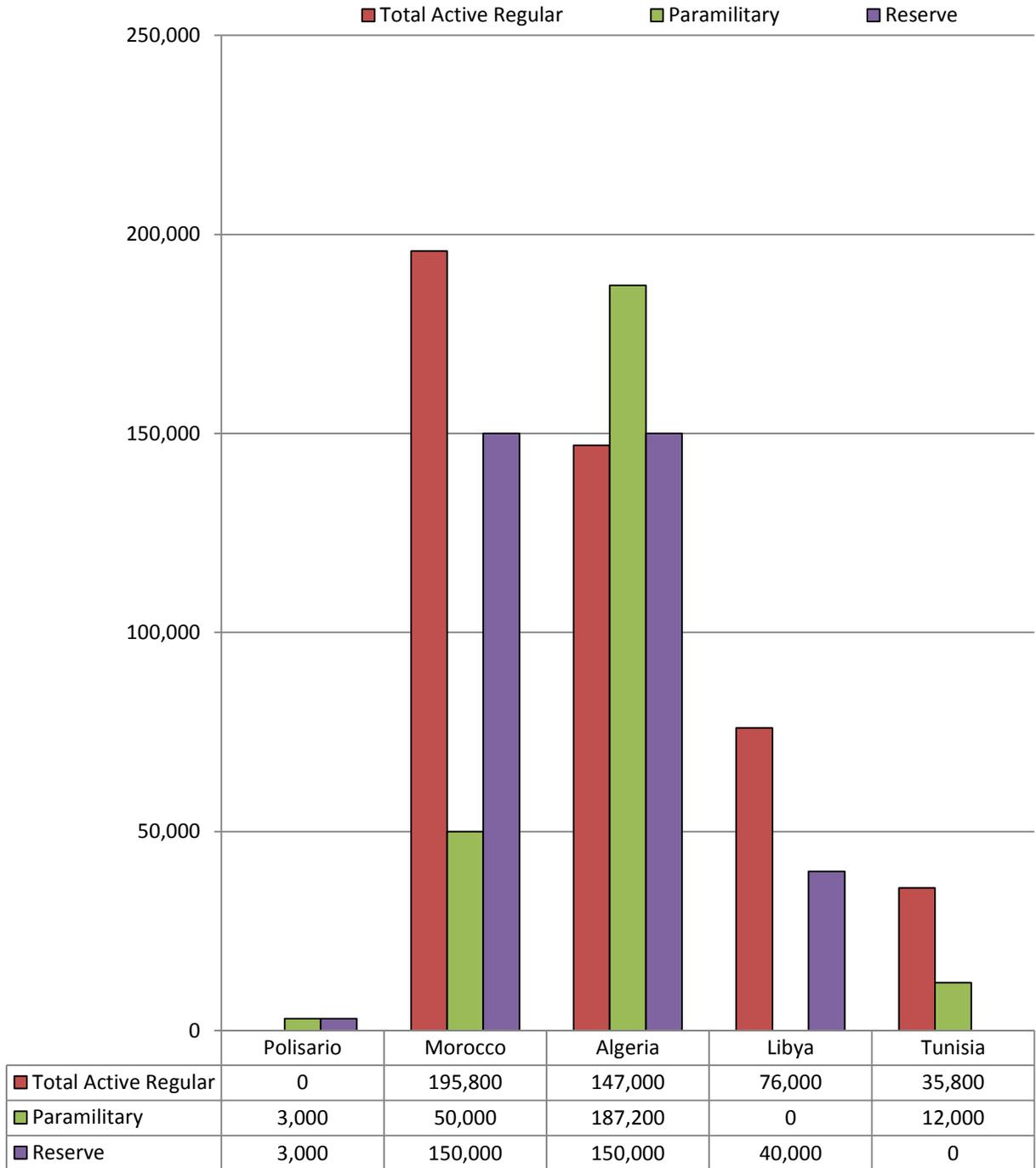


|          | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  | 96  | 97  | 98  | 99  | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Manpower | 464 | 494 | 499 | 447 | 447 | 442 | 442 | 441 | 441 | 436 | 430 | 429 | 434 | 420 | 435 | 420 | 430 | 430 | 430 | 430 | 430 | 430 | 450 | 450 | 454 | 454 |

Note: North African states include Algeria, Libya, Morocco and Tunisia. Totals do not include theoretical reserves.

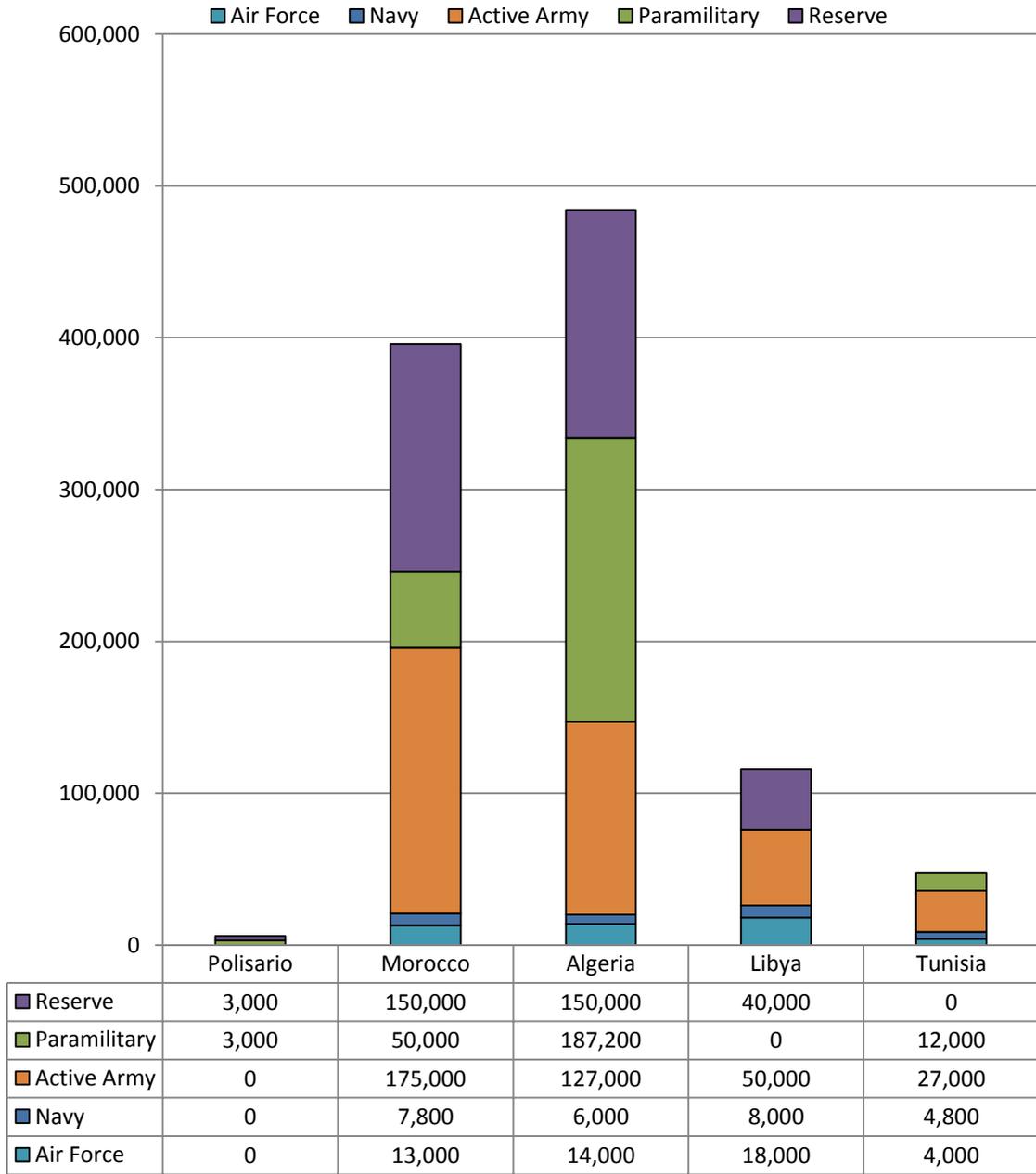
Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from the IISS, *The Military Balance*, various editions, the US State Department, *World Military Expenditures and Arms Transfers*, various editions.

**Figure 25: Total Manpower in North African Military Forces in 2010**



Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from the IISS, *The Military Balance*, various editions.

**Figure 26: Total Regular Military Manpower in North African Forces by Service in 2010**



Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from the IISS, *The Military Balance*, various editions.

### **Algerian Military Manpower**

Algerian regular military manpower peaked at around 170,000 in the mid 1980s, but declined to 147,000 actives by 2010, including some 80,000 conscripts. It had an on-paper reserve strength of some 150,000, with little or no real-world readiness and war fighting capability. The Algerian Army is by far the largest element of the ANP and has a highly bureaucratic and grossly over-manned and over-ranked headquarters and support structure. It would probably be more efficient with one-third less manpower.

Army conscripts serve for 18 months, of which six months account for basic training and the remaining 12 encompass various civil projects. Algerian conscripts generally receive inadequate basic training, in both unit training and field training. Algeria also has a large army reserve of 150,000 on paper, but it has little real structure and only limited and highly selective call-up training. It would take weeks to retrain most reserves to serve basic military functions, and months to create effective reserve units.

The Algerian Army has had no meaningful combat experience against a regular army since its border clashes with Morocco in 1963. The army is heavily politicized, it is corrupt and nepotistic and this affects promotion at the higher levels of command. It spends far more time on internal security problems than developing its warfighting capability.

Training tends to be over-rigid and repetitive. Combined arms, combined operations, and maneuver training are poor. Leadership is weak at every level, and the aforementioned corruption in the ranks only adds to serious organizational, training, logistical, and combat and service support problems. Technical training and maintenance standards are low. The army often buys new equipment more quickly than it can effectively absorb it. It then fails to follow-up with effective training, maintenance, and logistic subsystems.

The military “culture” of the army is also an awkward mix of Algerian ideology and longoutdated and relatively slow-moving Soviet tactics and doctrine. The army has traditionally relied on mass and attrition, not maneuver and technology. Its leadership has never fully converted from an ideological focus on the army as a popular or revolutionary force to one that is fully capable of modern armored and maneuver combat. Algeria's internal security problems, and the high degree of politicization and bureaucratization of its forces, may well make it very difficult to change this situation during the next decade. Closer ties with French and US advisors since the 1990s have contributed to a more flexible military doctrine, especially given the army's growing role in counter-insurgency, rapid deployment, patrol and exercise operations with NATO.

It is striking that the paramilitary forces and militias have done so much of the actual fighting in the Algerian civil war, rather than the regular army – which constituted an immense drain on so many national resources for so many years. Whereas Morocco painfully learned how to fight a guerrilla war, the Algerian army largely stood aside and let proxies do much of the fighting.

Algeria's air force had roughly 14,000 actives in 2008. It initially emerged as a modern force as the result of an expansion that took place in the mid-1970s after clashes between Algerian and Moroccan forces. The Algerian air force has no real combat experience, and training is outdated and poorly organized for large-scale attack or air defense operations.

While the 6,000-man Algerian Navy would probably be able to defeat either the Moroccan or Libyan navies, it continues to have poor operational performance, overall readiness, training and training.

### **Moroccan Military Manpower**

Morocco has some 195,800 active forces. The 175,000-man army – which forms the bulk of the country's standing armed forces – is the only force in the Maghreb that has recently had to train and organize for serious combat, although this combat has consisted largely of guerrilla warfare.

The Moroccan army has a significant number of conscripts, but also has a strong cadre of experienced regulars. Morocco's large population and low per capita income have led many poorer Moroccans to pursue military careers. The pay and benefits are adequate, and living conditions are acceptable, even in the camps and strong points in the south.

Tactical doctrine still relies heavily on French and Spanish experience, but there is growing US influence and Morocco benefits from its own military experience. Moroccan army trainers operate throughout the region. However, Moroccan army training is still erratic and much of it is conducted at the unit level. This leads to different levels of effectiveness, depending upon the particular unit involved.

Morocco's 150,000-man reserve is largely a force on paper and serves little real purpose. There is little reserve training, and there are few combat ready officers, other ranks, and specialists with the kind of current warfighting skills the army would need in war. The only combat effective reserves would be men called back to units they had recently left.

The paramilitary Force Auxiliaire is probably more effective. It is a 30,000-man force designed to reinforce the army in a campaign against Algeria, and would provide service support and rear area security. It also includes a 5,000 man Mobile Intervention Corps that is fully equipped with light armored vehicles and Land Rovers, and with automatic and crew-served weapons. The Force Auxiliaire has also been used successfully in rear area security operations against the Polisario in Western Sahara.

The 13,000-man Moroccan Air Force experienced considerable political instability in the early 1970s, and then had problems in the war with the Polisario. It lost a considerable number of aircraft to Polisario SA-6s and SA-7s in the early and mid-1980s, and often aborted missions or dropped bombs where they had limited effect. Since that time, however, it has gradually corrected many of its past training, maintenance, and leadership problems. It has achieved a reasonable level of proficiency in using its Mirage F-1s, F-5E/Fs, and *Alpha Jets* in basic attack and support missions.

The 7,800-man Moroccan navy is a relatively large force by local standards, although it scarcely makes Morocco a major Mediterranean or Atlantic naval power. The Moroccan navy has shown it can operate fast attack craft, patrol craft, transport and amphibious ships reasonably well, however the navy's overall combat readiness training is said to be mediocre at best.

### **Libyan Military Manpower**

The 50,000-man Libyan Army, which includes 25,000 poorly trained conscripts, forms the bulk of Libya's 76,000 active forces. While the army is sometimes reported to have some 40,000 men in its People's Militia, this force is more a symbol of Qadhafi's ever changing ideology than a military force. The Libyan army seems to lack anything approaching an effective and well-trained reserve system.

Regardless of the current totals, Libya only has about 25-33% of the manpower needed to man its combat units, and total equipment pool – a factor which explains why so much of its major combat equipment is in storage. Even its best combat units are under strength and have severe training and leadership problems. These manpower problems are compounded by tight political control, promotion based on political favoritism, and training which is often limited to erratic small unit training. As has been noted earlier, Qadhafi also rotates officers arbitrarily to prevent coup attempts, and restricts some forms of training because he regards them as a threat to his security.

Libya's seeming return to the international community is unlikely to change this pattern. Additionally, the resumption of U.S. international military education and training (IMET) and Libya sending six to eight cadets annually to Poland's Warsaw-based military academy of technology (WAT) are token gestures at best with negligible impact on overall force quality, and is a far cry from the scale of structural and ideological change needed for army-wide impact.

The Libyan Navy and coast guard have a nominal strength of 8,000 men, but may only have 4,000-4,100 actives. The Libyan navy's overall training and readiness levels were never high, and declined sharply after the mid-1980s, possibly because of decreased funding and a resulting drop in support from the former Soviet Union. The Navy suffered badly from UN sanctions, but acquired some Ukrainian technical support in 1995 and received more parts deliveries and repairs after 1998 and has continued to place the emphasis on upgrading its inshore and coastal capabilities rather than pursuing acquisitions of additional major surface combatants. Some individual ship crews have moderate capability, but overall training, readiness, and command standards are low, and weapons systems and combat electronics are rarely exercised. Libya cannot operate as an effective fleet.

Similarly, Libya's 18,000 man air force, which continues to operate a large pool of aging aircraft, lacks consistent training, lacks competent pilots and seems to be as badly organized – like most aspects of Libyan military activity.

### **Tunisian Military Manpower**

The smallest of the four Maghreb militaries, Tunisia's 35,800-man force is mainly comprised of a 27,000-strong Army, of which some 22,000 are conscripts with limited experience and training. The training and proficiency of officers and career non-commissioned officers (NCOs) are good in comparison to militaries in other developing countries. Conscripts are selected to ensure they have a good basic education, but only serve for 12 months. Overall training standards are physically rigorous, but conscripts gain little proficiency in combined arms and maneuver warfare. The total strength of Tunisia's organized reserves is currently unknown. There is little indication that they are

well trained or organized, or would be combat effective without months of reorganization and training.

The 4,800-man Tunisian Navy has nearly 700 conscripts, but ship crews tend to be relatively professional. The 4,000-man Tunisian Air Force (TAF) also has some 700 conscripts. It has slowly developed relatively effective manpower policies and is gradually developing the capability to train and retain competent pilots and aircrews.

### *Army and Land Force Weapons and Technology*

#### **As this next section will show, the Maghreb countries maintain a wide variety of land force weapons. Main Battle Tanks**

As was shown earlier, North African militaries remain ground forces heavy and as such continue to maintain large pools of armored systems. **Figures 27 to 30** show the trends in North African armor. Algeria, Morocco and Libya maintain relatively large forces in contrast to Tunisia and all forces have large pools of APCs, AIFVs and RECCE units. These figures also show, however, that the mix of combined arms within each army is strikingly different. Algeria and Libya maintain a tank-heavy mix of Russian armor while Morocco maintains a more diversified armor pool that emphasizes relative force mobility. Tunisia maintains adequate holdings relative to national manning and expenditure levels.

**Figure 27** compares the armored forces of each nation in 2010, and **Figure 28** shows trends in main battle tanks (MBT). This total includes both relatively modern high quality armor and aging systems. Morocco's 220 M-60A1, 120 M-60A3, and 40 T-72 main battle tanks give its army adequate heavy armor. However, Morocco also has 200 M-48A5 in storage along with an additional 111 SK-105 Kuerassier and 5 AMX-13 obsolescent light tanks in active status. Overall levels of tank training are limited to adequate, and Morocco only conducts limited maneuver and large unit training.

The Algerian Army has roughly 895 tanks, including 270 T-54/55s, 300 T-62s and 325 T-72s – 55 of which were delivered during the 1999-2000 period. Algeria has also acquired 180 T-90s – the most modern MBT system in the regional balance. The overall readiness of Algerian tank holdings continues to suffer from obsolescence and maintenance problems, little large unit training, and poor to mediocre training in rapid maneuver, night warfare, support and logistics, and aggressive offensive combat.

In 2010, the Libyan Army had some 2,025 main battle tanks. Its operational holdings, however, only included some 980 tanks: 180 T-90Ss, 200 T-72s, 100 T-62s, and 500 T-T-55s. As with Algeria, Libya's T-90 holdings are modern systems. However, the other 1,225 tanks remain in storage, including some 1,040 T-55s, 70 T-62s, and 115 T-72s, and have remained so for at least the past eight years. Many of both the operational and stored tanks had significant maintenance problems, and Libya was actively negotiating with Russia and the Ukraine in 2000 for modernization and overhaul contracts for these tanks, as well as for its other armor and much of its artillery. As of mid-2008, these efforts have yet to bear fruit and it is not unreasonable to expect that Libya will continue to maintain large numbers of obsolescent MBTs at least through 2009.

The Tunisian army has slowly acquired limited tank holdings, including 84 main battle tanks (30 M-60A1s and 54 M-60A3s). It has 48 obsolescent Steyr SK-105 Kuerassier

light tanks, and there is little indication that Tunisia will be acquiring additional armor in the near future.

### Other Armored Vehicles

**Figures 29** show the relative strength and quality of North African other armored vehicles, including armored infantry fighting vehicles (AIFVs), reconnaissance units (RECCE) and light tanks. Egypt is shown in **Figure 29** for comparison.

Reports differ as to the strength and types of other fighting vehicles in Moroccan forces, but its armored reconnaissance strength seems to include 40 EBR-75, 80 AMX-10RCs, 190 AML-90s, 38 AML-60-7s, and 20 M-1114s. It also had 30 Ratel 20, 30 Ratel 90, and 10 AMX-10P employed as AIFVs. This diverse mix of armored fighting vehicles is often of mediocre quality and readiness, and lacks effective standardization. Morocco's emphasis on armored infantry fighting vehicles and armored personnel carriers reflects a response to the special needs imposed by its terrain and to its experience in fighting the Polisario. While Algeria poses a somewhat theoretical threat of armored warfare, Morocco has had to fight the Polisario largely using mechanized and light infantry.

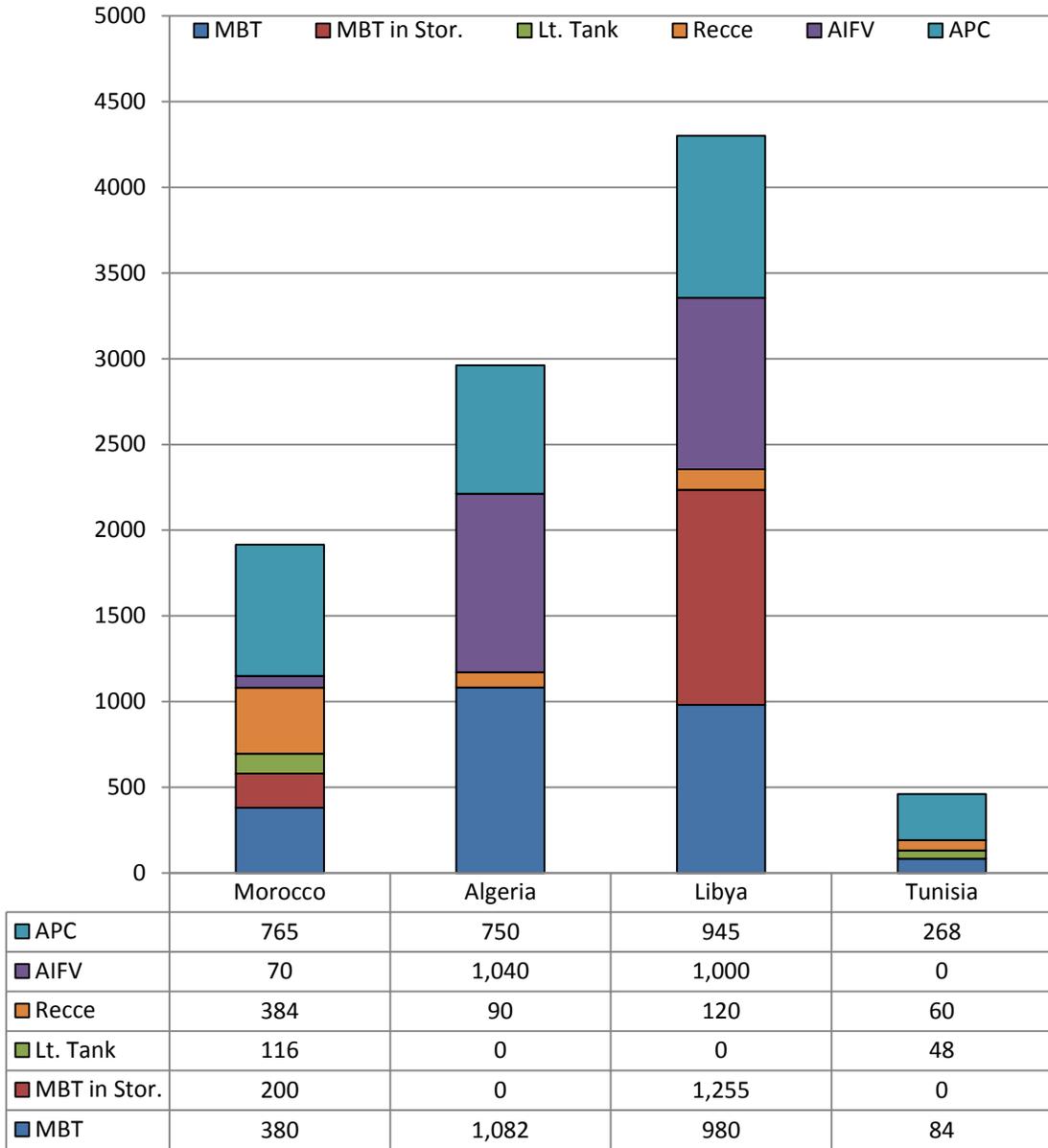
Algeria had 90 BDRM-2 reconnaissance vehicles upgraded with AT-5 9M113 Kornet ATGMs, and possibly 49 Saladins. It had 1,040 armored infantry fighting vehicles, including 100 BMP-3s, 680 BMP-1s and 260 BMP-2s upgrades with AT-5 9M113 Kornet ATGMs. Continuing deliveries of BMP-2s took place during 1999 and 2000. While efforts to modernize Algerian OAFVs remains underway, the overall readiness of Algerian OAFVs remains constrained by relative obsolescence, maintenance problems, little large unit training, and poor to mediocre training in rapid maneuver, night warfare, support and logistics, and aggressive offensive combat.

The Libyan army had some 120 armored reconnaissance vehicles, including 50 BDRM-2s and 70 EE-9 Cascavals – a small portion of the number Libya had originally purchased. There were over 1,000 aging BMP-1 armored infantry fighting vehicles in inventory in 2010. Like Libya's tanks, many of its other armored vehicles were in storage or had serious maintenance problems. Only a few battalion-sized elements of Libyan armor had even moderate effectiveness in offensive and maneuver operations.

The Tunisian army continues to maintain 48 obsolescent Steyr SK-105 Kuerassier light tanks, and 60 relatively low-grade armored reconnaissance vehicles, including 24 Saladins and 40 AML-90.

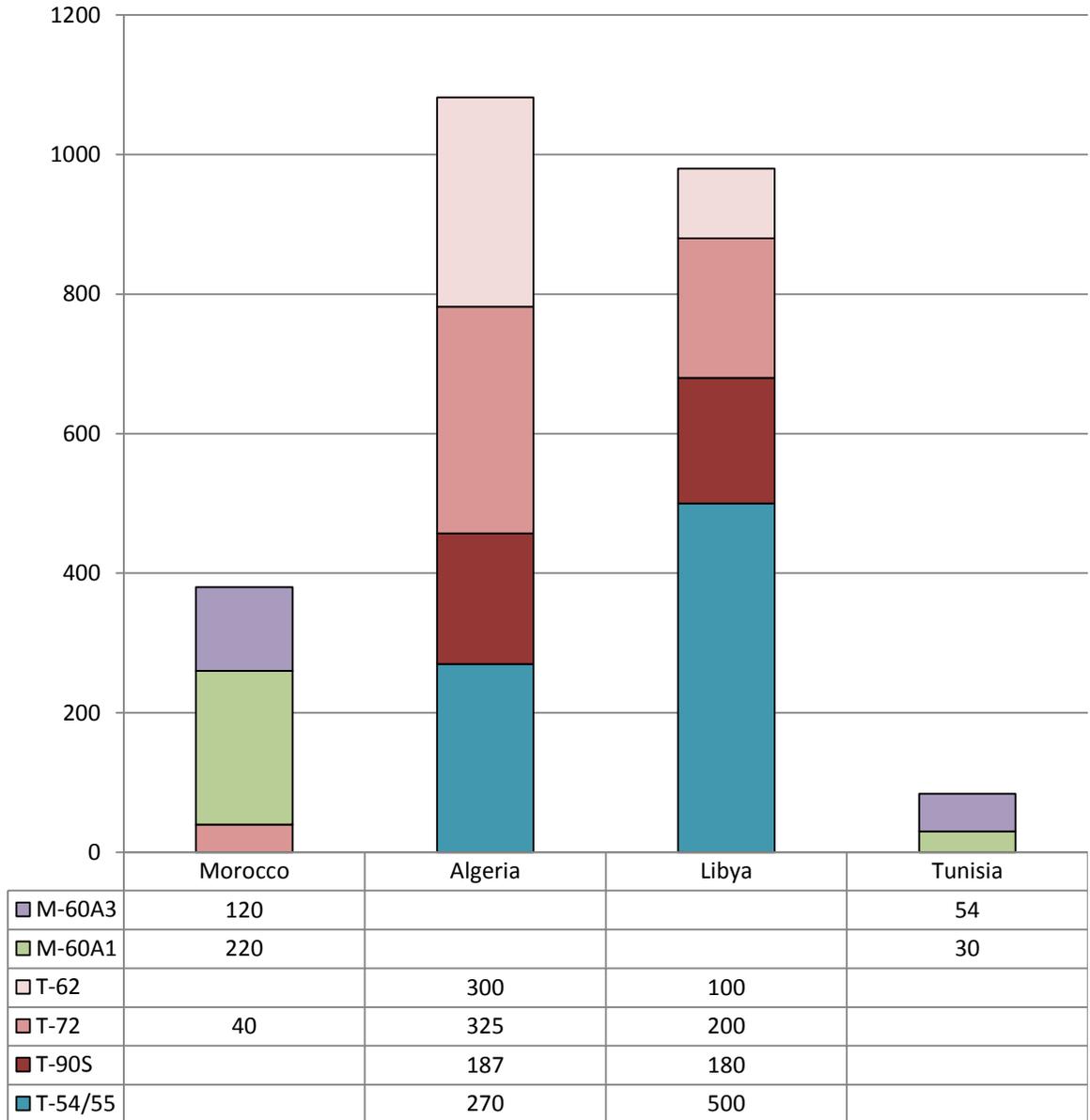
All countries in the Maghreb maintain large but relatively old pools of APCs. Moroccan holdings include 400 M-113A1/A2s, 45 VAB VCI and 320 VAB-VTTs. It may also have 45 OT-62 and OT-64 APCs. Algeria maintains 100 TH 390 Fahds, 300 BTR-60/s, 150 BTR-80s, 150 OT-64 and 50 M-3 Panhards. Libya has some 945 APCs, including 750 BTR-50s and BTR-60s, 67 OT-62s and OT-64s, 28 M-113s, and 100 EE-11 Urutus. Tunisia's limited holdings include 140 M-113A1/M-113A2a, 18 EE-11 Urutu and 110 Fiat 6614s.

**Figure 27: Total North African Armor in 2010**



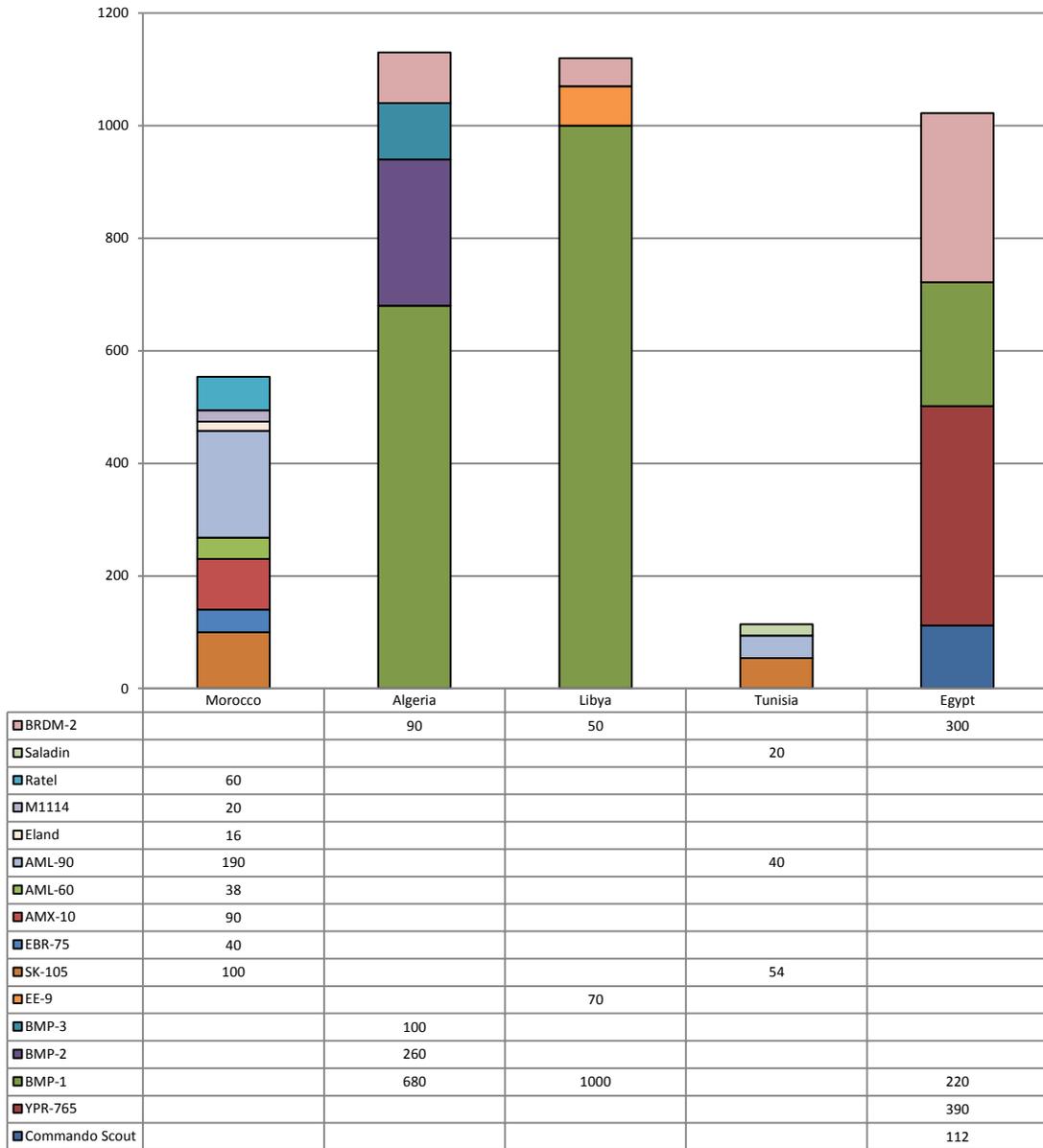
Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from the IISS, *The Military Balance*, various editions.

**Figure 28: Total North African Active Main Battle Tanks by Type in 2010**



Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from the IISS, *The Military Balance*, various editions.

**Figure 29: Total North African Medium Quality & Modern Other Armored Fighting Vehicles (OAFVs) in 2010**  
(Less APCs)



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

North African holdings of OAFVs and APCs are largely aging systems, but almost all can play an important role in bringing infantry and weapons squads into the forward area and provide fire support. This “battlefield taxi” role can be critical in ensuring that tanks have suitable combined arms support in combat.

### Antitank Weapons

Countries in the North African balance have built up limited stocks of anti-armor weapons, although anything like an accurate inventory of current holdings or a historical trend line analysis is impossible without access to classified information. **Figure 30** shows an estimate of regional anti-tank holdings in 2010 based on figures from IISS. Few crews from countries in the regional balances have realistic combat training in killing tanks or other armor.

**Figure 30: North African Anti-Armor Systems in 2010**

| Country        | SP                                | MANPAT  | RCL/RL  |
|----------------|-----------------------------------|---|---|
| <b>Algeria</b> | 50 SU-100 SP (in store)<br>100 mm | Kornet-E, Metis-M1 being delivered<br>200+ Milan<br>Some AT-3 9K11 Sagger/<br>AT-4 9K111 Spigot/ AT-5<br>9K113 Spandrel | 160 ZIS-2 M-1943 57 mm<br>120 B-10 82 mm<br>80 D-44 85 mm<br>60 B-11 107 mm |
| <b>Morocco</b> | 80 M-901                          | 40 AT-3 9K11 Sagger<br>440 M47 Dragon<br>80 Milan<br>150 TOW  | 500 M-72 LAW 60 mm<br>200 M-20 89 mm<br>350 M-40A1 106 mm                   |
| <b>Libya</b>   | 40 9P122 BRDM-2 Sagger            | 620 AT-3 9K11 Sagger<br>1,940 AT-3 9K11 Sagger/<br>AT-4 9K111 Spigot/ AT-5<br>9K113 Spandrel<br>400 Milan               | 2,300 RPG-7 Knout 73 mm<br>400 Carl Gustav 84 mm<br>220 M-40A1 106 mm       |
| <b>Tunisia</b> | 35 M-901 ITV TOW                  | 500 Milan<br>55 TOW   | 300 LRAC 89 mm<br>300 M-20 89 mm  |

Note: ‘SP’ are self-propelled, ‘MANPAT’ are man-portable anti-tank and ‘RCL/RL’ are recoilless rifles and rocket launchers.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

## Artillery Weapons

**Figure 31** shows the overall mix of artillery weapons in each country. **Figure 32** shows North African self-propelled artillery holdings. As might be expected from armies that have fought few major wars of maneuver, countries in the North African balance have limited numbers of self-propelled artillery weapons – although the ratios differ and there are major differences in equipment quality. All of the North African armies retain relatively large numbers of towed weapons. Only Libya maintains large inventories of multiple rocket launchers (MRLs) for theoretical mass fires. However most of these holdings are antiquated Soviet systems and are difficult to maintain.

Morocco is well equipped with artillery. In 2010, it had 118 towed weapons. These included 30 L-118 and 20 M-101105-mm weapons, 18 M-46 130-mm weapons, 30 FH-70, 20 and M-114155-mm weapons. It had 199 self-propelled (SP) weapons: five Mk 61 105-mm howitzers, 90 AMX-F3 and 44 M-109A1/B 155-mm howitzers, and 60 203-mm M-110 howitzers. It also had 35 BM-21 multiple rocket launchers, and some 1,700 81-mm, 106-mm and 120-mm mortars. Roughly 570 of the mortars were 120-mm weapons, 20 of which were mounted on VAB armored vehicles. Morocco also had 32-36 106-mm self-propelled M-106A2s.

This artillery strength does not match Algeria's numbers, but it includes a large number of modern self-propelled weapons. Morocco seems to be able to operate most of its artillery weapons effectively as individual units, but has problems with combined arms, artillery maneuver, and beyond visual range targeting. In August, 2007, the Defense Security and Cooperation Agency notified the US Congress of a possible sale under the Foreign Military Sale (FMS) program of 60 M109A5 155-mm SP howitzers to augment its existing artillery force.<sup>56</sup>

The Algerian army had 375 major towed artillery weapons, including 160 D-30, 25 D-74, 100 M-1931/37 and 60 M-1938 122-mm weapons, 10 M-46 130-mm weapons, and 20 ML-20 M-1937 152-mm weapons. It also had 170 self-propelled (SP) artillery weapons, including 140 122-mm 2S1s and 30 2S3 152-mm weapons. Its multiple rocket launcher strength included 48 122-mm BM-21s, 48 140-mm BM-14 and BM-16s, 30 BM-24 240mm weapons, and 18 newer long-range Smerch 9A52s. It had 150 82-mm, 120 120-mm, and 60 160-mm mortars. This current artillery strength included far more self-propelled weapons than Algeria had in the mid-1980s, and the army has moderate capabilities for mass fire against static or area targets. It has little training in artillery maneuver, however, and poor capabilities for combined arms, counter-battery fire, switching fire, and beyond visual range targeting.

Libya's artillery strength included some 647 major towed artillery weapons, 444 self-propelled artillery weapons, and 830 multiple rocket launchers – many not operational. The towed weapons included 42 105-mm M-101s, 190 D-30 and 60 D-74 122-mm weapons, 330 130-mm M-46 weapons, and 25 M-1937 152-mm weapons. The self-propelled artillery included 130 2S1 122-mm weapons, 160 Palmaria and 14 M-109 155-mm weapons, and 60 2S3 and 80 DANA 152-mm weapons. Libya's large holdings of multiple rocket launchers included 300 Type 63 107-mm weapons; 200 BM-11, 230 BM-

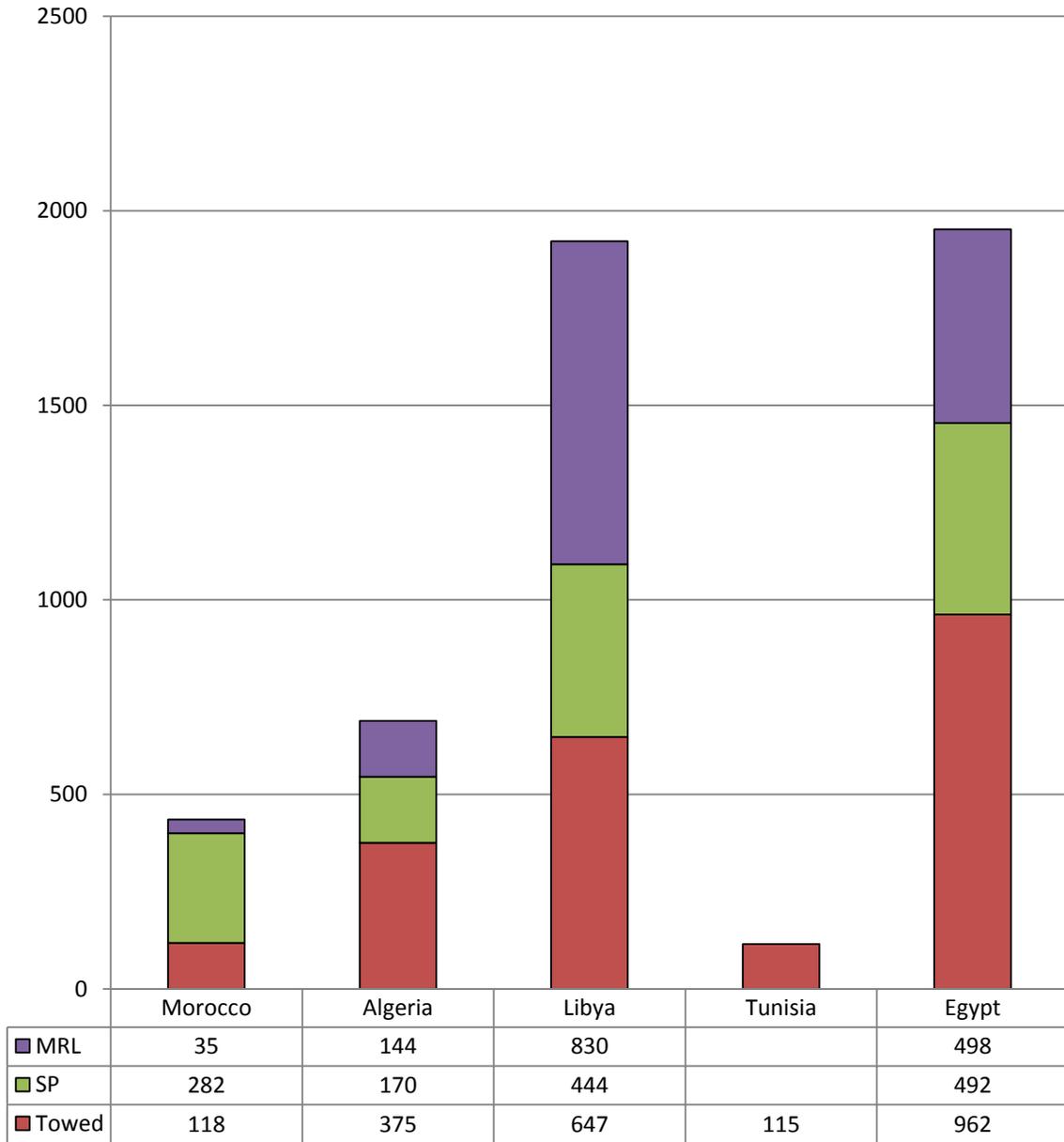
21 and 100 RM-70 122-mm weapons. Libya also had over 500 82-mm and 120-mm mortars, and some M-160 160-mm mortars.

Libya is the only country in the regional balance with a limited surface-to-surface missile capability and had some 45 FROG-7 surface-to-surface missile launchers in 2010. (Some reports indicate an additional 80 Scud Bs and 450-500 North Korean No Dong missiles, but are not confirmed.)

Libya's artillery strength is numerically impressive, but once again, much of it remains in storage or not operational. Libya had poor standardization in terms of weapon and ammunition types. It also lacks the training, organization, and sensors and C<sup>4</sup> (command, control, communications, and computers) equipment to conduct combined arms operations, maneuver effectively, switch fires rapidly, target beyond visual range, and conduct efficient counter-battery operations.

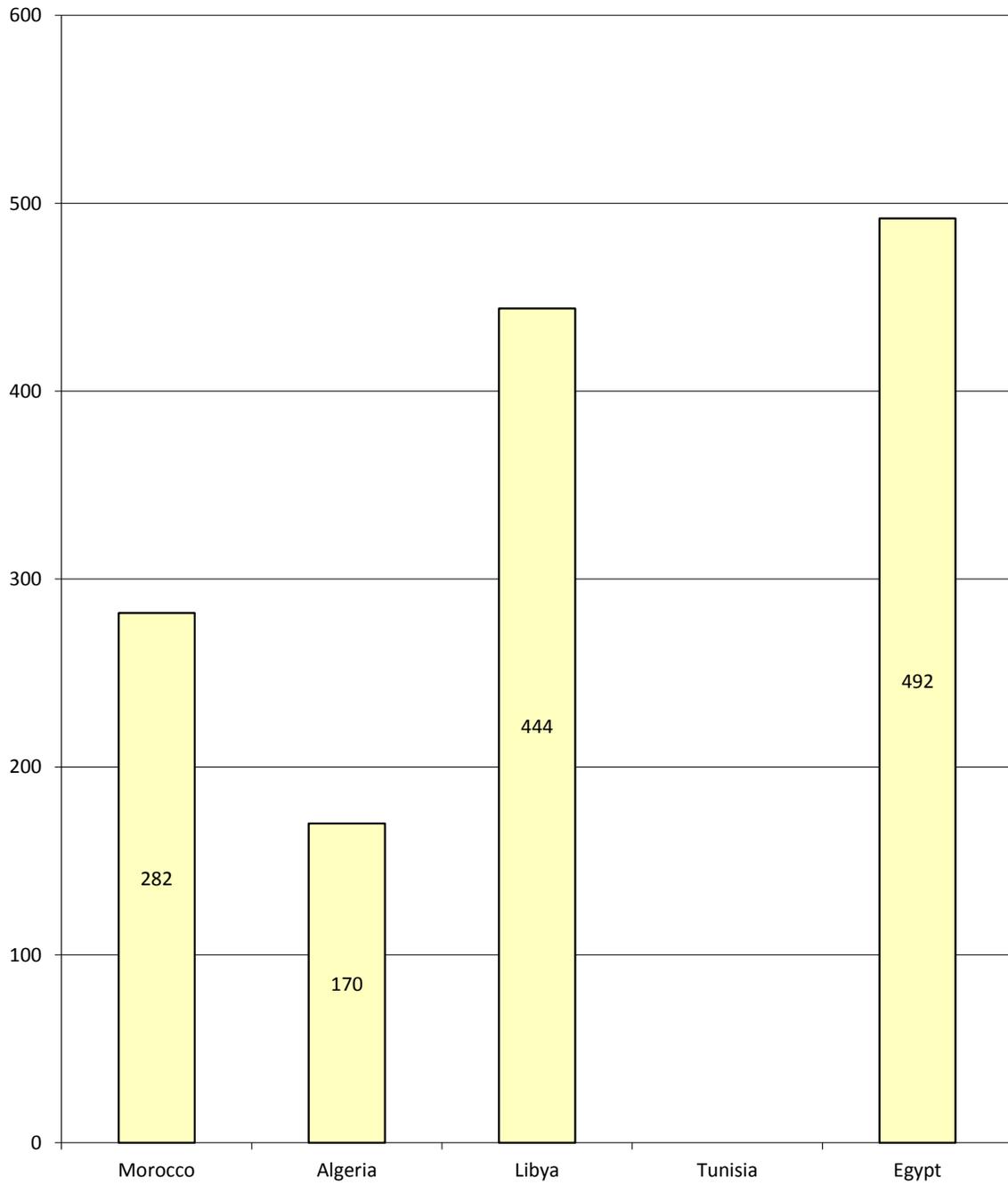
The Tunisian army has made improvements in its artillery strength in recent years, and most Tunisian artillery battalions now seem to have a full complement of weapons. Total artillery strength has risen from 80 artillery pieces in 1988, to about 115 weapons by 2010, but this strength is all in towed weapons that cannot maneuver with armor. Tunisia has 48 M-101A1/A2 105-mm towed weapons, 12 M-114A1 155-mm towed weapons, and 55 M-198 155-mm towed weapons. It also has 95 81-mm mortars and 66 107-mm and 120-mm mortars. It has been able to employ these weapons defensively in small batteries, but has limited maneuver, command and control, counter battery, and beyond visual range targeting capability.

**Figure 31: Total North African Artillery in 2010**



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

**Figure 32: North African Self-Propelled Artillery in 2010**



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

### *Comparative Surface-to-Surface Capabilities*

**Figure 33** shows regional surface-to-surface missile (SSM) holdings. Only Libya maintains limited short-range surface-to-surface capability and the procurement of new MRL, short range SSM and major SSM systems has not been a major procurement priority in the regional balance.

**Figure 33: North African Surface-to-Surface Missiles in 2010**

| Country | Med/Long Range SSM | Short Range SSMs       | MRLs  |
|---------|--------------------|------------------------|---|
| Algeria | None               | None                   | 48 BM-21 122 mm<br>48 BM-14/16 140 mm<br>30 BM-24 240 mm<br>18 9A52 Smerch 300 mm   |
| Morocco | None               | None                   | 35 BM-21 122 mm   |
| Libya   | None               | 45 FROG-7              | 300 Type-63 107 mm<br>200 BM-11 122 mm<br>230 BM-21 122 mm<br>100 RM-70 Dana 122 mm   |
| Tunisia | None               | None                   | None  |
| Egypt   | 9 Scud-B           | 9 FROG-7<br>24 Sakr-80 | 96 BM-11 122 mm<br>60 BM-21 122 mm<br>50 Sakr-10 122 mm<br>50 Sakr-18 122 mm<br>100 Sakr-36 122 mm<br>36 Kooryong 133 mm<br>32 BM-14 140 mm<br>26 MLRS 277 mm<br>48 BM-24 240 mm (in store) |

Note: Medium range SSMs have a range in excess of 70km and includes SRBMs and IRBMs.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors

### *Air Force Aircraft, Weapons, and Technology*

**Figure 34** shows total fixed wing combat aircraft and armed helicopters for the North African balance. **Figure 35** shows active strike aircraft in 2010. While the number of total combat aircraft is not irrelevant, in war-fighting terms, high quality air assets are the ones that really count. **Figure 36** shows the number of medium and high-quality aircraft in the region. **Figure 37** provides a rough picture of the airborne command and control (C2), reconnaissance, electronic warfare, and intelligence “enabling” aircraft in each force.

## Algeria

Algeria has improved the quality and longevity of an otherwise badly dated force of 197 combat capable aircraft with the recent purchase of 28 Su-30s and 59 MiG-29s. The latter designs date back to the 1980s while the former is a modern update of the Su-27. Other fighters and ground attack aircraft include 34 Su-24s, 18 MiG-23MF/MS/U, 38 MiG-23BNs and 12 MiG-25s.

The Su-30s, Su-24s and MiG-29s are the only aircraft with modern avionics, the capability to fight effectively in night, all-weather, and beyond-visual range air-to-air combat, or the ability to use air-to-ground ordnance with high effectiveness. Algeria's attack aircraft lack the avionics, sensors, all-weather navigation aids, and computers to take advantage of modern precision-guided weapons.

Algeria has two maritime reconnaissance squadrons with six Super King Air B-200Ts, but it is unclear that all these aircraft are operational. Algeria had a large numbers of training aircraft, some of which are part of its combat strength. They included 16 YAK-130s, 36 L-39Zs, 7 L-39Cs and 40 Z-142s.

It has a total of 33 Mi-24 attack helicopters, organized into four squadrons. Algeria's Mi-24s are Superhind Mk IIIs, armed with Denel Kentron Ingwe laser-riding anti-armor missiles with a range of over 5-kilometers. These helicopters also have Thales's programmable chaff and flare dispensers. Russia delivered six Mi-171 upgraded helicopters employing the Geofizika night-vision technology, with 36 more to follow.<sup>57</sup>

The Algerian air force has 114 transport helicopters, including eight AS-355 Ecureuil, 42 Mi-171s, and 64 Mi-17s in a support capacity. Algeria is also expected to receive six AW101 Merlins and four Super Lynx Series 300 over the 2009-2010 period. The helicopters will be unarmed and used primarily for SAR and maritime patrol operations.<sup>58</sup>

## Morocco

Morocco's forces included fighter ground-attack squadrons consisting of eight F-5As, two F-5Bs, 20 F-5Es, three F-5Fs, and 14 Mirage F-1EHs, plus one air defense squadron with 19 Mirage F-1CHs. The Moroccan air force is also now equipped with 24 F-16 Block 52 fighter aircraft, including 18 F-16Cs and six F-16Ds.

Morocco had relatively modern air munitions, including some AIM-9B/D/J Sidewinders, R-530s, R-550 Magic air-to-air missiles, as well as AGM-62B Walleye and AGM-65B Mavericks air-to-surface missiles for its F-5Es.

Its transport forces were relatively large and included 15 C-130H, six CN-235, two Do-28, and two Falcon 20, plus one Falcon 50, two Gulfstream, four King Air 100 and five Super King Air 200. Morocco is one of the few air forces with tanker and mid-air refueling assets; it has one B-707 and two KC-130H transport/tanker aircraft. Morocco makes extensive use of air transport and supply in its operations against the Polisario.

In addition, the air force is effective in using its reconnaissance aircraft, and its 4 OV-10 Broncos and CH-130s with SLAR have proven to be of considerable value in monitoring the defensive wall in the Western Sahara and locating and targeting Polisario movements with vehicles. It seems able to make effective use of its two C-130 and two Falcon 20 ELINT aircraft, and is one of the few regional air forces with such an electronic

intelligence capability. It acquired a Westinghouse air defense system in the early 1980s, and has moderately effective warning and combat air control capability.

Morocco had 19 SA-342 armed helicopters, seven armed with HOT anti-tank guided missiles and 12 armed with cannons. These armed helicopters do not have advanced sensors and avionics, but are adequate for day combat. Morocco also has eight CH-47 heavy transport helicopters, 24 medium transport helicopters, and 41 light helicopters. Helicopter mobility and readiness are good by regional standards.

### Libya

The Libyan air force has nine fighter squadrons, equipped with a total of 15 Mirage F-1ED/BDs, 45 MiG-21s, 75 MiG-23 Flogger Es and 94 MiG-25s. These air defense fighters had aging avionics with limited capability, but advanced air-to-air missiles like the AA-2 Atoll, AA-6 Acrid, AA-7 Apex, AA-8 Aphid, R-530, and R-550 Magic. Only the Mirage F-1s and some MiG-25s had more than very limited long-range intercept, and lookdown, shoot-down capabilities, and Libya has had major pilot training problems and has lost a number of aircraft to accidents.

Libya's air force includes some advanced aircraft types, but much of it is obsolete or ineffective. The Libyan Air Force still has one bomber regiment with six Tu-22 Blinders. The USSR transferred 12 long-range Tu-22 bombers in April 1979, and five to six may still be marginally operational.<sup>59</sup> These aircraft are obsolete medium altitude bombers that are very vulnerable to both air-to-air and surface-to-air missile defenses.

The only Libyan air force unit with advanced combat aircraft was a single Su-24 strike/attack squadron with only six aircraft. Although its avionics are now over a decade old, the Su-24D has a sophisticated radar-warning receiver, an improved electronic warfare suite, an improved terrain avoidance radar, satellite communications, an aerial refueling probe, and can deliver electro-optical, laser, and radar-guided bombs and missiles.

Libya's six additional fighter ground-attack units had a total of 40 MiG-23BNs, 14 Mirage F-1ADs and 53 Su20/-22s. Some sources indicate there also was still a COIN squadron with 30 J-1 Jastrebs in 2004-2005, but this cannot be verified. Libyan attack aircraft performed poorly in close air support and interdiction missions in Chad, and there are no reports that Libya has since developed effective training systems and facilities, or has practiced meaningful exercises in low altitude combat, air defense evasion, countermeasure penetration, or combined arms with the Libyan army. Libya did, however, have relatively modern AS-7, AS-9, and AS-11 Soviet air-to-surface missiles and some anti-radiation missiles. It had large stocks of unguided bombs, including napalm, and seems to have had some laser-guided bombs.

Libya has acquired a limited long-range refueling capability in order to ease many of the problems that it would face in conducting such strikes. While Libya did not get the modified IL-76 that it had originally sought from the USSR for refueling its Su-24s, it did acquire the technology that it needed to convert one of its C-130s into a tanker for airborne refueling from West German firms. Libya has experimentally refueled its Mirage F-1s, and was seeking a modifiable cargo jet so that it would be able to refuel at

higher speeds and without the maneuver problems inherent in trying to refuel a jet fighter from a propeller aircraft.

Libya has some 250 trainers including 115 L-39ZO Albatros, 15 MuG-23Us, 3 MiG-25Us, 4 Mirage 5DP30s, 3 Mirage F-1BDs, and some 150 SF-260WLs. Libya originally had 250 SF-260WLs and Italian firm Alenia Aermacchi was to overhaul 12 of the trainers by the end of 2008.<sup>60</sup> Despite a drive to improve training and training equipment, Libya seems to have had a serious shortage of even mediocre combat pilots, and may be dependent on Russian and other foreign officers and technicians for effective ground-controlled intercepts. It still does not seem to be able to conduct effective electronic warfare.

Libya has two reconnaissance squadrons with four Mirage-5DRs and seven MiG-25Rs. If the MiG-25R is similar to formerly Soviet versions, it has infrared, side-looking radar, and ESM capabilities. Libya also has some remotely piloted vehicles. This gives Libya a reasonable mix of basic reconnaissance capabilities, but it seems doubtful that it has organized to use them effectively.<sup>61</sup>

Libya had an attack helicopter squadron with 23 Mi-25s and 12 Mi-35s. Some of these helicopter forces seemed to have moderate training, but the helicopters were equipped with obsolescent avionics and with AT-2 Swatter air-to-ground missiles. Readiness was poor and some aircraft had been lost to accidents

Other air units included seven transport squadrons, transport helicopters, and training aircraft. The transport squadrons had 23 An-26, 15 CH-130s, two L-100-20s, three L-100-30s, 6 G-222s, 25 IL-76s, and 15 L-410s. There was a heavy transport helicopter squadron with 4 CH-47Cs, 46 Mi-2s, a medium transport squadron with 35 Mi-8s and Mi-17s, and a light unit with 11 SA-316s, and five AB-206s. The transport forces seemed to be the most effective element of the Libyan air force.

### **Tunisia**

The Tunisian air force has done a relatively good job of absorbing and operating its 12 F-5E/Fs in the fighter ground-attack role, and has gradually developed a limited capability for daytime air-to-air combat. It is unclear whether Tunisia still suffers from a shortage of trained F-5 pilots. It also had three MB-326s in the COIN role. Some of its three MB-326B and 12 L-59 training aircraft seem to have limited combat capability.

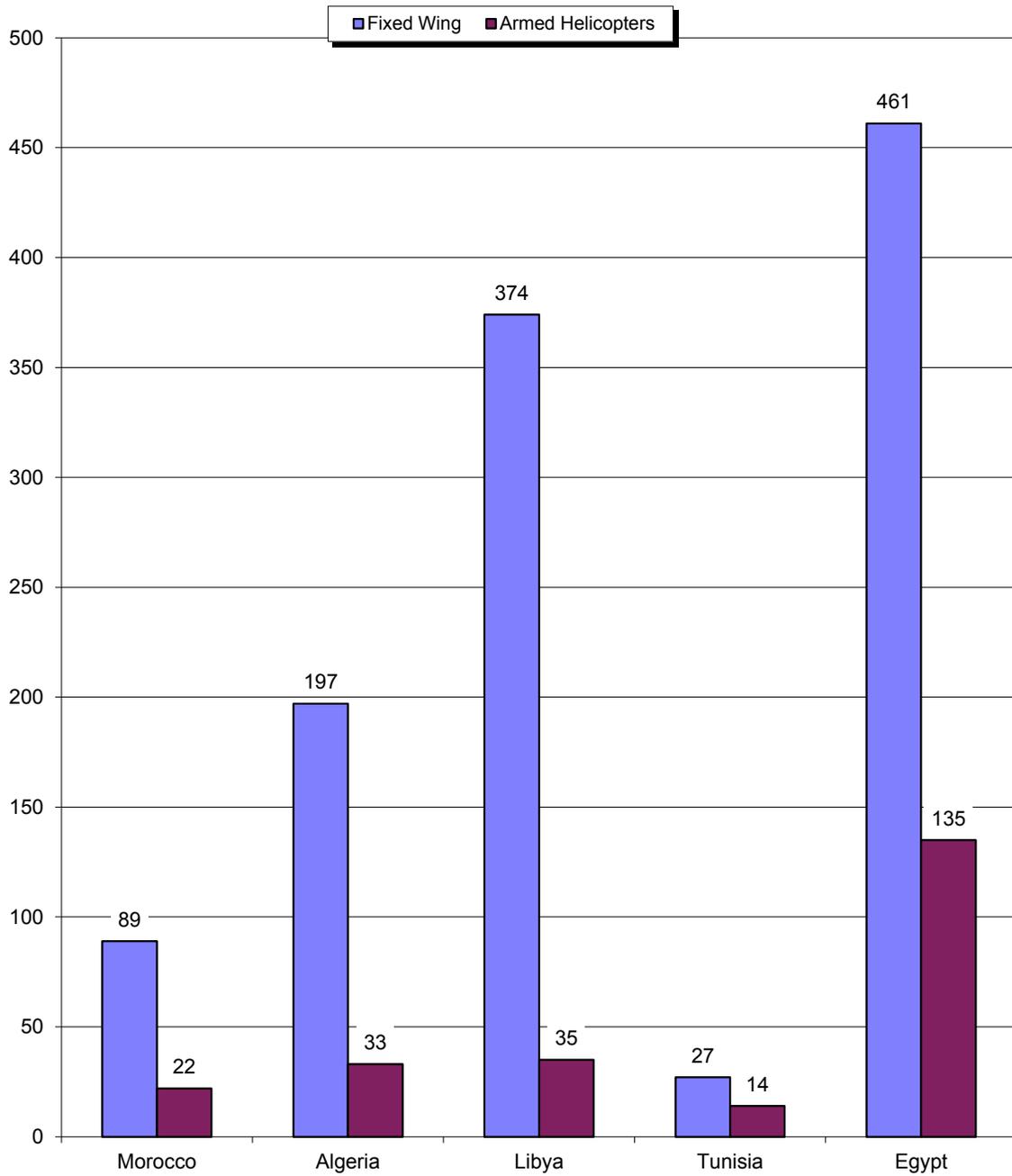
These aircraft are reasonably effective in attack missions against troops that are not equipped with modern manportable or short-range guided missiles -- a limitation that may present serious problems if the Tunisian Air Force must deal with regular Libyan or Syrian forces. None of its combat aircraft have advanced air defense or attack capabilities, however, and Tunisia needs 12-24 more modern combat aircraft during the next 2-5 years. Given potential threats, it needs a modern all-weather air defense fighter with beyond visual range air-to-air intercept capabilities.

The air force has two S-208M liaison aircraft, and a training wing with 14 combat capable SF-260s, four MB-326s, and 12 L-59s. It also has a wing with 42 helicopters, including six SA-313s, three SA-316s, 15 AB-205s, 12 UH-1s and six AS-350Bs. These helicopters give Tunisia's armed forces considerable tactical air mobility for a force of their size.

In broad terms, Tunisia has a primitive air control and warning system, and limited sensor coverage of Tunisian air space. It is not organized to fight at the air force level, as distinguished from the formation or squadron level. It has the same problems in terms of retaining and training good personnel as does the army, and is heavily reliant upon foreign contractors for logistics and maintenance. Some effort has been made to give the Tunisian air force a combined operations capability based on U.S. doctrine and training concepts, but success is evidently still very limited.

**Figure 34: North Africa: Total Fixed Combat Aircraft and Armed Helicopters in 2010**

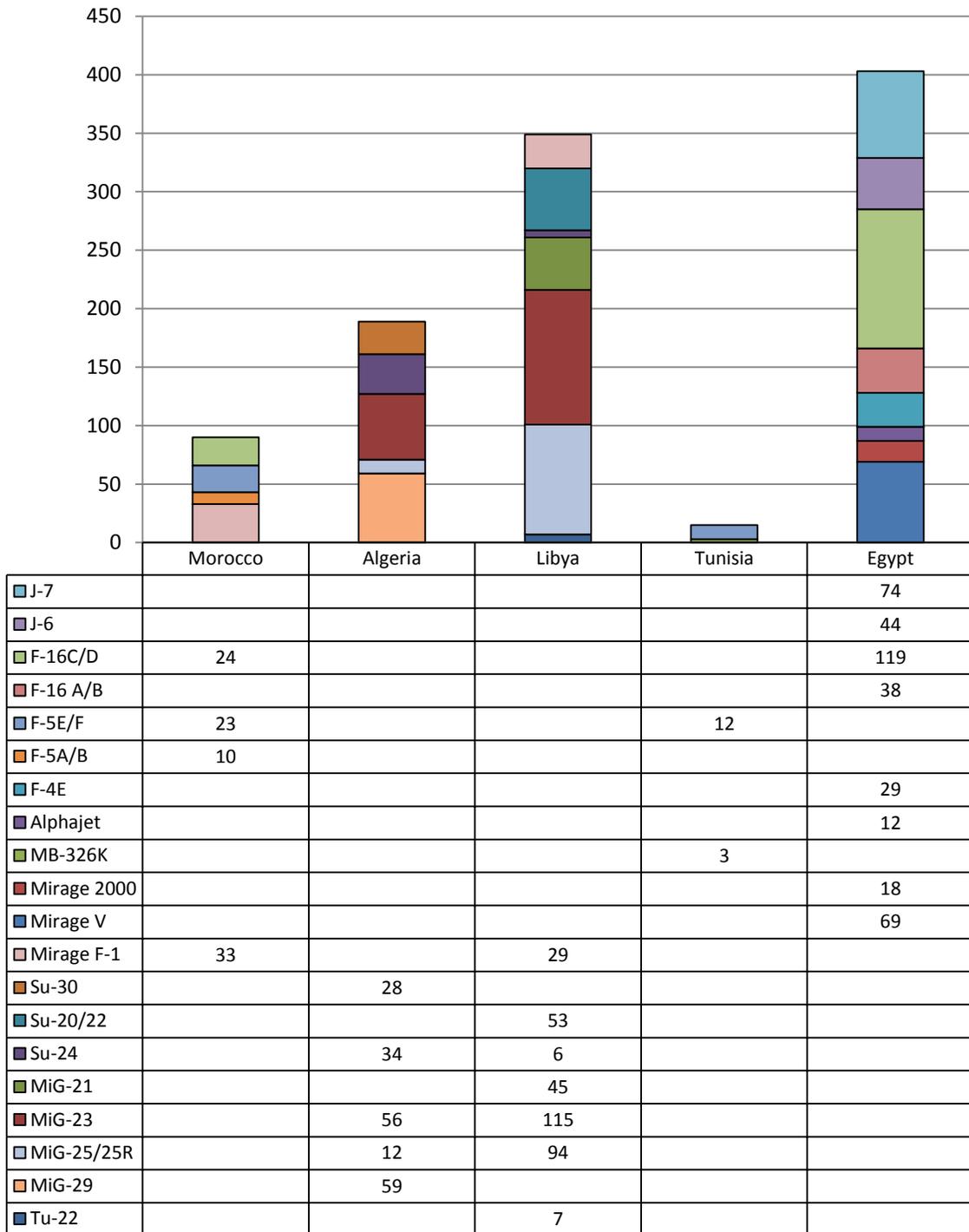
(Totals include all combat-capable, fixed-wing aircraft)



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

**Figure 35: North African Active Bomber, Fighter, FGA, and Strike Combat Aircraft by Type in 2010**

(Does not include stored, unarmed electronic warfare or combat-capable recce and trainer aircraft)

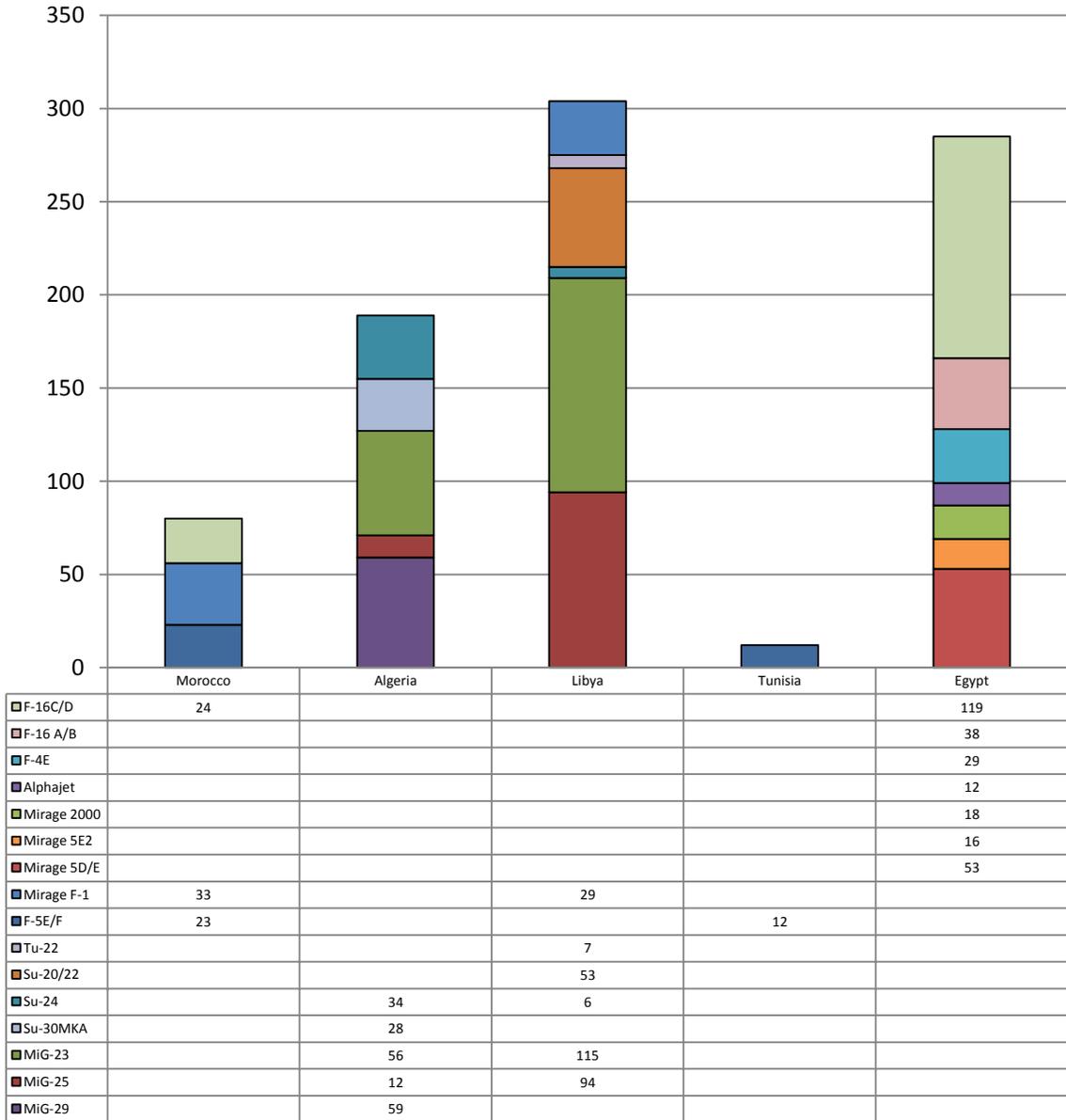


Note: Moroccan totals include 18 F-16C and 6 F-16D Block 52 aircraft on order.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

**Figure 36: North African Medium and High Quality Combat Aircraft by Type in 2010**

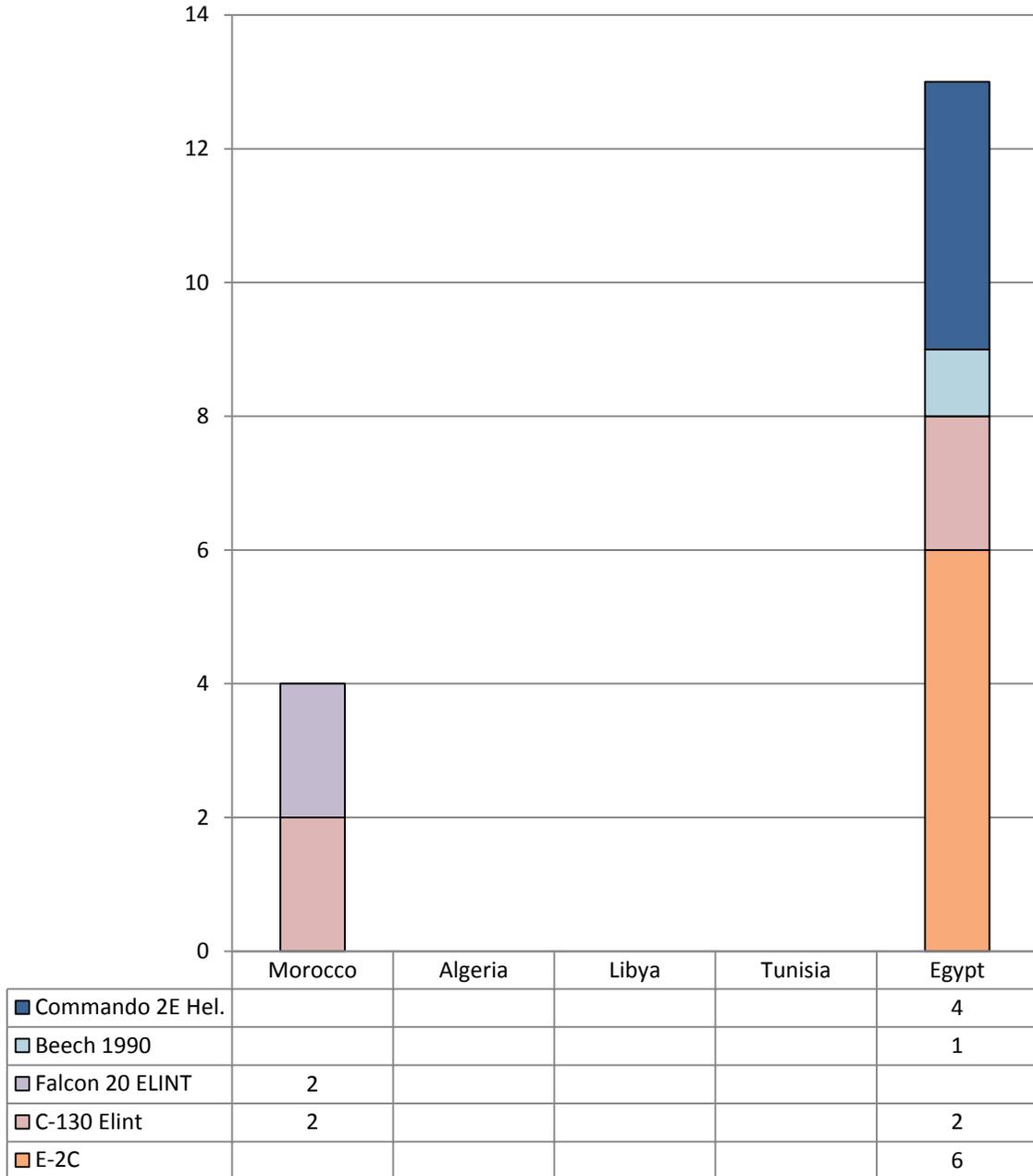
(Does not include stored, unarmed electronic warfare or combat-capable recce and trainer aircraft)



Note: Moroccan totals include 18 F-16C and 6 F-16D Block 52 aircraft on order.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

**Figure 37: North African Active AEW, ELINT and EW Aircraft by Type in 2010**  
 (Does not include recce or dedicated maritime reconnaissance aircraft)



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

## ***Comparative Land-Based Air Defense Forces***

**Figure 38** shows the strength of each country's land-based air defenses. Some countries integrate their major air defenses into their air forces, and some have a dedicated air defense force. Most countries also deploy a separate mix of short-range air defenses (SHORADs) in their land forces. Egypt is shown for illustrative comparison.

### **Algeria**

Algeria's surface-to-air missile forces are organized into three surface-to-air missile regiments. In 2008, there were an estimated 140-180 SA-2, SA-3, and SA-6 launchers, including some 30-35 SA-8s. It had three brigades of air defense artillery units with 725 unguided 85-mm, 100-mm, and 130-mm weapons.

Algeria has purchased eight batteries of the very capable S-300PMU-2 heavy air defense system, as well as 24 Almaz-Antei 2S6M Tunguska 30-mm/SA-19 SP short-range air defense platforms.<sup>62</sup> It is not clear whether deliveries have commenced, and it will take some time before these new systems are integrated into the Algerian air defense framework, and properly manned with adequately trained personnel.

The Algerian air defense C<sup>4</sup>I, air defense and warning system, and radar sensor net's obsolescence and the absence of modern battle management and electronic warfare capability will further hamper the integration and use of new systems. Algeria also suffers from limited and obsolescent C<sup>3</sup>I/BM capability as well as serious problems in the quality and modernization of its air control and warning capability. Its SA-2, SA-3, SA-6, and SA-8 units and air defense brigades, have low readiness and operational capability, and poor aircraft and munitions operability and technology.

### **Morocco**

Morocco is one of the few major military forces in the MENA region without a major land-based air defense component. Morocco has no medium and heavy surface-to-air missile units and does not have the radars and battlement management systems to support them. However, it has upgraded its existing Northrop Grumman tactical radar system (TPS-63) with solid-state transmitters and digital signal processors (AN/TPS-63). This upgrade increased detection range by 250 percent and improved reliability, maintainability and supportability. It has reasonably good warning and air control capability, but no airborne air control and warning assets and only limited surveillance and electronic warfare capabilities.

### **Libya**

While Libya has a large mix of land-based light, medium and major SAM systems, they remained badly dated and are largely obsolete or obsolescent. They are, however, among the largest such defenses in the Middle East. In 2010, Libya's air defense forces included four SA-5 brigades, each with two battalions of six launchers (48 total), four air defense gun batteries, and a radar company. According to some reports, these SA-5 units may once have been manned by some Russian personnel.

There were five regional surface-to-air missile commands, each with five to six brigades with 18 SA-2 launchers each (160-180 launchers total); two to three brigades with 12 SA-

3 launchers each (100 to 110 launchers total); and three brigades with 20-24 SA-6s (130-150 launchers) and some SA-8s each. These missile units were loosely integrated by Libya's Senezh air defense and command system. Both the SAM units and command system of the Air Defense Command were heavily dependent on expatriate support personnel, who sometimes seem to act as operators. Overall capability is low, except for those forces with direct foreign "supervision."

If British reports are correct, Libya still uses a modification of the same kind of Central Command Center and regional Sector Operations Centers that the Former Soviet Union set up in Algeria, Syria, Iraq, and many other countries dependent on FSU arms and aid. The Libyan system, however, was upgraded more than Algeria's before the breakup of the Soviet Union. Soviet high capacity communications systems have been installed, and extensive use is made of buried landlines to reduce the electronic and physical vulnerability of the system. The Air Defense Command also seems to have been upgraded with relatively modern early warning radars, and electronic warfare equipment.

These problems led Libya to make the acquisition of new surface-to-air missiles a key priority once sanctions were suspended in April 1999. Libya sought a new air defense system from Russia based on the S-300PMU1 and S-300PMU2 air defense missiles and their supporting radars and C<sup>4</sup> systems. Price was still a major issue during the Russian-Libyan negotiations in 2000, however, and Libya evidently looked at Belarus and Ukrainian versions of the same system.<sup>63</sup> Russia renewed its efforts to provide Libya with new AD systems, in 2006-2008, offering the Tor-M2E (SA-15 Gauntlet) short range AD system in addition to the S-300PMU2 major SAM, the S125 Pechora (SA-3 Goa) and the Osa-AKM (SA-8 Gecko). A deal had not been reached by mid-2008; however, Russia cancelled Libya's \$4.5 billion debt in exchange for military, energy and construction contracts.<sup>64</sup>

While acquiring new major SAM and other AD systems is a major priority, the obsolescence of Libya's aging Soviet-supplied surface-to-air missiles is scarcely its only problem. Operator training and proficiency remains low. The system is over-centralized and has relatively slow data processing and limited automated analysis capability. Ergonomics and data interfaces are poor and the system is vulnerable to electronic warfare and anti-radiation missiles. Overall alert rates are poor to mediocre, and Libyan operators have not fully adapted to the use of Soviet automated systems. It is also unlikely that Libya's electronic warfare assets give it much protection against the level of jamming and countermeasure technology that the U.S. deployed in Operation Desert Storm, Desert Fox and Operation Iraqi Freedom.

### **Tunisia**

Tunisia maintains the most limited pool of land-based AD systems in the regional balance. Tunisia has no major SAMs, its light SAMs are aging or antiquated and its mix of AD guns are unproven and obsolescent. The air defense weapons of the Tunisian army include 60 aging RBS-70 and 26 M-48 Chaparral surface-to-air missile fire units. Tunisia also has 100 M-55 20-mm, 15 M-1939/Type 55/-65 37-mm AA guns and 12 SP M-42 40-mm guns. These weapons are capable of providing limited low altitude point defense. Tunisia has no heavy surface-to-air missile systems in either the army or the air force.

Figure 38: North African Land-Based Air Defense Systems in 2010

| Country        | Major SAMs   | Light SAMs  | AA Guns  |
|----------------|--|---|--|
| <b>Algeria</b> | <i>140+ launchers<br/>3 regt/140 SA-2/ SA-3/<br/>SA-6/ SA-8 SP</i>   | 2,242+<br>50 MIM-92A Avenger SP<br>26 M-54 Chaparral SP<br>Some FIM-92A Stinger<br>20 SA-9<br>2,000 Ayn al-Saqr/SA-7<br><i>36+ Amoun w/RIM-7F Sea Sparroq quad SAM</i><br><i>36+ Skyguard/twin 35 mm</i><br>24+ Crotale<br>50+ M-48 Chaparral | 1600+ guns<br>225 ZSU-23-4 SP<br>60 ZPU-2 14.5 mm<br>40 ZPU-4 14.5 mm<br>100 ZPU-2/4 20 mm<br>100 ZU-23 23 mm<br>100 M-1939 37 mm<br>70 S-60 57 mm<br>20 M-1939 KS-12 85 mm<br>150 KS-19 100 mm<br>10 KS-30 130 mm<br><i>725 85 mm/ 100 mm/<br/>130 mm</i>   |
| <b>Morocco</b> | None   | 119<br>12 2K22 Tunguska<br>SPAAGM<br>37 M-48 Chaparral<br>70 SA-7 Grail   | 407+ guns<br>150-180 ZPU-2 14.5 mm<br>20 SZPU-4 14.5 mm<br>40 M-167 Vulcan 20 mm<br>75-90 ZU-23-2 23 mm<br>17 KS-19 100 mm   |
| <b>Libya</b>   | <i>216+ launchers<br/>5-6 bde/18 SA-2 (144)<br/>3 bde/12 SA-3 (36)<br/>4 bde/SA-5<br/>3 bde/14-20 SA-6 (42-60)<br/>72 SA-6/SA-8 SP</i> | 424+<br>24 Crotale<br>400 SA-7 Grail<br>SA-13 Gopher<br>SA-9 Gaskin   | 490 guns<br>100 ZPU-2 14.5 mm<br>250 SZU-23-4 23 mm<br>M-53/59 30 mm<br>50 L/70 40 mm<br>90 S-60 57 mm   |
| <b>Tunisia</b> | None   | 66<br>26 M-48 Chaparral<br>60 RBS-70  | 127 guns<br>100 M-55 20 mm<br>15 Type-55/65 37 mm<br>12 M-42 40 mm   |
| <b>Egypt</b>   | <i>702+ launchers<br/>282 SA-2<br/>212 SA-3A<br/>56+ SA-6<br/>78+ MIM-23B I Hawk</i>   | 2,242+<br>50 MIM-92A Avenger SP<br>26 M-54 Chaparral SP<br>Some FIM-92A Stinger<br>20 SA-9<br>2,000 Ayn al-Saqr/SA-7<br><i>36+ Amoun w/RIM-7F Sea Sparroq quad SAM</i><br><i>36+ Skyguard/twin 35 mm</i><br>24+ Crotale<br>50+ M-48 Chaparral | 2270+ guns<br>300 ZPU-4 14.5 mm<br>200 ZU-23-2 23 mm<br>45 Sina-23 SP 23 mm<br>120 ZSU-23-4 SP 23 mm<br>40 ZSU-57-2 57 mm<br>Some S-60 57 mm<br><i>36+ Sinai-23 Ayn al-Saqr/ Dassault 6SD-20S land/ SP 23 mm</i><br><i>230 ZSU-23-4 23 mm</i><br><i>600 S-60 57 mm</i><br><i>400 M-1939 KS-12 85 mm</i><br><i>300 KS-19 100 mm</i> |

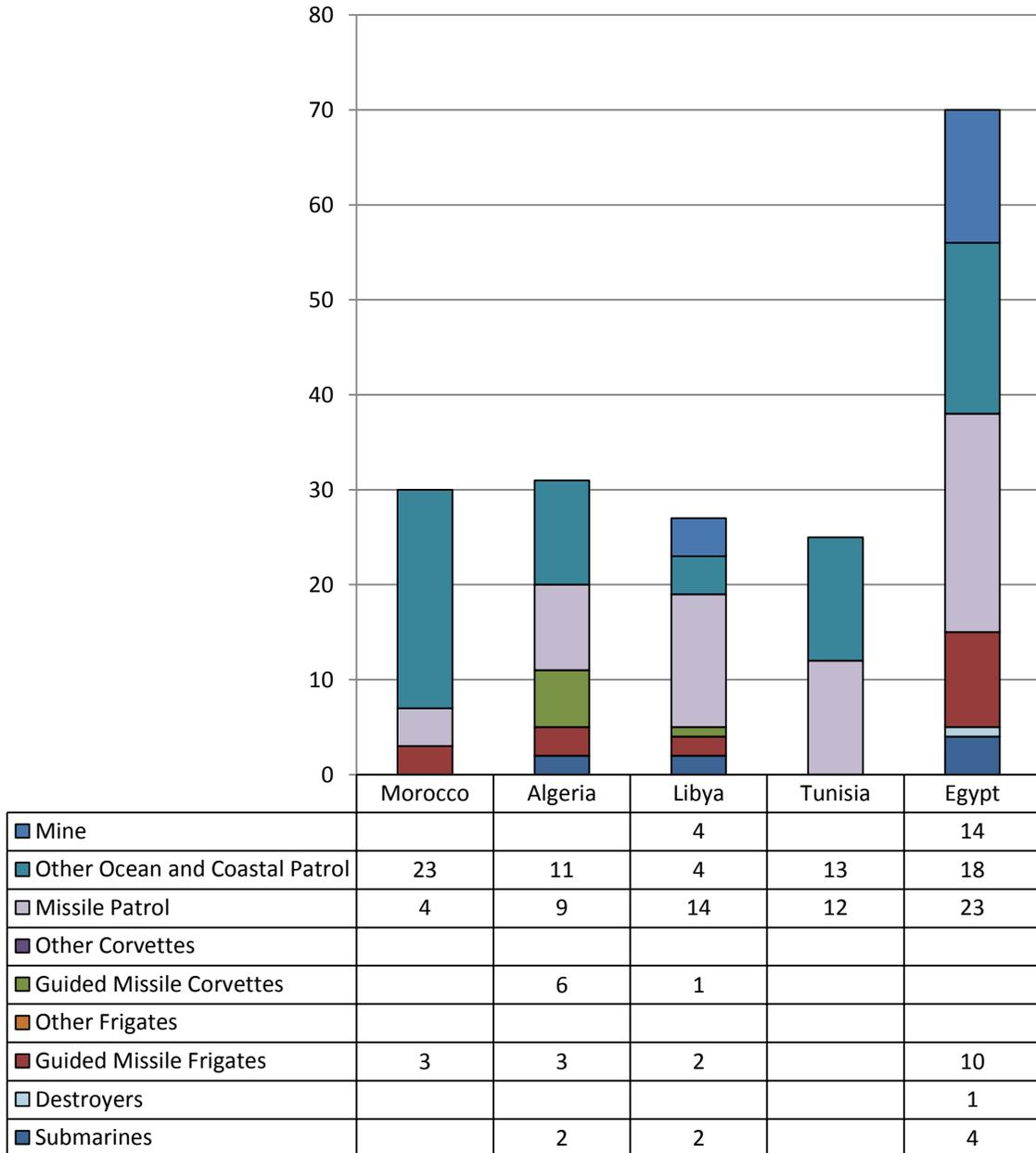
Note: Figures in italics are systems operated by the Air Force or Air Defense commands. "Bty" are batteries. "Bde" are brigades. "Regt" are regiments.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the author.

### Comparative Naval Strength

Figure 39 compares the major combat ship strength. These naval forces play a significant role in shaping the broader balance of naval forces in the Mediterranean and Morocco plays a role in the Atlantic as well.

Figure 39 North African Major Active Combat Ships in 2010



Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance* and *Jane's Fighting Ships* various editions. Some data adjusted or estimated by the author.

## Algeria

In 2010 the Algerian navy continued to operate two 2,325-ton Kilo-class (type 877E) submarines equipped with six 533mm torpedo tubes, long-range torpedoes with active/passive homing, and pattern active/passive homing torpedoes and mines. These submarines, originally refitted in 1995 and 1996, are active, but still seem to have little operational training. The purpose and mission of Algeria's submarine force is unclear.

The Algerian navy's major surface ships are more capable. The navy has three Mourad Rais class, 1,900-ton ASW frigates (ex-Soviet Koni-class), armed with four 76-mm and twin launcher SA-N-4 Gecko surface-to-air missiles (with a maximum range of 15 kilometers or eight nautical miles and speed of Mach 0.9). There are also 2 RBU 6000 Smerch 2 ASW rocket launchers, mine rails, and depth charges. The ships date back to the early and mid-1980s. The ships have relatively modern air/surface radars and fire control systems, but they only have decoys and chaff launchers as countermeasures and do not have torpedo tubes. They are all active, but one ship is used for training purposes.

There are three 660-ton Rais Hamidou class missile corvettes (ex- Soviet Nanuchka-class) armed with SS-N-2Cs (active radar or IR homing to 46 kilometers or 25 nautical miles) ship-to-ship missiles (SSMs), twin launcher SA-N-4 surface-to-air missiles, and two 57-mm guns. They were delivered as new ships during 1980-1982. One completed a refit in 1998-2000, and a second is scheduled to be refitted, but no date has been announced.

There are two 540-ton Chinese-designed Type 802 or Djebel Chenona-class coastal patrol corvettes each armed with one 76-mm gun and two twin CSS-N-8 Saccade tactical SSMs. They lack effective fire control systems but do have a surface search radar. The ships were delivered in 1985 and 1990, and the second ship ran into financing problems and is not fitted with a main gun. Neither seems fully combat operational.

The navy also has nine Osa II 210-245-ton missile fast attack craft, plus three non-operational 210-ton Osa-I class attack craft. They are each armed with four SS-N-2B anti-ship missiles with infrared and radar homing. The SS-N-2B is an aging system vulnerable to countermeasures, but has a maximum speed of Mach 0.9 and range of 80 kilometers (43 nautical miles) with semi-active radar or IR homing. These ships are rarely seen at sea, and it is unclear whether more than 6 Osa II-class craft and their weapons systems are fully operational. They were delivered in the late 1970s and early 1980s, and need refitting and re-engining.

Algeria has at least 11 active 200-ton Kebir-Class (Brooke Marine) patrol boats with one 76-mm gun each, plus two twin 25-mm guns and two twin 14.5-mm guns, and the navy has ordered 15 – although financing problems have delayed construction and delivery of the additional ships. Six have been transferred to the Coast Guard. These boats have surface search radars, but do not have modern countermeasures or serious aid defense capabilities.

The Navy's amphibious strength is large enough to give Algeria a potential capability to conduct landings against Morocco or Libya. It includes two British-made 2,450-ton LSTs (capacity 240 troops, seven tanks, one helicopter) and one 834-ton Polnochny B-class LSM (capacity 180 troops, six tanks).

The Navy operates one survey ship, two support ships, a number of tugs, 15 fishery and coastal protection craft, and six Beechcraft Super Knight 200T aircraft with weather radars. These aircraft are only capable of visual reconnaissance. The 500-man coast guard is under navy command. It has 29 small ships and two more are under construction.

The Algerian Navy has reasonable ship strength, and a number of modern combat surface ships that have considerable anti-ship missile capability be regional standard and may have or be acquiring SS-N-25 missiles. Its air defenses and countermeasure capabilities are more limited, however, and a number of its ships are old and poorly equipped in terms of their sensors and weaponry. It has poor operational performance, overall readiness, training, and equipment quality.

### **Morocco**

The Moroccan Navy has two French-made Mohammed V-class frigates (French Floreal-class): The Mohammed V and Hassan II, commissioned in 2002 and 2003. Each has four Exocet ship-to-ship missiles, two Matra Simbad surface-to-air missile launchers, a 76mm gun, 2X3 Mk 46 torpedoes, and two 375mm anti-ship marine mortars. They also have electronic support measures, and have chaff and IR flare launchers. They have relatively modern Thompson air/surface search radars and can carry one Panther helicopter. Their ASW sonar capabilities were unclear.

The navy also has one 1,480-ton modified Descubierta-class guided-missile frigate, named the Lt. Colonel Errhamani, commissioned in 1983, and refitted in Spain in 1996. The ship has with 4 MM38 Exocet launchers (sea-skimming missiles with semi active radar guidance, a range of 42 kilometers, and a 165 kilogram warhead), an octuple Aspide launcher (semi-active radar homing to 13 kilometers at Mach 2.5), one 76-mm gun, six 324-mm torpedo tubes, and anti-submarine mortars. The navy rarely loaded Exocets, or exercised missile firings, on its guided-missile frigate, and its air search radar was removed in 1998. The ability to fight the ship effectively in combat against a force equipped with modern sensors and countermeasures is uncertain, as is its ability to operate effectively with other ships in fleet operations.

The navy has four Lazaga-class 425-ton fast attack craft – all of which were equipped with four M-38 Exocets and one 76-mm gun. The missile ships are generally better-manned and equipped than Morocco's other vessels. Individual officer training for these ships ranged from adequate to good, and crew training ranged from mediocre to adequate. These ships dated back to the early 1980s. One had its 76-mm gun removed in 1998.

Morocco has six 425-ton Cormoran-class large patrol craft with 40-mm and 20-mm guns. The navy also has five 580-tons Rais Bargach-class patrol craft commissioned in the mid-to-late 1990s. These are French-made craft with 20-mm and 40-mm guns and surface search radars. It had four 475-ton El Hahiq (Osprey 55-class) large patrol craft with one 40-mm and two 20-mm guns each. These were equipped with surface search radars, and were commissioned in the late 1980s and 1990. Two of them were assigned to the Customs Service.

It has two Okba-class 445-ton large patrol craft with one 76-mm gun each, and with surface search radars. The navy also has six 100-ton El Wacil-class coastal/inshore patrol

craft with 20-mm guns and surface search radars. The training and crew proficiency of these ships was suitable largely for commercial patrol purposes.

The navy has one Newport-class Landing Ship Tank (LST), displacing 8,450 tons fully loaded, and with the capacity to carry 400 troops 500 tons of vehicles, 3 LCVPs and 1 LCPL. The ship has experienced repeated maintenance and operating problems. The navy also has three 1,409-ton Batral-class landing ship (tank) or LSTs, which could carry 140 troops and 12 vehicles or 300 tons of cargo, and one Edic-class 670-ton landing craft (tank) which could carry up to 11 vehicles. Support craft include two small 1,500-ton transports and one Ro-Ro Ferry converted to be a troop transport ship.

The Customs and Coast guard have four P-32 coastal patrol craft, 18 Arcor-class coastal patrol craft, 7 Sar craft, and 15 Arcor 53-class inshore patrol craft.

### Libya

The Libyan Navy's main combat forces consist of two aging Foxtrot-class fleet submarines (six were delivered, but all seem to be non-operational), two guided missile frigates, one missile corvette, 14 missile patrol craft (a number in semi non-operational reserve), four coastal patrol craft for constabulary duties and four ocean minesweepers. Libya also had five landing ships (two in reserve), three LCTs, one training ship, one support ship, one diving ship, ten transport ships, one salvage ship, two floating docks, and seven coastal tugs.

Libya has done a poor job of creating operational naval forces. Libya once had six 1,950-ton ex-Soviet Foxtrot-class submarines that were delivered between 1976 and 1982. These were export versions of the submarine from a reactivated production line and were obsolescent when delivered. They were armed with ten 533-mm torpedo tubes and had Soviet Type 53 active/passive and SEAT-60 passive homing torpedoes (15-kilometer range) homing torpedoes. They were only fully operational as long as the crews were FSU trained and supported, and the ships were maintained by the FSU. This does not seem to have been the case since 1984, and there have been no regular undersea patrols since that time. One submarine sank in 1993. It was raised, but was not returned to service. Libya was seeking to overhaul and modernize its remaining submarines when UN sanctions were imposed, but its remaining ships are now so obsolete that there is little point in such modernization. Only two of its submarines are now operational, and only one – the Al Khybedr – makes occasional surface patrols. According to *Jane's*, Russia might supply Libya with two Kilo-class diesel-electric submarines to compensate for Libya's obsolescent Foxtrots, but in mid-2008 Russia and Libya were yet to solidify an arms deal that could approach \$2.2 billion.<sup>65</sup>

Libya retains two missile frigates: 1,900-ton ex-Soviet Koni-class vessels, delivered in 1986 and 1987. They each were armed with four SS-N-2C Styx missiles (83-kilometers range), four 76-mm guns, four twin 30-mm guns, SA-N-4 Gecko surface-to-air missile launchers, and four 406-mm torpedo tubes. They could fire Soviet Type 40 active/passive anti-submarine torpedoes. These two frigates lack some of the sensors and electronics of Soviet ships but are relatively modern. Both ships are active, but have not had any significant modernization since they were delivered in the late 1980s. Libya's capability to fully operate these two ships in combat is uncertain.

Libya has one to two 660-ton Soviet Nanuchka II-class corvette with four SS-N-2C missiles (83 kilometers range), SA-N-4 Gecko surface-to-air missile launchers, and two twin 57-mm guns. It originally had four. One was sunk by the US navy on March 24, 1986. Another, the *Tariq Ibn Ziyad* (formerly the *Ean Mara*), was severely damaged by the US navy on March 25, 1986, but was repaired in the FSU and returned to service. It and the *Ean Zara* – seem to be quasi-operational. Another, the *Ean Al Gzala* has not been at sea for four years and may have been stripped for parts.

Libya has twelve 311-ton Combattante IIG-class missile patrol boats (six of which seem to be operational), delivered in 1982-1983. Each has four single Otomat Mark I/II launchers (60-80 kilometers) and one 76-mm guns. Only some of these ships are crewed and operational. France and Libya began discussions in 2006 to upgrade as many as nine of the navy's Combattante IIGs. Libya's missile patrol craft also include four 245-ton OSA-II class boats, delivered during 1976-1980, each with four SS-N-2C Styx anti-ship missile launchers (83 kilometers) and two twin 30mm guns. It is uncertain that their anti-ship missiles are fully operational. Libya also received 4 Croatian-built PV30-LS fast patrol boats for its coastguards. The navy will receive 10 ships, which will play an increasing role in Libya's effort to improve maritime patrol and border surveillance to intercept smugglers and people traffickers. IISS reported that 4 of the ships were already in service in 2008.<sup>66</sup>

The navy still has at least four 804-ton Soviet Natya-class ocean-going mine sweepers in inventory. These represent a moderate threat because they can lay mines with little warning, though Libya has already used commercial cargo ships to lay mines in the Red Sea, and this kind of asymmetric warfare does not require combat ships. They are used for coastal patrols and training, and have never been observed in minesweeping exercises.

The Libyan Navy has some four amphibious ships including three LCTs in inventory. These ships include two 2,800-ton PS-700 class landing ship-tanks (240 troops and eleven tanks each). Both have not been modernized since the late 1970s, but are operational. One, however, may have been transferred to commercial service. There are three Turkish-made 600-ton landing craft-tanks (100 troops and five tanks each.), but their operational status is doubtful. Libya has a number of training and support ships. They include one 500-ton training ship, one support ship, a salvage ship, a diving tender, seven tugs, and 10 2,412-ton transport ships. These latter transport ships are now in commercial service, and can be used to either move heavy equipment and troops or lay mines.

The navy has the support of two air force squadrons with a total of 32 armed helicopters, including 25 Mi-14 Haze ASW helicopters, and seven SA-321 Frelon and SA-341 Super Frelon ASW and SAR helicopters. They are worn and obsolete and most are not operational. They can carry AM-39 Exocets but do not seem to do so. The operational status of the Hazes is unclear. There were five SA-316B support helicopters assigned to support the police and customs, but none now seem to be operational.

In addition, the navy had at least one shore battery with SS-C-3 Styx missiles, and possibly additional batteries with Otomat and SS-N-2D missiles (95-kilometers). Libya also has some kind of coastal radar and surveillance system, and may be using part of its popular militia in a coast watch mission.<sup>67</sup>

## Tunisia

In 2010, the holdings of the Tunisian Navy included 12 missile fast attack craft, three regular fast attack craft, 10 inshore patrol craft, and six training/support/survey ships. Two more regular fast attack craft were on order, and a number of its patrol craft were not truly operational or were laid-up.

The navy has three Combattante III-class 425-ton missile guided fast attack craft, each with two quad MM-40 Exocet anti-ship missile launchers. The Exocet missiles have active radar homing and a maximum range of 70-kilometers (40-miles). They also have one 76mm gun, and two twin 40-mm Breda guns. There is an air/surface search radar, but there are no surface-to-air missile launchers. These ships were all delivered in the mid-1980s and need modernization and refits. Tunisia also has three Bizerte-class 250-ton missile patrol craft with eight Aerospatiale SS12M and four 37mm guns. The SS-12M is a very short-range missile (5.5 kilometers or 3 nautical miles) with a small warhead. These Bizerte-class ships are all operational, but are badly in need of refits.

Other combat ships include 6 Albatros (Type 143B) missile fast attack crafts with two OTO Melara 76-mm/62 guns and two 533-mm torpedo tubes. While the Albatros has launchers for MM38 Exocets, the missiles were not included in the sale of the vessels from Germany.

There are an additional three 120-ton Haizhui-class ex-PRC fast attack craft, each with four 25-mm guns. These ships were delivered in the mid-1990s, and are all operational. They include three 250-ton Bizerte-class large patrol craft with 20mm guns that date back to the late 1970s, but have had their guns updated and are operational.

The Navy has ten coastal patrol craft. These included four Istiklal-class 80-ton coastal patrol craft with twin 20-mm guns and surface search radars; and six 38-ton coastal patrol craft with 20mm guns. The remaining vessels include six Kondor-class 377-ton patrol craft with twin 25-mm guns, and five Bremse-class 42-ton patrol craft with twin 14.5-mm guns, operated by the Coast Guard, plus eleven 32-ton coastal patrol craft operated by customs, 4 Gabes-class 18-ton patrol boats, and six training/survey ships.

While Tunisia is capable of operating most of its individual ships, it does not seem to be organized for any kind of fleet or combined arms operations. The Tunisian Navy is adequate for patrol missions in local waters, but is not capable of engaging the navies of any of Tunisia's neighbors. It is not strong enough to survive an attack by the Libyan or Algerian navies. Overall logistic and maintenance capabilities seem to be limited. At the same time, Tunisia can probably count on European, US and/or Egyptian naval support in the event of any offensive attack by its neighbors – none of whom can risk confronting these naval powers.

## Paramilitary Forces and Internal Security

As the previous sections showed long term trends shape the patterns of military development in the Maghreb. One of the most important among these is local regimes reliance on paramilitary and regular security forces to ensure regime survival, often at the expense of improving accountability and institutional transparency. Another driver of the regional balance is Moroccan-Algerian “cold peace,” driven by regional competition and disputes over Western Sahara.

### *Regional Security Forces*

The strength of North African paramilitary and security forces as shown in **Figure 40** play a major role in internal security, safeguarding the power of ruling regimes and consolidating the regional status quo. There is little reliable detailed data on the operations of these government’s security forces. Some of the best unclassified reporting comes from the US State Department, and much of this reporting provides reliable insights into the operations of the security forces.

### **Algeria**

The development of Algerian paramilitary and security forces is explained largely by the fact that it faces far more serious internal threats than foreign ones. Beginning in 1992, Algeria actively fought a bitter civil war with horrible abuses and atrocities on both sides. During the war, the main function of its military and paramilitary forces was to fight this civil war and maintain the power of the regime. No quarter was given on either side and much of the government’s internal security forces, including virtually all of the 150,000-man Legitimate Self-Defense Force, are little more than an armed rabble. The Legitimate Self-Defense Force in 2008 remains a force of poorly-trained and ill-organized local militias that carried out massacres and bloody reprisals of their own during the war years.

The government’s formal paramilitary forces and security apparatus is composed of the army, air force, navy, and the national gendarmerie (the national police). The less formal elements include the communal guards (a local police), and local self-defense forces. The US State Department reports that all of these elements are involved in counterinsurgency and counter-terrorism operations and are under the control of the government. All have been responsible for numerous serious human rights abuses.

The best-organized paramilitary forces include the 1,200-man Republican Guard, which is a small elite security force with AML-60s and M-3s. They also include the Gendarmerie, which is a force of 20,000 men. This force is assigned to the Ministry of Defense and has 44 AML-60 and 110 M-3 armored vehicles, 100 Fahd armored personnel carriers, and Mi-2 helicopters. It is reasonably well-trained, organized along military lines, and has played a major role in the government's efforts to assert control over the FIS and in its armed clashes with Islamic fundamentalists. The 16,000-man National Security Forces have mediocre training and are equipped largely with small arms.

## Morocco

Morocco's paramilitary forces total roughly 50,000 men, most of which can act as land forces. These include 20,000 men in the Gendarmerie Royale, which is organized into a coast guard unit, a paratroop squadron, a paramilitary brigade with four mobile groups and one air squadron. The Gendarmerie has 18 patrol boats, two light aircraft, and 22 helicopters.

The Border Police, the National Security Police, and the Judicial Police are all departments of the Ministry of Interior, while the Royal Gendarmerie reports directly to the Palace. Its activities are focused primarily on Islamic extremists, student and labor unrest, and the Sahrawis in the Western Sahara.

Until recently, the Moroccan security apparatus has been repressive, and the security services have often acted as a power in their own right, as well as a key source of support for the monarchy. This rule by the security forces, or "makhzen," has been controlled by the Minister of the Interior, which commands several overlapping police and paramilitary organizations. The Ministry of the Interior has also exerted power through the fact that it determines eligibility for some aspects of welfare and free medical care, and supervises the state and public committees dealing with investment and businesses in Morocco's sixteen provinces.

The Ministry of the Interior has been responsible for the conduct of elections, cooperation with the United Nations in the referendum on the Western Sahara, the appointment and training of many local officials, the allocation of local and regional budgets, the oversight of university campuses, and the licensing of associations and political parties. The Ministry has also exerted substantial influence over the judicial system.

## Libya

Libya is better at internal repression than in dealing with foreign threats. Libya has a number of paramilitary forces and security services. They act as a means of controlling the power of the regular military and providing Qadhafi with security.

The data on such forces is uncertain and sources report very different details. There seems to be a 3,000-man Revolutionary Guard Corps (Liwa Harris Al-Jamahiriya) to guard Qadhafi with T-54/55/62 tanks, armored cars, APCs, multiple rocket launchers, and ZSU-23-4s and SA-8s, which are taken from the army inventory. There also seem to be up to 2,500 men in the Islamic Pan African Legion, which may have one armored, one infantry, and one paracommando brigade, although its total manpower strength could only man less than one brigade slice. The Islamic Pan African Legion has at least 75 T-54s and T-55s and some EE-9 MICVs. Roughly 700-1,000 men from the Islamic Pan African Legion were believed to be in the Sudan in 1988, but current deployments are unknown. There is also a People's Cavalry Force that acts largely as a parade unit, and a people's militia with a nominal strength of about 40,000 men.

As is the case with other North African states, there are comparatively little reliable data on the operations of the government's security forces. The best unclassified reporting comes from the US State Department, and much of this reporting provides reliable insights into the operations of the security forces. The US State Department reports that Libya maintains an extensive security apparatus, consisting of several elite military units,

including Qadhafi's personal bodyguards, local Revolutionary Committees, and People's Committees, as well as the "Purification" Committees, which were formed in 1996. The result is a multi-layered, pervasive surveillance system that monitors and controls the activities of individuals. In a twist of irony, Libya's internal paranoia might be the most effective means in dealing with what is increasingly looking like a common threat to Algeria, Morocco, Tunisia and Libya from transnational jihadist groups operating both regionally and internationally.

### **Tunisia**

Tunisia's paramilitary forces consist of a National Guard with 12,000 men. It has a naval element with some 30 patrol craft and an aerial element with eight SA-318 and SA-319 helicopters. The National Guard shares responsibility for internal security with the police. The police operate in the capital and a few other cities. In outlying areas, their duties are shared with, or ceded to, the National Guard. Both forces are under the control of the Minister of Interior and the President.

**Figure 40: North African Paramilitary Forces in 2010**

| Country        | Organization                      | Manpower   | Ground Units   | Air Units   | Naval Units   |
|----------------|-----------------------------------|--|--|---|---|
| <b>Algeria</b> | <b>Genrdarmerie</b>               | 20,000   | AML-60/110 M-3<br>Panhard<br>100 TH 390 Fahd                         | PZL Mi-2 Hoplite  | -   |
|                | <b>National Security Forces</b>   | 16,000   | -  | -   | -   |
|                | <b>Republican Guard</b>           | 1,200  | AML-60<br>M-3  | -   | -   |
|                | <b>Legitimate Defense Groups</b>  | 150,000  | -  | -   | -   |
| <b>Libya</b>   | <b>People's Militia</b>           | 40,000   | -  | -   | -   |
|                | <b>Revolutionary Guard Corps</b>  | 3,000  | T-54/55/62<br>Some APCs<br>Some ZSU-23-4 AD<br>guns<br>Some SA-8 SAM | -   | -   |
|                | <b>Islamic Pan African Legion</b> | 2,500  | 75 T-54/T-55<br>Some EE-9  | -   | -   |
| <b>Morocco</b> | <b>Gendarmerie Royale</b>         | 20,000   | -  | 2 Rallye 235<br>Guerrier (Trainer)<br>2 SA-360<br>Dauphin (SAR)<br>6 SA-342K<br>Gazelle<br>6 SA-330 Puma<br>3 SA-318B Lama<br>2 SA-316<br>Alouette III<br>3 SA-318<br>Alouette II | 18 patrol and<br>coastal combats                      |
|                | <b>Force Auxiliaire</b>           | 30,000<br>(Including<br>5,000 Mobile<br>Intervention<br>Corps) | -  | -   | 37 patrol and<br>coastal<br>combatants<br>7 SAR craft |
| <b>Tunisia</b> | <b>National Guard</b>             | 12,000   | -  | 8 SA-318<br>Alouette II/ SA-<br>319 Alouette III  | 30 Patrol and<br>coastal<br>combatants                |

Note: “-“ represents the absence of data, not zero holdings.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the author.

## *Internal Security and Counterterrorism Operations*

There are only limited sources describing the role of each country's internal security forces, although these have a higher real-world impact on national security than their conventional forces. Perhaps the best overview is provided in the annual country reporting on human rights provided by the US State Department. The report for 2009 (issued in 2010) provides the following highlights for each country:<sup>68</sup>

### **Algeria**

“There were no reports that the government or its agents committed arbitrary or unlawful killings.

Information on terrorism-related violence in the country was difficult to verify independently. The Ministry of the Interior (MOI) infrequently released information concerning the total number of terrorist, civilian, and security force deaths. During the year, security forces killed, injured, or arrested approximately 1,300 suspected terrorists. According to press reports of official estimates, the total number of deaths was 804. Suspected terrorists killed 66 civilians and 220 security force members; security forces killed an estimated 518 suspected terrorists. These numbers increased from the 321 deaths reported in 2008 (...).”

“Enforced disappearances, reportedly numbering in the thousands, were a significant problem during the 1990s and continued to be a topic covered in the media and raised by local and international nongovernmental organizations (NGOs). During a March 6 conference in Geneva, representatives of the government's human rights advisory office, the National Consultative Commission for the Promotion and Protection of Human Rights (CNCPPDH), stated that 8,023 persons were missing or disappeared as a result of government actions between 1992-99. The government had stated previously that approximately 10,000 additional persons were missing or disappeared from terrorist kidnappings and murders. NGOs reported that security forces had played a role in the disappearances of approximately 8,000 persons.

In 2007 the government signed the International Convention for the Protection of All Persons from Enforced Disappearances but had not ratified it by year's end. Law 06-01 of 2006 provides measures for compensating victims of disappearances. For courts to hear charges of disappearance, the law requires at least two eyewitnesses. Many of the disappearances in the 1990s were later attributed to the security forces; however, the government did not prosecute security force personnel, and there was no evidence that the government investigated cases it acknowledged security forces caused.

In 2005 voters approved by referendum President Bouteflika's proposed Charter for Peace and National Reconciliation, which ended the Ad Hoc Mechanism established in 2003 to account for the disappeared. The charter went into effect in 2006, granting amnesty to and preventing investigation into the conduct of the National Popular Army, the security forces, state-sponsored armed groups, and persons who fought on behalf of the government (...).”

“In a February 9 report, the UN Human Rights Council Working Group on Enforced or Involuntary Disappearances stated that in 2008 it transmitted 768 cases to the government, which were allegedly attributed to disappearances by government forces between 1992 and 1999. In May 2008 the UN Committee Against Torture (UNCAT) reported its concerns that Law 06-01 provides impunity for members of armed groups and state officials and that the government had not yet initiated proceedings to investigate the fate of the disappeared. UNCAT also expressed concern that the government had not publicized the criteria for compensating family members and required those compensated to waive their right to seek civil damages against the state.”

“The law prohibits such practices; however, NGO and local human rights activists reported that government officials sometimes employed them to obtain confessions. Government agents can face prison sentences of between 10 and 20 years for committing such acts, and some were tried and convicted in 2008. Nonetheless, impunity remained a problem.

Local human rights lawyers maintained that torture continued to occur in detention facilities, most often against those arrested on "security grounds."

In December 2008 a court in Blida sentenced three police officers to three years in prison for torture. In May 2008 a court in Blida placed four police officers, accused of torturing five suspects at the police station in Cheraga, under judicial control and ordered their temporary detention. The prosecutor in Blida originally asked for prison sentences of 12 years for each officer and sought a seven-year prison sentence for the police chief of the station. The court dropped the charge against the police chief and one of the four officers placed under judicial control. The victims said that following their arrest the officers used a Taser on them in order to extract confessions in a case involving a stolen car.”

“The national police force, consisting of more than 140,000 members, falls under the control of the MOI and has national jurisdiction. The National Gendarmerie, under the Ministry of Defense (MND), also performs police-like functions outside urban areas. Organizationally, the DRS reports to the MND and exercises internal security functions, but it also performs functions comparable to the police in terrorism cases. Police and gendarmes were generally effective at maintaining order. All members of the security forces are provided a copy of a code of conduct establishing regulations for conduct and sanctions for abuses.

Corruption existed, and the media focused especially on the customs police. According to press reports, 960 customs officials faced disciplinary commissions for official negligence or corruption charges between 2005 and 2008. Customs officials reported 215 disciplinary cases during the first quarter of 2008; 118 cases resulted in official reprimands, and nine cases resulted in suspensions.

Impunity remained a problem. The government did not provide disaggregated public information on the numbers, infractions, or punishments of police, military, or other security force personnel.

The criminal code provides mechanisms to investigate abuses. The MOJ and the MND cooperated with the ICRC in implementing seminars on incorporating international humanitarian law principles into legal practices and military training curricula.”

“According to the law, the police must obtain a summons from the Prosecutor's Office to require a suspect to appear in a police station for preliminary questioning. Summonses also are used to notify and require the accused and the victim to attend a court proceeding or hearing.

The government issues warrants under three different circumstances: to bring an individual from work or home to a court, to execute a prosecutor's approved request to place a person into custody pending trial, or to arrest a suspect considered to be a flight risk. Police may make arrests without a warrant if they witness an offense. Lawyers reported that procedures for warrants and summonses were usually carried out properly.

The constitution specifies that a suspect may be held in detention for up to 48 hours without charge. If more time is required for gathering additional evidence, the police may request that the prosecutor extend the suspect's detention to 72 hours. Those suspected of terrorism or subversion may be held legally for 12 days without charge or access to counsel. In practice the security forces generally adhered to the 48-hour limit in nonterrorism cases.”

“Military courts in Oran, Blida, Constantine, and Bechar try cases involving state security, espionage, and other security-related offenses involving military personnel and civilians. Each tribunal consists of three civilian judges and two military judges. Although the president of each court is a civilian, the chief judge is a military officer. Defense lawyers must be accredited by the military tribunal to appear. Public attendance at the trial is at the discretion of the tribunal. Appeals are made directly to the Supreme Court. Military tribunals try cases, but they only occasionally disclose information on proceedings. There was no public information available on any cases that were tried before the tribunals during the year.”

“The constitution provides for the right of assembly; however, the emergency decree and government practice continued to curtail this right. A 2000 decree banning demonstrations in Algiers remained in effect. Authorities required citizens and organizations to obtain permits from the government-appointed local governor before holding public meetings. The government frequently granted licenses to political parties, NGOs, and other groups to hold indoor rallies, although licenses were often granted on the eve of the event, thereby impeding publicity and outreach.”

### **Morocco**

“There were no reports that the government or its agents committed arbitrary or unlawful killings. Abderrezzak Kadiri died after a December 2008 pro-Palestine demonstration that turned violent at Cadi Ayyad University. Nongovernmental organization (NGO) reports alleged that Kadiri's death resulted from injuries sustained during violent confrontations with police and indicated that authorities did not notify Kadiri's family of his death until January 6. However, the authorities denied this account and reported that

an autopsy had determined his wounds were consistent with a criminal assault. Police issued a criminal arrest warrant, and the government reported that the case would not be investigated as a human rights violation unless a subsequent arrest or other information revealed that it should be. As of year's end, no suspects had been arrested.

As in previous years, there were reports of deaths of sub-Saharan migrants crossing the country's territory trying illegally to enter the Spanish enclave of Melilla (see section 2.c.). The NGO Amnesty International (AI) called on the government to open an investigation into the death of a migrant whom police reportedly fired on at the northern border of the country with Melilla on January 1. Arrests and beatings continued on the borders, principally on the Spanish side.”

“The law prohibits such practices, and the government denied that it used torture. However, numerous NGO reports and media articles alleged that members of security forces tortured and abused individuals in their custody, particularly during transport and pretrial detention.

The CCDH reported an overall decline in incidents of torture and other abuses during the year, and independent news media and human rights groups, including the Moroccan Association for Human Rights (AMDH) and the Moroccan Organization for Human Rights (OMDH), made fewer reports denouncing such abuses in internationally recognized Morocco than in past years. There was no such decline in reports from Western Sahara (see separate report). The penal code stipulates sentences of up to life imprisonment for public servants who use or allow the use of violence against others in the exercise of their official duties.

On August 24, authorities sentenced Sahrawi independence activists, Ennaama Asfari and Ali El-Rubia, to four months in prison and a two-month suspended sentence, respectively, for "contempt of public officials while in performance of their duty." According to NGO reports, police officers assaulted Asfari and Rubiou. Authorities charged the two after police reportedly saw Asfari in Tan Tan carrying a key ring with the pro-independence flag of the Western Sahara. Supporters of the defendants were not allowed access to the court, and others were arrested on their way to the hearing. Most of the activists were released without charge after six hours of detention. Four reported mistreatment including claims that authorities beat them and then threw them out of a moving police car on the road to Smara.

National police in Oujda, subsequent to the June 25 communal elections, intimidated some supporters and members of the Islamist-oriented Party of Justice and Development (PJD). In one case, PJD lawyers filed a complaint alleging that police beat a local leader, Noureddine Boubker, into a coma. The government reported that this was not the case and that Boubker was injured in a violent confrontation between several PJD activists and police. Boubker did not file charges, subsequently recovered, and the government reported the case closed.

In February 2008 the government arrested 35 individuals, including six political party officials, and charged them with being part of a terrorist network. The six political party officials were Mostapha Mouatassim, president of al-Badil al-Hadhari; Mohamed Amine

Regala, deputy chief of al-Badil al-Hadhari; Mohamed Merouani, president of al-Oumma party, a moderate Islamist party that had applied for but not received legal status; Al-Abadelah Maelainin, a member of the national council of the PJD; Hamid Nejibi, a member of the national council of the Unified Socialist Party (PSU); and Abdelhafidh Sriti, a journalist with al-Manar television, which belongs to the Lebanese Hezbollah movement. They claimed they made self-incriminating statements while in custody as a result of torture. According to their lawyers, authorities did not investigate their allegations. On July 28, all 35 were found guilty of forming a terrorist group, plotting attacks, and committing robberies and other crimes to finance their operations. The Sale court sentenced them to prison terms ranging from suspended sentences to life in prison. Many appealed the verdicts on the grounds that the court failed to hear the case in a timely manner and failed to refer their cases to a forensic expert as required by the country's 2006 law against torture. At year's end the appeals remained pending.

At year's end, 11 of 18 students who were sentenced to prison in relation to their involvement in demonstrations in May 2008 at Cadi Ayyad University remained in prison awaiting appeal hearings. The government continued to base its case on police reports stating that students armed with Molotov cocktails and stones violently attacked and injured several police officers, and that any injuries the students sustained were the result of these confrontations. The students' appeal included evidence alleging that security forces employed torture, sexual harassment, and other abuse, especially during their arrest and pretrial detention, and denied the students medical care. The appeal case also alleged that the government did not investigate these allegations. At year's end the 11 students' appeal was still pending. The government provided no new information about the case of Qadimi El Ouali, who was severely injured in connection with the demonstrations in May 2008 at Cadi Ayyad.

The government continued to improve implementation of the 2006 law against torture, which requires judges to refer a detainee to a forensic medicine expert when the detainee or his or her lawyer requests it or if judges notice suspicious physical marks on a detainee. The government reported that as of September, the public prosecutor had requested medical examinations for six persons, and judges had requested 21 medical examinations. The total of 27 requests represented a decrease from 2008's total of 49, which the government suggested reflected an overall reduction in allegations of torture throughout the country. Media and human rights NGOs documented cases in which the antitorture law provision was not implemented.”

“Prison conditions remained poor and generally did not meet international standards. Overcrowding, malnutrition, and lack of hygiene characterized the conditions inside prisons. A February report by the Moroccan Observatory of Prisons (OMP), an umbrella grouping of lawyers promoting better conditions for prisoners, stated that prisons were overcrowded, prone to violence, and failed to meet local and international standards. It also stated that current prison capacity was sufficient for only half the prison population. The government acknowledged that its 59 prisons held about 76,000 inmates in early November, 40 percent more than they were designed to hold. That capacity allowed 16 square feet per inmate, far short of the international standard of 97 square feet. The pardon of 26,498 persons during the year reduced overcrowding.”

“The security apparatus includes several police and paramilitary organizations with overlapping authorities. The National Police (DGSN) manages the border and immigration services, as well as internal law enforcement, and reports to the Ministry of Interior (MOI). The General Directorate of Territorial Security (DGST) and the auxiliary forces are separate entities that have security responsibilities and also report to the MOI. The Royal Gendarmerie reports to the Ministry of Defense and is responsible for law enforcement in rural regions and on national highways. The judicial police--the main federal investigative body--is a hybrid DGSN and MOJ entity. It investigates violations of criminal law, terrorism, organized crime, and white-collar crime under MOJ prosecutors. The Department of Royal Security reports to the palace.

Corruption and impunity remained problems and reduced police effectiveness and respect for the rule of law. It was general knowledge that petty corruption was widespread among the police and gendarmes, and broader, systemic corruption undermined both law enforcement and the effectiveness of the judicial system. The MOI increased investigations of abuse, human rights violations, and corruption. During the year the government reported that it prosecuted 282 security officials for crimes ranging from "assault and battery leading to death" to petty bribery throughout the country and the Western Sahara. There were prosecutions against approximately 190 employees of the judicial police, the royal gendarmerie, the auxiliary forces, the royal navy, and prison guards for bribery and influence misuse; most other cases were for physical abuse or mistreatment. The government prosecuted 117 officials, including security service personnel, for corruption in the first 11 months of the year. Despite these investigations and prosecutions, other investigations did not result in disciplinary action or judicial proceedings, and many more incidents of corruption never were investigated. Cases often languished in the investigatory or trial phases without resolution.”

“The law provides for government intervention in strikes when national security, domestic stability, or vital economic interests are threatened. Employers cannot initiate criminal prosecutions against workers for participating in strikes. Unlike in previous years, there were no reports that union officers were subjects of government pressure.

The law requires compulsory arbitration of disputes, prohibits sit-ins, calls for a 10-day notice of a strike, and allows for hiring replacement workers. The government can intervene in strikes, and a strike cannot take place around issues covered in a collective contract for one year after the contract comes into force. The government has the authority to break up demonstrations in public areas where strikes have not been authorized and to prevent the unauthorized occupancy of private space.”

### **Libya**

“There were no confirmed reports that the government or its agents committed arbitrary or unlawful killings. On May 10, the Tripoli newspaper *Oea* reported that Ali al-Fakheri (also known as Ibn al-Sheikh al-Libi) had been found dead in his cell in Abu Salim prison from an apparent suicide, and that the General Prosecutor's Office (GPO) had begun an investigation. The nongovernmental organization (NGO) Human Rights Watch (HRW) had met briefly with al-Fakheri during a visit to the prison on April 27, but he refused to be interviewed. In a May 12 statement, HRW called on authorities to conduct a full and

transparent investigation. The NGO Amnesty International (AI) visited Abu Salim Prison after his death in May, but authorities denied access to al-Fakheri's guards, forensic doctors, or the autopsy report. There were no results of the GPO investigation made public by year's end.

On August 31, the NGO Committee to Protect Journalists (CPJ) called for a credible and transparent inquiry into the reported 2007 trial and sentencing to death of three unnamed individuals for the 2005 killing of Daif al-Ghazal, a prominent opposition journalist and anticorruption activist.

There were no developments in the case of Mohammed Adel Abu Ali, who died in custody in May 2008 after his return to the country when his asylum claim was denied in Europe. According to HRW, he was tortured in detention. London-based *As-Sharq Al-Awsat* reported that he belonged to the oppositionist "al-Tabu" Front for the Liberation of Libya.”

“According to diplomatic missions and international organizations, prison and detention center conditions ranged from poor to adequate. HRW and AI visited prisons during study tours in April and May respectively, but authorities did not allow full access to prisoners or facilities. A UK-based NGO implementing a prison reform program in partnership with the General People's Committee for Justice had periodic access to some facilities. International organizations had some access to migrant detention centers throughout the country, but that access was restricted after an increase of at-sea interdiction of migrants begun in May led to severe overcrowding in the centers. Pretrial detainees, who reportedly accounted for more than half of the prison population, remained in the same facilities as convicts. Individual prison directors were unable to provide population estimates of their own prisons and centralized records were not kept, according to prison authorities. Men and women are in separate prisons and detention centers. Juvenile migrants were generally held with mothers while in detention.

Security forces reportedly subjected prisoners and detainees to cruel, inhuman, or degrading conditions and denied them adequate medical care. Foreign observers noted that many of those incarcerated had been acquitted or had served their sentences, but remained in internal security service prisons, likely due to unresolved differences between the internal security service administration that manages state security prisons and the General People's Committee for Justice, responsible for legal procedures and criminal detention facilities.

The International Committee of the Red Cross (ICRC) did not have an office in the country. During the year prosecutors and directors of several migrant detention centers participated in training sessions implemented by the International Organization for Migration on prison conditions and reform. International organizations reported that individual directors were responsive regarding limited improvements in the centers under their control, including providing office space for relief workers to provide medical care and counseling to migrants in detention.”

“The country maintains an extensive security apparatus that includes police and military units, multiple intelligence services, local "revolutionary committees," people's

committees, and "purification" committees. The result is a multilayered, pervasive surveillance system that monitors and controls the activities and everyday lives of individuals. In theory, military and internal security forces are under direct civilian control under the Jamahiriya, or "sovereignty of the masses" system. In practice, an inner circle of elites close to Muammar al-Qadhafi wields effective control and uses security services to protect regime interests. The legal basis of security service authority is unclear; citizens have no obvious recourse against security services. Frequently cited laws are the 1971 and 1972 "Protection of the Revolution" laws, which criminalize activities based on political principles inconsistent with revolutionary ideology.

The police and Internal Security Service share responsibility for internal security. Armed forces and the External Security Service are responsible for external security. In practice it was unclear where authorities overlapped. Security forces were effective when combating internal and external threats against the regime. Security forces committed serious human rights abuses with impunity, including the lengthy extralegal detentions of Boushima, Abdulrahman al-Qutiwi and the rearrest of Jamal al-Hajj (see section 1.e.). They intimidated, harassed, and detained individuals without formal charges and held them indefinitely without court convictions, particularly in cases involving the political opposition. They regularly enjoyed impunity from criminal acts committed while performing their duties.

In November 2008 opposition members living abroad alleged that security forces battled Toubou tribesmen in the southeastern part of the country. Other observers within the country characterized clashes in the town of Kufra as societal violence between Toubou and Zawiya tribes. There were reports that between 11 and 30 civilians were killed in the fighting.

"The law stipulates that authorities can detain persons for investigation for as long as eight days after arrest. In practice security services held detainees indefinitely, arbitrarily, and secretly."

### **Tunisia**

"The law prohibits such practices; however, according to human rights organizations, security forces tortured detainees to elicit confessions and discourage resistance, and engaged in beatings and other cruel treatments and punishments.

Reported methods of torture included sexual abuse; sleep deprivation; electric shock; death threats; submersion of the head in water; beatings with hands, sticks, and police batons; suspension, sometimes manacled, from cell doors and rods, resulting in loss of consciousness; and cigarette burns. According to international human rights groups, on occasion police and prison officials used threats of sexual assault against prisoners' wives and daughters to extract information, intimidate, and punish.

Charges of torture in specific cases were difficult to prove, and authorities generally did not take steps to investigate allegations or punish perpetrators. There were several allegations that authorities denied victims of torture access to medical care until evidence of abuse disappeared. The government maintained that it investigated all complaints of

torture and mistreatment filed with the prosecutor's office and noted that alleged victims sometimes accused police of torture without filing the complaint that is a prerequisite for an investigation. According to defense attorneys and local and international human rights groups, police routinely refused to register complaints. Judges sometimes dismissed complaints without investigation and accepted as evidence confessions allegedly extracted through torture. The government can open an administrative investigation of allegations of torture or mistreatment of prisoners without a formal complaint; however, in those cases the results were not made public or available to the lawyers representing affected prisoners.

Reports of torture were most frequently associated with the initial phases of interrogation/investigation and more often in pretrial detention centers than prisons. Human rights activists, citing prisoner accounts, identified facilities at the Ministry of Interior and Local Development (MOI) as the most common location for torture. Political prisoners, Islamists, and persons detained on terrorism-related charges allegedly received harsher treatment than other prisoners and detainees.”

“(…) government forces also abused individuals outside custody, most commonly human rights or opposition activists, allegedly for purposes of intimidation or retaliation for unauthorized activities.”

“The MOI controls several law enforcement organizations including the police, who have primary responsibility for law enforcement in the major cities; the National Guard, which has responsibility for border security and policing smaller cities and the countryside; and state security forces, which monitor groups and individuals that the government viewed as posing a threat, such as opposition parties and leaders, the media, Islamists, and human rights activists.

In general, law enforcement groups were disciplined, organized, and effective; however, incidents of petty corruption and police brutality took place. Law enforcement organizations sometimes operated with impunity, sanctioned by high-ranking officials.”

“The MOI's Higher Institute of Internal Security Forces and Customs has oversight of law enforcement officers in the ministries of interior and customs. The organization's stated mission was to reinforce human rights and improve law enforcement; however, no information was available about its operations, and no information was available about any punishment of police or prison guards.”

“The law provides that police must have a warrant to arrest a suspect, unless the crime committed is a felony or is in progress; however, arbitrary arrests and detentions occurred. The penal code permits detention for as long as six days before arraignment, during which time the government may hold suspects incommunicado. This time limit was not always observed. For example, a 2007 National Council for Freedom and Labor (CNLT) report documented 24 cases in 2007 in which the prearraignment detention exceeded six days.”

## *Moroccan-Algerian Cold Peace & the Western Sahara Conflict*

While there have not been open wars between Maghreb states, there have been paramilitary and proxy operations. Morocco and Algeria have struggled directly and indirectly over regional hegemony in the Maghreb. While mutual antagonism has led to conflict in the past, the current status quo is more akin to a cold peace.

### **Moroccan and Algerian Force Strengths**

**Figure 41** shows current Moroccan and Algerian numerical holdings of land, air and sea military equipment. Algeria is the dominant military force in the region with larger holdings of armor and artillery. As was discussed earlier, Morocco has made orders for more modern air combat systems, but Algeria has a lead in terms of recent acquisitions of modern fighters and ground attack aircraft.

**Figure 42** shows Moroccan and Algerian orders and deliveries of military equipment over the 1994-2009 period. While Morocco and Algeria have similar patterns of new orders over the period, Algeria maintains a very significant lead over Morocco in terms of actual deliveries. Algeria accepted deliveries worth some \$7.7 billion versus Morocco's \$1.5 billion over the 1994-2009 period.

Morocco intends to increase its defense spending by \$1 billion over 2010 and 2011 to support force recapitalization large in response to Algeria's increasing patterns of acquisition of modern military hardware. Algeria, with substantial rents from energy exports, has been the leader in regional modernization and procurement and Morocco feels it cannot afford not to keep pace in the regional balance.

### **The Struggle for the Western (Former Spanish) Sahara**

Relations between Algeria and Morocco also remain strained by Algerian support for the Popular Front for the Liberation of Saqiat al-Hamra and Rio de Oro (POLISARIO Front) which continues to pursue the independence of the former Spanish Sahara. Now commonly referred to as Western Sahara, Morocco disputes this and occupies large portions of the semi-autonomous zone under a claim of Moroccan sovereignty.<sup>69</sup> Meanwhile the Sahrawi independence movement led by the Polisario continues to use south-western Algeria as a base of operations with the tacit support of the government in Algiers.

**Figure 43** shows the current deployment of the U.N. mission for the organization of a referendum in the Western Sahara (MINURSO) in 2010. **Figure 44** shows a snapshot of Polisario's limited paramilitary capability in 2010.

Morocco's principal military prerogatives along its eastern frontier remain administering and securing the Western Sahara and maintaining a robust defensive line facing Algeria across the northern Sahara region. The majority of Moroccan forces remains deployed in what is known as the "Southern Zone" responsible for manning "Hassan's Wall" – the 1,750-kilometer defensive line that skirts Morocco's south-eastern border with Algeria and Western Sahara's southern frontier with Mauritania. Moroccan forces in the Southern Zone are supported by 29,000 paramilitary gendarmerie forces (Gendarmerie Royale), 25,000 border guards and the 5,000-man Mobile Intervention Companies.<sup>70</sup>

While Algeria continues to maintain conventional deployments along the borders with Morocco and Western Sahara, the onus since the end of the civil war seems to be internal security and counter-insurgency operations.<sup>71</sup> However the increasing pattern of Algerian defense spending and the acquisition of modern land, air and sea systems are unlikely to change Moroccan perceptions of Algerian regional intent.

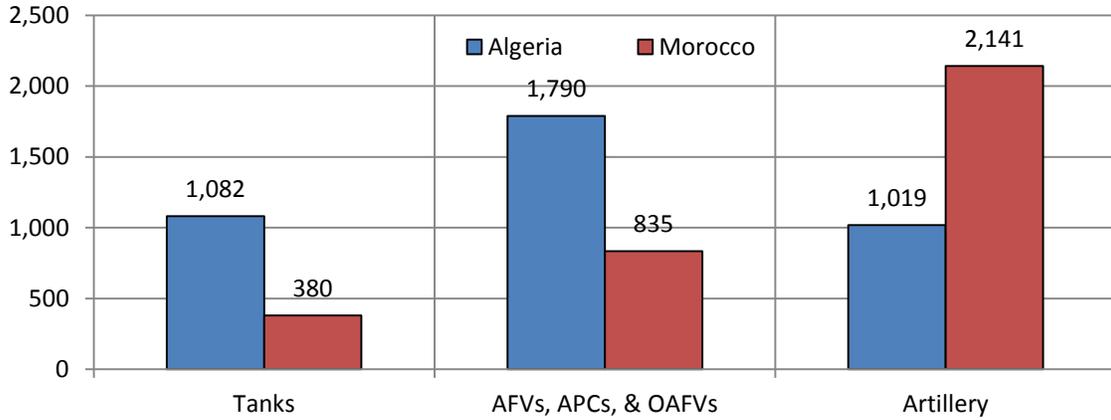
U.N. efforts have continued as a means defusing regional tension centered on Western Sahara. Both Algeria and Morocco continue to support efforts by the U.N. on paper, however there has been little real movement towards a settlement in recent years. Algeria and the Polisario continue to demand a referendum with the possibility of independence for Western Sahara, while Morocco wants to maintain sovereignty over the territory in exchange for special status as an autonomous zone except in matters of Moroccan national security and territorial integrity.

Instability persisted in the break-away region in 2010 with a 12,000-person uprising in October that left 11 people dead when Moroccan security forces moved to disperse a protest camp outside the Saharawai capital of Laayoune. The Moroccan raid coincided with informal U.N.-backed talks between Morocco and the Polisario near New York,<sup>72</sup> prompting questions about Morocco's commitment to U.N. efforts in the region.

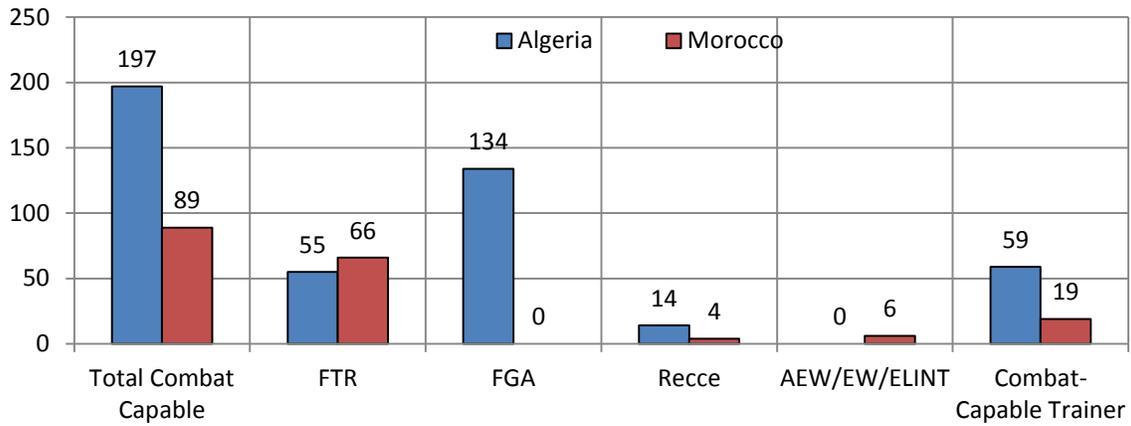
In real terms, the Western Sahara conflict does not constitute grounds for regional escalation that would turn the Moroccan-Algerian cold war into a more open and regionally destabilizing conflict. It is more likely that patterns of regional competition and Moroccan and Algerian regional ambitions pose more of a threat, although here too with limited chances of sparking real confrontation between the two North African powers. As will be discussed later, continued antagonism between the two states also undermines both regional and international efforts to promote greater coordination and cooperation on security matters of common interest.

**Figure 41: Algerian versus Moroccan Operational Force Strength as of 2010**

**Land Weapons**



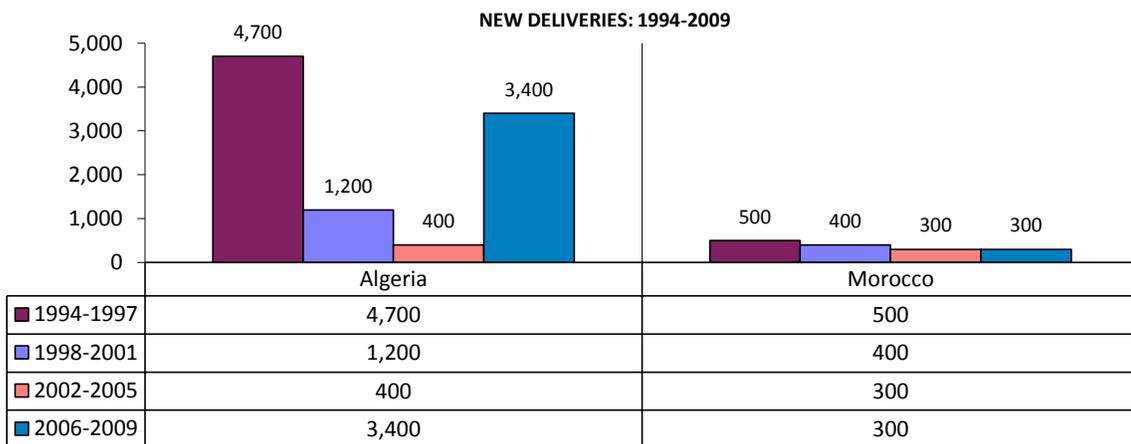
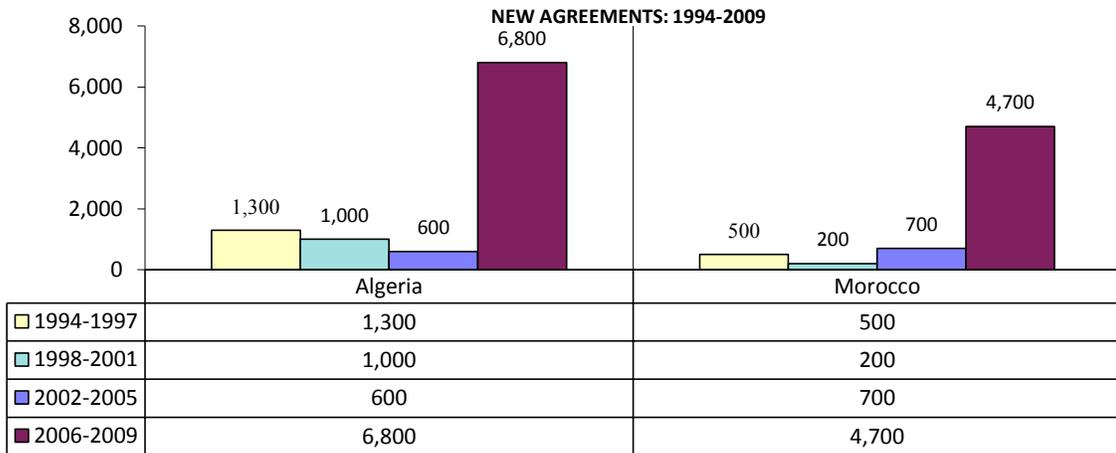
**Air Forces**



Note: Total air forces include operational fixed-wing combat and combat-capable aircraft, including fighters, attack, fighter-attack, and combat-capable reconnaissance and training aircraft.

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from data provided by U.S. experts, and the IISS, *The Military Balance*, various editions. Some data adjusted or estimated by the authors.

**Figure 42: Algerian & Moroccan Arms Agreements and Deliveries: 1994-2009**  
(In \$U.S. Current Millions)



Source: Richard F. Grimmett, *Conventional Arms Transfers to the Developing Nations*, Congressional Research Service, various editions.

Figure 43: MINURSO Deployment in 2010



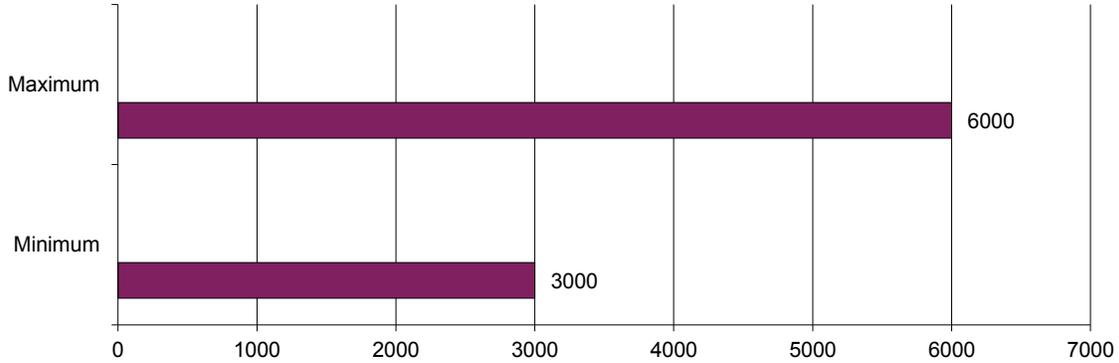
Map No. 3691 Rev. 02 UNITED NATIONS  
April 2010 (Colour)

Department of Field Support  
Cartographic Section

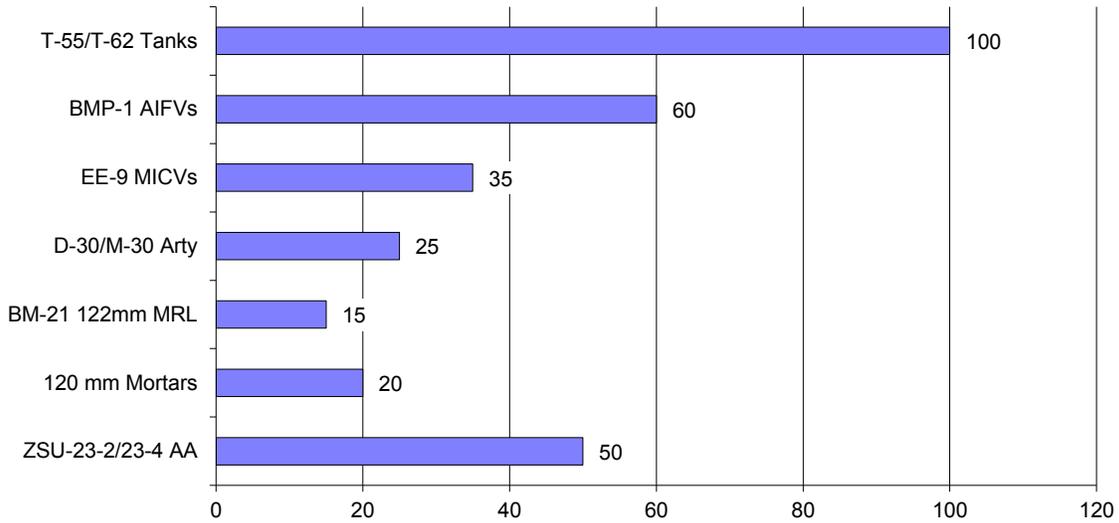
Source: MINURSO.

**Figure 44: Polisario Forces**  
(Sahrawi People’s Liberation Army)

**Manpower – Based on Past Estimates, No Longer Current**



**Weapons Manpower – Based on Past Estimates, No Longer Current**



**Other Equipment: Numbers Unknown - Manpower – Based on Past Estimates, No Longer Current**

- Steyr SK-105 Light Tanks
- Panhard APCs
- Ratel 20 AFVs
- Eland armored reconnaissance vehicles
- AML-90
- AT-3 Sagger anti-tank guided missiles
- SA-6, SA-7, SA-8, SA-9 surface-to-air missiles

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from data provided by US experts, the IISS, *Military Balance*, and Jane’s *Sentinel*.

### ***AQIM: Regional Threat or Algerian Pariah?***

Terrorism remains the main security challenge in North Africa. **Figure 45** shows a list of selected terror organizations currently operating in the Maghreb and Sahel. Given it is based on open source data, the list offers a limited snapshot with only anecdotal indications concerning the resources, capabilities and real world targets of these groups.

Of all the groups listed in **Figure 45**, Al-Qaeda in the Islamic Maghreb (AQIM) posed the main terrorist threat in North Africa and the Sahel. **Figure 46** shows a description of the group based on data provided by the U.S. State Department's Office of the Coordinator for Counterterrorism. Essentially a 2007 re-orientation and rebranding of the largest surviving Algerian Islamist militant group from the civil war – the Salafist Group for Preaching and Combat (GSPC) – AQIM hoped to mimic Abu Musab Al-Zarqawi's Al-Qaeda in Iraq (AQ-I). AQIM also hoped that gaining Al-Qaeda's stamp of approval would boost its international credentials and, more crucially, jumpstart recruitment efforts.<sup>73</sup>

The group seemed to pose a significant national security threat in Algeria, adopting AQ-I-style multiple suicide bombings as its weapon of choice.<sup>74</sup> GSPC's first operation as AQIM was on April 11, 2007 with three simultaneous suicide terror attacks in Algeria targeting the Government Palace, a police station and a gendarmerie position.<sup>75</sup> The group has since carried out a number of successful high-casualty operations, and combating AQIM – and consequently solidifying its counterinsurgency and anti-terrorism role – was one of the main priorities of the Algerian military.

AQIM also threatened to destabilize Algeria's neighbors by providing logistical and training support to similar if underdeveloped Islamist groups in Morocco, Libya and Tunisia. **Figure 47** shows the impact of AQIM in the Maghreb and touches on the counter-terrorism strategies that countries in the region have hoped to adopt. Tunisia and Morocco have prevented AQIM from gaining a foothold in their territories with both governments fearing the potential transfer of operational capabilities to less developed indigenous groups at home.

AQIM appears to have difficulty in gaining traction in other Maghreb states due to it being essentially a re-badged GSPC, an Algerian Islamist jihadi group run almost exclusively by Algerian commanders and combatants.

According to some sources, 2007 may have been an exceptionally successful year for AQIM/GSPC. The Algerian military's subsequent response to AQIM's operations effectively strangled the group outside of its strongholds. AQIM's inability to stem civilian casualties as a result of its operations led to parallels to the worst years of the civil war, generating a popular backlash.<sup>76</sup> There were also reports in early 2010 that the cohesion of AQIM may be increasingly in question.<sup>77</sup>

On May 28, 2009 Algerian Prime Minister Ahmed Ouyahia went so far as to comment that "terrorism is no longer a threat to Algeria (...) We will eliminate it in two ways: one by the strength (...) that law provides a state with for its defense, [the other is to] open the door for those who may come to realize that they have to come back to society."<sup>78</sup> Open source data seems to indicate that AQIM has had difficulty in recruiting new members and, not unlike the government amnesty after Algeria's bloody civil war, a new

amnesty deal could serve to demobilize some if not many of the disaffected members within AQIM.

An alternate reading of the evolution of the GSPC/AQIM phenomenon is predicated on the assumption that the group may be a “false-flag” intelligence operation created by Algerian military intelligence – the DRS – to promote both Algerian security objectives and, allegedly, U.S. interests in Africa more broadly.<sup>79</sup> This view remains controversial, however, and no real world proof exists to draw an irrefutable link between the regime in Algiers and GSPC/AQIM.

Proponents and skeptics of the “phantom war” theory disagree on whether Washington was aware of alleged Algerian prerogatives when it launched its trans-Saharan security initiatives. The theory is further problematized by the reality that GSPC/AQIM’s northern operations have repeatedly – and in a number of cases successfully – targeted Algerian state interests associated with the ruling regime.<sup>80</sup>

Neither Morocco nor Tunisia have experienced major terrorism attacks over the past several years. **Figure 48** provides a limited snapshot of major worldwide terror attacks in comparison to North Africa during the first half of 2010. Morocco, Tunisia, and Libya suffered no significant casualties as a result of terrorism during that period, and while Algeria did suffer fatalities, the numbers are too small and the scope of the operations too limited to effectively destabilize the government or undermine national security forces.

When compared to Afghanistan, Iraq and Pakistan (as well as other countries less commonly associated to terrorism), attacks in North Africa constitute a very small fraction of international total attacks. Here too it is important to remember that the data presented in **Figure 48** does not account for longer term trends and only offers an open source snapshot of events during a limited sample period.

Furthermore, despite efforts in principle to become part of the broader international Al-Qaeda effort against the U.S. and its allies, there seem to be limited command structures linking Al-Qaeda in Afghanistan and Pakistan to AQIM. Furthermore, AQIM’s operational space seems to be geographically limited to Algeria and the Sahel with apparently limited public information concerning the possibility of an AQIM threat outside the region.<sup>81</sup>

Irrespective of the origins and real world impact of AQIM, what is clear is that international cooperation on counterterrorism has facilitated Algeria’s bid to strengthen ties with the U.S. and has expanded the Maghreb state’s sphere of influence vis-à-vis regional rivals such as Morocco or Libya.<sup>82</sup>

**Figure 45: Select Active North African Insurgent & Non-State Armed Groups in 2010**

| Organization  | Country of Origin | Established | Main Area of Operations                           | Strength  | Weapons/ Capabilities      | Objectives   |
|---|-------------------|-------------|---|-----------|----------------------------|--|
| <b>Al-Qaeda in the Islamic Maghreb (AQIM)/ Salafist Group for Preaching &amp; Combat (GSPC)</b> | Algeria           | 2006/1998   | Principally Algeria, Western Sahara, Sahel        | 500+      | Mines, IEDs, mortars, SALW | Stated anti-West pan-Maghreb insurgency/ Establish a fundamentalist Islamic state in Algeria |
| <b>Dhamat Houmet Daawa Salafia</b>  | Algeria           | Not known   | Principally Algeria, Sahel, Nigeria               | Not known | SALW                       | Establish a fundamentalist Islamic state in Algeria, attack Western targets                  |
| <b>Libyan Islamic Fighting Group (LIFG)</b>   | Libya             | 1995        | Principally Libya, Sahel                          | 300+      | Mines, IEDs, SALW          | To “wage international jihad,” opposed to the Gaddafi regime                                 |
| <b>Moroccan Islamic Fighting Group (GICM)</b>   | Morocco           | 1990s       | Principally Morocco, Tunisia, Afghanistan         | Not known | Mines, IEDs, SALW          | To establish an Islamic state in Morocco, stated support for al-Qaeda                        |
| <b>Ansar al-Islam in the Muslim Desert</b>  | Morocco           | 2007        | Principally Morocco                               | Not known | SALW                       | Jihad against Maghreb governments, stated goal of reacquiring “Muslim lands in Andalucia”    |
| <b>Abu Hafs al-Masri Brigade</b>  | Morocco           | Not known   | Principally Morocco, Spain and the United Kingdom | 200-1,000 | Not known                  | Jihad against the West   |

Note: SALW are small arms and light weapons. Does not include the Sahrawi People’s Liberation Army (SPLA), the armed wing of the Frente Popular para la Liberacion de Saguia el Hamra y del Rio de Oro (Polisario Front).

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from data provided by US experts, the IISS, *Military Balance*, and Jane’s *Sentinel*. Some data adjusted or estimated by authors.

## Figure 46: AQIM & the 2009 Country Reports on Terrorism

### AL-Qaeda In The Islamic Maghreb

“Aka AQIM; formerly known as Group for Call and Combat; GSPC; Le Groupe Salafiste Pour La Predication Et Le Combat; Salafist Group for Preaching and Combat

**Description:** The Salafist Group for Call and Combat (GSPC) was designated as a Foreign Terrorist Organization on March 27, 2002. The GSPC officially merged with al-Qa’ida (AQ) in September 2006 and subsequently changed its name to al-Qa’ida in the Islamic Maghreb (AQIM) in January 2007.

Despite its affiliation, AQIM remains largely a regionally-focused terrorist group. It has adopted a more anti-Western rhetoric and ideology and has aspirations of overthrowing “apostate” African regimes and creating an Islamic Caliphate. AQIM numbers under a thousand fighters and is significantly constrained by its poor finances and lack of broad general appeal to Sufi Muslims in the region. Some senior members of AQIM are former GIA insurgents.

**Activities:** AQIM has not been able to conduct spectacular attacks in over two years since it bombed the UN building and Algerian government buildings in 2007. AQIM continued to conduct small scale attacks and ambushes in northeastern Algeria against Algerian security forces and regularly used improvised explosive devices there. AQIM in northeastern Algeria was under significant pressure by Algerian security forces. AQIM’s goals of expanding into Morocco, Tunisia, Libya, and Europe have failed thus far.

AQIM factions in the northern Sahel (northern Mali, Niger and Mauritania) conduct kidnap for ransom operations and can conduct small scale attacks and ambushes on security forces there. The target for kidnap for ransom is usually Western citizens from governments or third parties that have established a pattern of making concessions in the form of payment of money or release of operatives in custody. Last year, one citizen from the United States and the United Kingdom were murdered in Mauritania and Mali respectively.

**Strength:** AQIM has under a thousand fighters operating in Algeria with a smaller number in the Sahel. Abdelmalek Droukdel, aka Abu Mus’ab Abd al-Wadoud, is the leader of the group.

**Location/Area of Operation:** Northeastern Algeria (the Kabylie region) and northern Mali, Niger, and Mauritania. AQIM aspires to expand into Europe but its efforts to do so thus far have failed.

**External Aid:** Algerian expatriates and AQIM members abroad, many residing in Western Europe, provide some limited financial and logistical support. AQIM members also engage in hostage-taking for ransom and criminal activity to finance their operations.”

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the *Country Reports on Terrorism 2009*, Office of the Coordinator for Counterterrorism, U.S. Department of State, August 5, 2010.

## Figure 47: North Africa & the 2009 Country Reports on Terrorism

### Algeria

“While Algeria experienced a marked decrease in high profile terrorist incidents, al-Qa’ida in the Islamic Maghreb (AQIM) continued to stage numerous attacks in suburban and rural areas, mostly targeting government installations. AQIM also remained focused on kidnapping and ransom-taking as a primary tactic. AQIM kidnapped three Spanish hostages in November in Mauritania, two Italian hostages in December in Mauritania, and one French hostage in December in Mali.”

“The security situation in Algeria was marked by a decrease in the number of high-profile terrorist attacks throughout the country, although low-level terrorist activities continued in non-urban areas. The Salafist Group for Preaching and Combat (GSPC), which formally merged with al-Qa’ida (AQ) in 2006 and now calls itself al-Qa’ida in the Islamic Maghreb (AQIM), previously focused on targeting Algerian government interests and had been more averse to suicide attacks and civilian casualties. Some senior members of AQIM are former GIA insurgents. Although Algerian government interests remained the primary focus of AQIM, the group was forced to resort to kidnappings for ransom and expanded operations against westerners in the Sahel region. Algerian government counterterrorism operations, which included an increased security presence and the dismantling of support and recruitment networks, restrained AQIM’s capacity to conduct high-profile attacks, particularly in major Algerian cities.

There were no suicide bombings after March. The month of Ramadan, typically a period of frequent attacks, was quiet. Nevertheless, AQIM carried out lethal operations, using ambushes and roadside bombs against government and civilian targets, particularly in the Kabylie region east of Algiers, and increased its terrorist activities along the Algerian-Malian border.”

“Roadside bombs and ambushes persist despite the efforts of the security forces. The combination of a population weary of civilian casualties from over a decade of Islamic terrorist violence and the growing availability and use of cell phones has made the terrorists more vulnerable to detection and targeting by the police. The majority of attacks occurred in rural and suburban areas. Terrorists have been very careful to establish remote bases, communicate sparingly, and carry out meticulously-planned attacks. AQIM does not have significant popular support and is not assessed as strong enough to bring down the Algerian government. When security forces are in the countryside, approaching terrorists often stand out and are intercepted before they can successfully complete their attacks.

Following massive suicide attacks in 2007, AQIM has issued directives to avoid civilian deaths, and operations have been concentrated more on military, police, and foreign national targets. AQIM is likely seeking to disrupt business and commercial activity and probably uses such attacks to discourage foreign investment. The overall civilian death toll from terrorist attacks has declined in recent years. During the civil war that began in 1992 and had largely subsided by 2000, Algerian Islamic terrorists killed on average more than 10,000 people a year, with the majority being civilians.

In the past, Algerian security services have expressed concern about AQIM using propaganda based on the call to fight in Iraq as a hook to recruit young people, many of whom never made it to Iraq but were redirected towards joining local groups. In previous years, AQIM propaganda videos originating in Algeria were of amateur quality and poorly produced. This began to change dramatically in 2008. It was evident that AQIM placed a greater emphasis on improving the quality of the videos, and these videos and communiqués were orchestrated to attract Algerian youth to the AQIM “cause.” Several videos posted on the Internet, such as the series *Shadows of the Sword* and *Apostate Hell*, showed operations conducted against Algerian military and security targets that included preparations for the attacks and pre-briefings with the commanders that led the attacks. The ability to conduct an attack and claim responsibility via communiqué within hours

demonstrated the importance AQIM placed in transmitting its message in an attempt to win the media war.

Criminal activities, such as holdups of motorists at roadblocks on remote roads (often disguised to look like security forces roadblocks), armed robbery, and the kidnapping of Algerian citizens remained critical to funding operations of the cash-strapped AQIM units located in northern Algeria. Besides relying heavily on kidnapping for ransom in Algeria and the Sahel, AQIM financed itself with extortion and smuggling in southern Algeria/northern Mali.

The counterterrorism successes of the Algerian services, combined with the public rejection of terrorism, appears to have reduced AQIM's overall effectiveness during the past two years. In August, the Algerian government hosted a meeting of the military chiefs of staff from Mali, Libya, Mauritania, and Niger to develop a regional counterterrorism strategy and establish a regional command center in the southern city of Tamanrasset. Algeria led efforts in international fora to condemn payment of ransom to terrorists. During 2008, the Government of Algeria instituted a program to hire 100,000 new police and gendarme officers, reinforce the borders, augment security at airports, and increase the overall security presence in major cities. The initiative was effective in reducing the impact of terrorist incidents and also demonstrated the Government of Algeria's determination to fight terrorism.

Partly because of high unemployment among Algerian youth, AQIM has had some success replenishing its numbers after the arrest or death of an estimated 1,300 terrorists. Those remaining appeared to be more hard-line and resistant to the government's amnesty offer. Despite continued AQIM attacks, the overall security situation remained greatly improved from the situation of the late 1990s. That said, the Algerian military and security forces must continuously adapt to AQIM's changing tactics and accept that an organization that had primarily been a local threat now has a reach that extends to the surrounding region and has international ties. Algerian security and military forces remained capable of handling a prolonged effort against internal terrorist threats."

## **Morocco**

"Morocco pursued a comprehensive counterterrorism approach that emphasized vigilant security measures, including international cooperation and innovation in the area of counter-radicalization policies. Evidence gained from Moroccan authorities' disruption of certain groups, and the common characteristics of those groups, supported previous analysis that Morocco's threat of terrorist attack continued to stem largely from the existence of numerous small "grassroots" extremist cells. These groups, sometimes referred to collectively as adherents of Moroccan Salafia Jihadia ideology, remained isolated from one another, small in size (less than 50 individuals each), and tactically limited. Their international connections were also limited. The Government of Morocco's counterterrorism efforts have effectively reduced the threat, but the existence of these groups points to the need for continued vigilance.

Although AQIM has been unable to mount a successful terrorist attack in Morocco to date, Moroccan authorities remained concerned about the inspiration and knowledge transfer that AQIM may have provided to Moroccan extremists. AQIM repeatedly tried to incite Moroccans to commit violence against their government through internet propaganda. The Moroccan government remained concerned about numbers of veteran Moroccan jihadists returning from Iraq to conduct terrorist attacks at home. A further cause for concern is Moroccans who were radicalized during their stays in Western Europe, much like those who were involved in the 2004 Madrid train bombings.

The Moroccan government pursued a comprehensive counterterrorism approach that, building on popular rejection of terrorism, emphasized neutralizing existing terrorist cells through traditional intelligence work and preemptive security measures. Morocco aggressively targeted and dismantled terrorist cells within the Kingdom by leveraging intelligence collection, police work,

and collaboration with regional and other international partners. These efforts resulted in the disruption of several terrorist groups (...).”

“As part of its comprehensive approach in combating terrorism, Morocco also addressed terrorist financing. Although Morocco is not a regional financial center, its financial sector is integrated into international markets. Money laundering is a concern due to the narcotics trade, vast informal sector, trafficking in persons, and large level of remittances from Moroccans living abroad. The extent of the money laundering problem in the country is unknown, but conditions exist for it to occur on a significant scale. In recent years, Morocco has taken a series of steps to address the problem, most notably with the enactment of a terrorist finance (CFT) law in May 2003; with a comprehensive anti-money laundering (AML) law in April 2007; and with the establishment of a Financial Intelligence Unit (FIU) in April 2009. These actions have provided the legal basis for the monitoring, investigation, and prosecution of illegal financial activities. The new laws allow for the freezing of suspicious accounts and permit the prosecution of terrorist finance-related crimes. U.S. and EU programs are providing Moroccan police, customs, central bank, and government financial officials with training to recognize money laundering methods. The FIU and its member organizations met with the U.S. Department of the Treasury and the Department of Homeland Security in early October to discuss possible U.S. technical assistance to develop the AML/CFT regime. A formal request from the FIU and the Central Bank followed in November. Morocco had a relatively effective system through the newly established FIU for disseminating U.S. government and UN Security Council terrorist freeze lists to its financial sector and legal authorities. Morocco froze some terrorist-related accounts.

Another key to Morocco’s counterterrorism efforts was its emphasis on international cooperation. Moroccan authorities continued to disrupt plots to attack Moroccan, U.S., and other Western-affiliated targets, and aggressively investigated numerous individuals associated with international terrorist groups, often in collaboration with international partners. Morocco and the United States worked together extensively on counterterrorism efforts at the tactical level. In the past years, Morocco has accepted prisoners formerly detained at Guantanamo Bay and prosecuted them under Moroccan law. In May, a Moroccan criminal court reduced the sentence of former Guantanamo Bay detainee Mohammed Benmoujane from 10 to two years.

Morocco also forged solid cooperative relationships with European and African partners by sharing information and conducting joint operations. Morocco is considered a Mediterranean Dialogue partner of the North Atlantic Treaty Organization and also cooperated with regional partners on a bilateral basis. In March, Spanish police arrested a Moroccan on an international warrant issued by Morocco on suspicion of belonging to a terrorist group that had planned attacks on official and tourist targets in Morocco. Morocco also worked closely with African partners such as Mauritania and Senegal. The government used army and Ministry of Interior paramilitary forces to secure its borders as best it could but faced resource constraints and both a lengthy border and lengthy coastline.”

## **Libya**

“The United States rescinded Libya’s designation as a state sponsor of terrorism in June 2006. Libya renounced terrorism and weapons of mass destruction in 2003 and has continued to cooperate with the United States and the international community to combat terrorism and terrorist financing.

On July 20, Malian President Amadou Toumani Toure confirmed to the Malian press that Libya, Algeria, and Mali planned to coordinate military and intelligence efforts to fight security threats linked to al-Qa’ida in the Islamic Maghreb (AQIM) in the Trans-Sahara region.

In November 2007, al-Qa’ida (AQ) leader Ayman al-Zawahiri announced a merger between AQ and the Libyan Islamic Fighting Group (LIFG). In an audiotape, al-Zawahiri urged AQ fighters to topple the Government of Libya, describing Muammar al-Qadhafi as an “enemy of Islam” and criticizing the 2003 decision to renounce WMD and terrorism.

In late September, six leading members of the Libyan Islamic Fighting Group, being held in the Abu Salim prison, issued a document renouncing violence and claiming to adhere to a more sound Islamic theology than that of AQ and other jihadist organizations. The 417-page, Arabic-language document, entitled “Revisionist Studies of the Concepts of Jihad, Verification, and Judgment of People,” was the product of a two-year reconciliation project between the Government of Libya and the LIFG, facilitated by the Qadhafi Development Foundation.”

## **Tunisia**

“The Government of Tunisia placed a high priority on combating extremism and terrorism. In addition to using security and law enforcement measures, the Tunisian government also used social and economic programs, including health care and public education, to ameliorate the conditions that terrorists exploit for recruitment and propaganda purposes. The government prohibits the formation of religious-based political parties and groups it believes could pose a terrorist threat. Tunisia does not have a rehabilitation or reintegration program. The Tunisian government puts a high priority on controlling the border regions.

On July 30, the Chamber of Advisors amended the 2003 anti-terrorism law to harmonize national legislation with UN resolutions related to terrorism financing and money laundering. The amendments included measures to establish databases on terrorist financial transactions; protect the identities of magistrates, judicial police officers and civil servants involved in terrorism and money laundering cases; freeze funds belonging to people accused of terrorist activities; and extend from two to five days the period allowed for a public prosecutor to issue his judgment on investigations carried out by the Financial Analysis Commission. The new legislation made a clear distinction between terrorism and resistance, with specific reference to the Palestinians.

The Government of Tunisia enforced the 2003 anti-terrorism law. However, the government’s application of the law was criticized by Tunisian and international organizations who maintained that too many individuals undergo extended pre-trial detention and face unfair trials that rely on weak evidence. In response to a claim by Tunisian lawyers that 2000 people had been sentenced under the anti-terrorism law, the Minister of Justice stated on May 27 that 300 persons were being detained on terrorism charges.”

Source: Adapted by Anthony H. Cordesman and Aram Nerguizian from the *Country Reports on Terrorism 2009*, Office of the Coordinator for Counterterrorism, U.S. Department of State, August 5, 2010.

**Figure 48: North Africa and a “Snapshot” of Global Attacks in 2010**

| Country | Damaging Attacks |              |              |             | Non-Militant Fatalities |              |              |              |
|---------|------------------|--------------|--------------|-------------|-------------------------|--------------|--------------|--------------|
|         | 10 Jan. 2010     | 10 Feb. 2010 | 10 Mar. 2010 | 10 May 2010 | 10 Jan. 2010            | 10 Feb. 2010 | 10 Mar. 2010 | 10 Apr. 2010 |

|                |   |   |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|---|---|
| <b>Algeria</b> | 7 | 2 | 4 | 6 | 3 | 1 | 2 | 4 |
| <b>Morocco</b> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <b>Libya</b>   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <b>Tunisia</b> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|                    |     |     |     |     |     |     |     |     |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Iraq</b>        | 154 | 173 | 223 | 200 | 171 | 249 | 251 | 188 |
| <b>Yemen</b>       | 9   | 12  | 8   | 15  | 18  | 14  | 13  | 5   |
| <b>Afghanistan</b> | 114 | 103 | 126 | 172 | 179 | 206 | 201 | 172 |
| <b>Pakistan</b>    | 114 | 76  | 78  | 78  | 213 | 172 | 196 | 38  |
| <b>India</b>       | 115 | 78  | 117 | 110 | 62  | 89  | 56  | 88  |
| <b>Phillipines</b> | 35  | 40  | 41  | 55  | 30  | 51  | 39  | 38  |
| <b>Russ. Fed.</b>  | 14  | 34  | 27  | 40  | 14  | 33  | 59  | 28  |

Source: Adapted by Anthony H. Cordesman & Aram Nerguizian from data provided by Jane's Terrorism and Insurgency Centre *Gblobal Attack Index*, various editions.

### ***The Challenges of Security and Counterterrorism Cooperation***

There are two distinct though related areas for military and security cooperation in North Africa. The first is military and intelligence coordination on a regional basis, tentatively including such countries as Morocco, Algeria, Tunisia, Libya and Sahalian states such as Mali, Mauritania and Niger. Some regional efforts are led by African supra-national institutions, such as the African Union (AU). The other type of military cooperation is international, mainly in coordination with the U.S. and Europe.

#### **Cooperation Between North African States**

The Moroccan-Algerian cold peace has presented serious problems for internal security cooperation in North Africa. In April 2010, it was announced that Algeria, Mali, Mauritania and Niger would set up a “Joint Military Committee” based out of southern Algeria to better coordinate against transnational terrorist threats like AQIM. It was unclear, however, what would be the scope of cooperation and no clear timeline was given to implement common efforts of any kind. However, *Jane’s* reported that Algeria may carry out the bulk of operations given its holdings of airborne and reconnaissance assets in support of ground operations.<sup>83</sup>

It was later reported that Algeria, Mali, Mauritania and Niger would set up a new joint intelligence center that would operate in parallel to the joint military committee and would be supported by intelligence officers from the four countries.<sup>84</sup>

Algeria is also a participant of the North Africa Brigade (NASBRIG), one of the five regional brigades being put into service by the AU as an African Standby Force (ASF) for stability and peacekeeping operations in Africa, and potentially abroad. Libya, Tunisia and Western Sahara (under the authority of the Polisario) are also members along with Egypt and Mauritania.<sup>85</sup>

As the main target of AQIM in North Africa, Algeria has been at the forefront of regional efforts to increase intelligence and military cooperation. However, this has been at the expense of Morocco, which has been excluded by such regional initiatives. Given the inclusion of Western Sahara and continued regional competition with Algeria, Morocco remains uninvolved with either the NASBRIG or the ASF and is the only African country that is not a member of the AU.<sup>86</sup>

The exclusion of Morocco – and to a lesser extent Libya – will not facilitate the development of true regional security frameworks. However, Morocco’s absence is only one part of an overall pattern of poor regional cooperation and agreement on how to advance NASBRIG. It is likely that North Africa will not be ready by the 2010 ASF deadline.<sup>87</sup>

#### **Cooperation Between North African States, the US, and Africom**

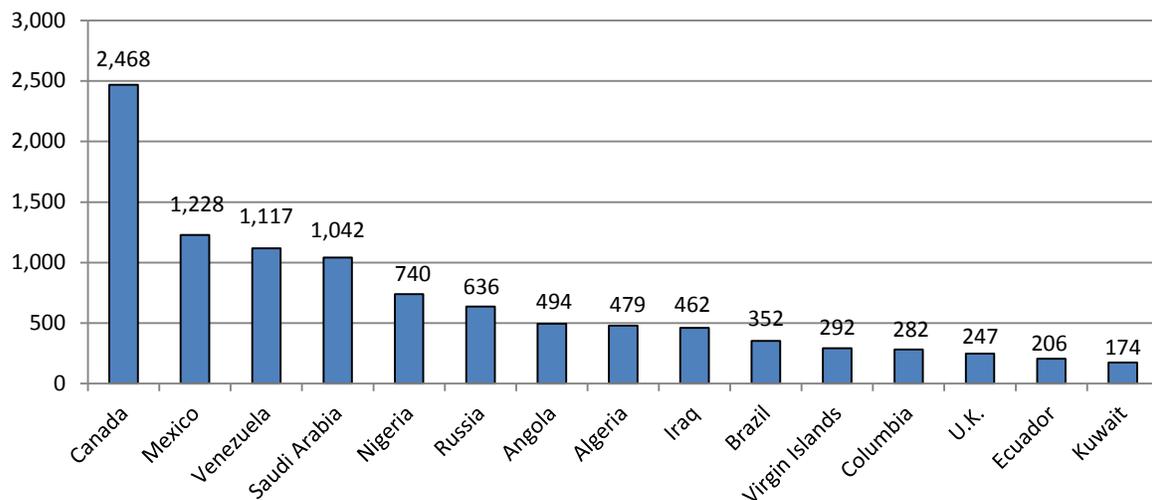
International military cooperation with the Maghreb states is associated with both U.S. driven efforts in Africa under the auspices of U.S. Africa Command (AFRICOM) and those of European states and NATO to coordinate with countries in the region on training and counterterrorism operations in Africa.

The U.S. has shown increasing interest in Africa since the terror attacks of September 11, 2001. The Bush Administration asserted that poor health conditions, disease, conflict and desperate poverty ran against U.S. strategic priorities centered on combating global terrorism.<sup>88</sup> Both the Bush and Obama Administrations have expressed increasing concerns over AQIM's continued operations in East Africa and the Maghreb. In February of 2010, Director of National Intelligence Dennis Blair testified at a Senate Select Committee on Intelligence hearing that while the U.S. intelligence community saw AQIM and similar groups to be largely focused on regional targets, the possibility remained that those fighting and training in Somalia could one day be redirected to the U.S.<sup>89</sup>

Growing economic interests also shape U.S. policy in the region. Trade between Africa and the U.S. has tripled since 1990, but more importantly, Africa now exports about as much crude oil to the U.S. as does the Middle East.<sup>90</sup> Africa could supply the U.S. with as much as 25 percent of all U.S. oil imports by 2015.<sup>91</sup>

**Figure 49** shows that three African countries – Algeria, Angola and Nigeria – ranked among the top 10 oil exporters to the U.S. in 2009. As **Figures 3** and **4** showed earlier, Libya and Algeria had the largest African proven oil reserves in 2010 at 44.3 and 12.2 billion barrels respectively. Algeria also had 159 trillion cubic feet of natural gas reserves in 2010, while Libya had 54.4 trillion cubic feet – making them the second and fourth largest natural gas reserve holders in 2010.

**Figure 49: Top 15 Petroleum Exporters to the U.S. in 2009**  
(In thousands of barrels per day)



Source: Adapted by Aram Nerguizian from data provided by the Energy Information Administration.

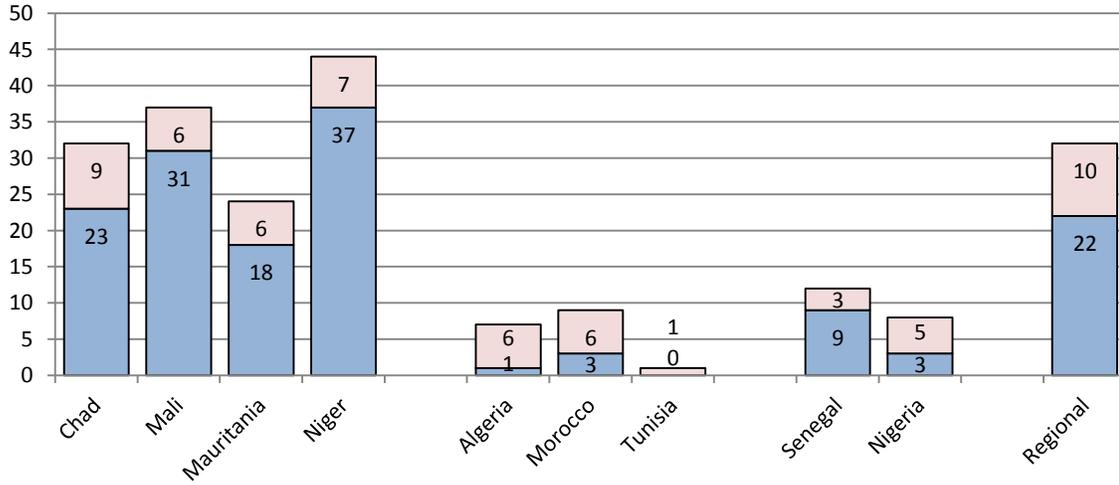
In 2002 the U.S. State Department launched the Pan-Sahel Initiative (PSI) to foster greater border security, military and counterterrorism capabilities in Chad, Niger, Mali and Mauritania. In 2005, PSI was expanded into the Trans-Sahara Counterterrorism Partnership (TSCTP), an inter-agency effort led by the Department of State and

supported by the U.S. Agency for International Development (USAID) and the Department of Defense (DoD). The TSCTP’s objectives are to:<sup>92</sup>

“Improve individual country and regional capabilities to defeat terrorist organizations, disrupt efforts to recruit and train new terrorist fighters, particularly from the young and rural poor, and counter efforts to establish safe havens for domestic and outside extremist groups.”

The U.S. has allocated over \$490 million for TSCTP for the FY2005-2009 period. **Figure 50** shows the allocation of funds by country and region for the 2005-2008 period. While Sahalian countries including Chad, Mali, Mauritania and Niger have been allocated the bulk of the funding, North African states had been allocated comparatively little funding. This is in stark contrast, for example, to Algeria’s importance in containing AQIM. It also reflects in part the reality that instability may be a real threat to regional actors and to U.S. interests in the Sahel rather than in the far more stable and secure Maghreb.

**Figure 50: TSCTP Funds by Country and Region FY 2005-2008**  
(In \$U.S. Current Millions)



Source: GAO Analysis of State, USAID and DoD data.

In the Fall of 2008, AFRICOM took control of the TSCTP’s military component, Operation “Enduring Freedom” – Trans Sahara, wherein U.S. forces work with their military counterparts from Algeria, Burkina Faso, Chad, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal and Tunisia. The objective is to improve intelligence, C<sup>2</sup>, logistics, border management and to execute joint operations against terrorist groups. Libya has been invited to join the TSCTP but had yet to join the U.S.-led effort by mid-2010.<sup>93</sup>

The creation of AFRICOM – a new unified combatant command for Africa to reflect the continent’s growing strategic importance to U.S. interests – on February 6 2007, will continue to have important ramifications for coordination and cooperation between the Maghreb states and the U.S.

AFRICOM defines its mission and core objectives as follows:<sup>94</sup>

“United States Africa Command, in concert with other U.S. government agencies and international partners, conducts sustained security engagement through military-to military programs, military sponsored activities, and other military operations as directed to promote a stable and secure African environment in support of U.S. foreign policy.

#### **Partnering with African Nations**

Through strong and lasting strategic partnerships with African partners and by delivering sustained, effective, and coherent security cooperation programs, U.S. Africa Command helps foster a more stable and secure Africa:

- where military organizations perform professionally and with integrity;
- that promotes legitimate and professional security institutions;
- that has the will and means to direct, dissuade, deter and defeat transnational threats;
- and whose militaries and governments are increasingly capable of supporting continental and international peace efforts.

#### **Theater Security Objectives**

- Defeat the Al-Qaeda terrorist organizations and its associated networks;
- Ensure peace operations capacity exists to respond to emerging crises and continental peace;
- Support operations are effectively fulfilling mission requirements;
- Cooperate with identified African states in the creation of an environment inhospitable to the unsanctioned possession and proliferation on WMD;
- Improve security sector governance and increase stability through military support to comprehensive, holistic, and enduring USG efforts in designated states;
- Protect populations from deadly contagions.”

Perceptions in Africa remain mixed with considerable apprehension over U.S. motives behind the creation of AFRICOM. While some U.S. defense officials argued that AFRICOM should have its HQ in Africa, the reaction from African states has not been decisively positive. There are fears in Africa and in the U.S. that a permanent basing of U.S. forces in Africa could be interpreted as the first steps of a move to militarize U.S. policy towards the continent. Major U.S. partners in Africa such as Algeria and South Africa have refused to host the command and fears in North African states persist that a permanent U.S. presence in the Maghreb – albeit in the name of greater regional military and security cooperation – could have the undesired effect of emboldening groups like AQIM with what may amount to a new cause to expand recruiting.

In October 2007, members of the Pan-African Parliament, the AU’s legislative body, voted in favor of a motion to “prevail upon all African Governments through the [AU] not to accede to the [U.S.] request to host AFRICOM anywhere in the African

continent.<sup>95</sup> The Department of Defense announced in late 2008 that a decision on moving the HQ of AFRICOM would be delayed until 2012.<sup>96</sup>

Challenges also exist in promoting greater air power and capability coordination between the U.S. and North African states. *Jane's* reported that AFRICOM's air arm, Air Force Africa (AF AFRICA) has assumed control over African airspace from U.S. Central Command (CENTCOM) on January 27, 2010. While AFRICOM remained a coordinated staff head quarters without definitive assets or facilities, the transition may facilitate AFRICOM's efforts to work with partner air forces in the Maghreb such as the Algerian air force. AF AFRICA leadership emphasized the importance of building "strategic vision" with Algeria well beyond current levels of limited training and technical exchanges. Algeria and the U.S. engage in active multilateral maritime and ground exercises and were both part of a six-navies Mediterranean piracy deterrence maneuver. However, the placing of Algeria on a watch list of countries as a result of new civil security standards following the failed attempt to hijack U.S.-bound aircraft on December 25, 2009 may undermine further coordination.<sup>97</sup>

Another example of both the success and failure of U.S.-led military cooperation efforts is Exercise "Flintlock," an annual training exercise held by AFRICOM that runs from May 3<sup>rd</sup> to 23<sup>rd</sup>. Flintlock, part of the TSCTP, is designed promote greater interoperability and capacity building among participating countries from northern and western Africa, and Europe with an eye on addressing the threat that may be posed by AQIM and similar groups in the region. Given the focus on combating extremism – much of it from, in, or born out of Algeria – the continued absence of Algeria from "Flintlock" is significant.

While Algeria has been a strong U.S. ally when it comes to counterterrorism cooperation, there are reports the Algerian government may be growing increasingly suspicious of U.S. intentions in the region. In addition to its refusal to take part in "Flintlock," Algeria's spearheading in 2010 of joint military and intelligence efforts with Mali, Mauritania and Niger may be interpreted as Algeria attempting to use its regional influence to frustrate more rooted U.S. military, security and counterterrorism initiatives.<sup>98</sup>

Where coordination with the U.S. has been more consistent has been in the area of maritime coordination. In 2009, Algeria was one of 14 combined naval forces to take part in "Phoenix Express," at-sea maneuvers in the Mediterranean aimed at strengthening North African countries' ability to thwart illegal migration, drug smuggling, illegal fishing and piracy. In May 2010, Moroccan maritime forces and the USS Elrod, a U.S. Navy frigate, apprehended drug smugglers heading for Spain.<sup>99</sup>

### **Cooperation Between North African States, Europe and NATO**

Maghreb states have seen increasing levels of cooperation with NATO over the course of the past decade mainly through the organization's Mediterranean Dialogue program, an initiative designed to foster greater stability and partnership in the Mediterranean region through enhanced coordination between NATO and non-NATO states in and around the Mediterranean sea. In addition, the Dialogue and NATO have become the most important mechanisms through which the EU can interact with the Maghreb states on matters of regional and international security.

One of the most important areas of Maghreb-NATO cooperation is maritime security in the Mediterranean sea. In the wake of the September 11, 2001 terror attacks on the U.S., NATO organized Operation "Active Endeavour" under article 5 of NATO to deter terrorism and contribute to stability, peace and security in the Mediterranean region. In addition to maritime patrol and naval constabulary units, "Active Endeavour" is also intended to secure the flow of lawful shipping to and from the region, curtail criminal activity, fight the trafficking of people and illicit goods and encourage greater trans-national intelligence-sharing.<sup>100</sup>

Despite "Active Endeavour's" official prerogatives, the enforcement of maritime security in the Mediterranean would not be possible without coordination with regional states and national efforts to consolidate naval operations. As such NATO has actively pursued better ties with the Maghreb states.

Since the end of its civil war, Algeria has been a leading player in the Maghreb and the Mediterranean region with regards to enhancing ties with NATO. In 2006, Algeria became the first Mediterranean Dialogue state to participate in Operation "Active Endeavour." While Algeria has been frustrated by the limited pace of NATO institutional bureaucracy, the country continues to play a role in NATO's Mediterranean Dialogue with the expectation that closer cooperation will lead to enhanced training and future operational capacity.<sup>101</sup>

Not unlike Algeria, Morocco also hoped to expand its cooperation with NATO starting in 2006. In 2008, Morocco officially joined Operation "Active Endeavour," making it the second member state of NATO's Mediterranean Dialogue to contribute to the force.

While Tunisia has also enhanced coordination with NATO under "Active Endeavour," Libya still has no official engagement with NATO, the Mediterranean Dialogue or NATO maritime security operations. However, it is possible this may change given Libya's continuing rehabilitation in the eyes of the U.S. and other key NATO allies.

Given the region's not too distant colonial legacy, North African states have tried to manage the potential backlash from being "close" to a U.S and E.U.-led NATO operation.<sup>102</sup> Taking part in either "Active Endeavour" or the Mediterranean Dialogue also poses some Arab-Israeli challenges. The Mediterranean Dialogue includes the four Maghreb states and Mauritania in addition to Egypt and Israel. The continued Israeli-Palestinian conflict, and the absence of Arab states that have not reached a state of peace with Israel has made Maghreb participation a challenging prospect, but with no significant ramifications for participation thus far.

A number of other significant challenges lie ahead for NATO and the Mediterranean Dialogue in fostering greater cooperation with the Maghreb. One of the most important is that NATO is one of many organizations trying to illicit greater regional and trans-regional security cooperation. At the international level, such efforts include the E.U. Barcelona Process, the so-called “5+5” Initiative, the Organization for Security and Cooperation in Europe (OSCE)’s Mediterranean contact group, the Mediterranean Union project led by France and even NATO’s own Istanbul Cooperation Initiative towards the broader Middle East. This does not include previously listed regional efforts, such as the AU, the Arab League or the so-called Arab Maghreb Union.<sup>103</sup>

What has bridged regional and international North African conceptions of security is the premise that violent Islamic terrorism centered on AQIM and efforts to contain regional crises drive both regional and international efforts to promote greater cooperation and partnership in North Africa. However, as regional and U.S.-led cooperation efforts have shown, efforts to shape security politics in North Africa are unlikely to be successful without the support of leading regional actors, including Algeria and Morocco.

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<sup>2</sup> CIA, World Factbook, accessed November 23, 2010.

<sup>3</sup> CIA, World Factbook, accessed November 23, 2010

<sup>4</sup> CIA, World Factbook, accessed November 23, 2010

<sup>5</sup> CIA, World Factbook, accessed November 23, 2010

<sup>6</sup> CIA, World Factbook, accessed November 23, 2010

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<sup>8</sup> Defense Security Cooperation Agency News Release, "Morocco – M109A% 155mm Self-propelled Howitzers," August 3, 2007, [http://www.dsca.mil/PressReleases/36-b/2007/Morocco\\_07-45.pdf](http://www.dsca.mil/PressReleases/36-b/2007/Morocco_07-45.pdf), Accessed May 10, 2008 and Jane's World Armies, "Morocco," March 5, 2010, Accessed October 17, 2010.

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<sup>16</sup> Jane's World Armies, "Libya," December 7, 2009, Accessed October 17, 2010.

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