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AN ASSESSMENT OF THE TURKISH DEFENSE INDUSTRY - 2006

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ABSTRACT
Turkey is located at the center of the most unstable triangle in the world—the Balkans, Caucasus and the Middle East. In addition to the reasons coming from this geographically critical position, there are also historical, economical, social and strategical issues which make that Turkey has to have a strong military. Evidently it is not possible to form and maintain a strong and modern army without having important industrial input. Accordingly, Turkey is enforcing its defense industry to cope with the relevant targets.
Keywords: Turkey, defense, industry

1. INTRODUCTION
The geographical position of the Republic of Turkey, at the center of the most unstable triangle in the world—the Balkans, Caucasus and the Middle East, and its long historical background with the neighboring countries makes it imperative to maintain a strong and modern military. Maintaining a strong army and modernizing it continuously necessitates, in first instance, meeting the requirements of such an army. This can be done by direct purchase from the domestic and foreign markets or by participation in joint production programs [1]. Direct purchases from the domestic market are related with the products developed by the domestic producers or manufactured under license (technology transfer) from foreign countries. There are also products that are obtained as the result of the joint activities through research and development (R&D) of the Turkish Armed Forces (TAF) and the domestic producers. Turkey is trying to increase the share of domestic producers and domestic R&D in this process, seeing economical difficulties and non-feasibility of doing otherwise.

2. TURKEY AND TURKISH ARMY
Turkey is a member of the United Nations (UN), North Atlantic Treaty Organization (NATO), Organization for Security and Cooperation in Europe (OSCE), the Euro-Atlantic Partnership Council (EAPC). Turkey is also in the process of negotiations with the European Union with the purpose of being a full member of it. Turkey maintains the second-largest army in the NATO defense system.

The portion of the Turkish Ministry of Defense (MOD) budget in the GNP is about 3.6 percent on the average, and around 12 percent in the Consolidated Budget, which is the highest spending in NATO [2]. The average allocation of the MOD budget is given in Table 1.

Table 1. The average allocation of the budget of the Ministry of Defense [3]

Organizations	Proportion of the MOD Budget
Turkish General Staff	7.7 %
Ministry of National Defense	7.3 %
Land Forces Command	49.5 %
Naval Forces Command	13.9 %
Air Forces Command	21.6 %

The allocation of the 609,700 persons serving in the armed forces is divided among the army (495,000), navy (54,600) and air force (60,100). In general, one-third of the MOD allocation (about USD 2.6 billion) is spent on foreign procurement expenditures and military-related investments.

The sources of funds to meet Turkish military expenditures include the Ministry of National Defense budget; the income from the Turkish Armed Forces Foundation; the Turkish Defense Industry Fund; income derived from the sale of surplus equipment, services, or other goods earmarked for the Ministry of Defense; and funds allocated by the Undersecretariat for Treasury for loan payments, the General Command of Gendarmerie budget and the Coast Guard Command budget.

The requirements of the army are met by direct purchase from the domestic and foreign markets or by participation in joint production programs [4]. As it is stated above, direct purchases from the domestic market concern the products developed by the domestic producers or manufactured under license (technology transfer) from foreign countries. There are also products that are obtained as the result of the joint activities through R&D of the TAF and the domestic producers. These products constitute the final target of the purchases from the domestic market. Turkey, which aims to become a self-sufficient country in the field of defense equipment and endeavors to develop its defense industry with this objective, has accelerated its activities and concentrated its efforts in this field. The Turkish Defense Industry, in order to be able to reach the advanced level

3. TURKISH DEFENSE INDUSTRY

Since the mid-1980s, Turkey has been engaged in a wide-ranging program to develop a modern defense industry based on cooperation with firms in other countries [5]. Previously, Turkey's economic and industrial capacity was insufficient to produce weapons as sophisticated as those of Western Europe. In the early years of the republic, the government sponsored a number of arms factories intended primarily to supply basic infantry weapons and ammunition. After World War II, Turkey's efforts to bring its military establishment up to modern standards depended almost totally on military assistance and credits from its NATO partners. After the imposition of the limited embargo by the United States in 1975, Turkey launched a series of projects to reduce its dependence on imports of major military items. Initial results took the form of a broader range of domestically produced light weapons and artillery and the development of an electronics industry oriented toward battlefield communications and the requirements of military aircraft.

Before 1985, the requirements of the TAF were met through the law No:1325 about the duties and structure of Ministry of National Defense. Accordingly, the operations were carried on by Technical Services and R&D departments of MOD. In 1985 with Law No: 3238 Defense Industry Development and Support Administration (SAGEB) was founded under MOD and an economic source was allocated, which is called “Defense Industry Support Fund“. The fund does not depend on national defense budget appropriations but receives earmarked revenues directly -10 percent of taxes on fuel, 5

percent of individual and corporate income taxes, and taxes on alcohol and tobacco.In 1989 SAGEB was reorganized as Under Secretariat for Defense Industries (SMM,Savunma Sanayii Müsteşarlığı). Similarly, Foreign Affairs Section was set up in 1988 in order to establish and develop the cooperation activities in military-techno-politics subject with the allied countries, which later became the Defense Industry Foreign Affairs Department in MOD. That department mainly dealt with Defense and Industrial subjects in Independent European Program Group (IEPG), West European Armament Group (WEAG), NATO Conference of National Armament Director (CNAD).

Most of the major projects encouraged by SSM have been international joint ventures and coproduction enterprises. In most cases, the foreign partner must agree to an offset provision, that is, a commitment to purchase some part of the resulting production, or components or other goods manufactured in Turkey.

The Turkish defense industry employs about 50,000 individuals at 110 firms, many of them state owned. About 1,000 additional firms participate in defense business as subcontractors. The largest producer of weaponry in Turkey, with about 12,000 employees, is Makina ve Kimya Endüstrisi Kurumu (MKEK), controlled by the Ministry of Industry and Trade. MKEK meets the requirements of the Turkish armed forces for light arms (including the M-3 and MG-3 rifles and a machine gun of German design), ammunition, and explosives. It also produces antiaircraft and antitank guns.

In 1988 rocket and missile production was shifted from MKEK to a new company, Roket Sanayii (ROKETSAN). ROKETSAN has the largest share in the production of the propulsion system and rocket assembly for the four-country European consortium manufacturing the Stinger SAM. The company also plans to produce multi-launch rocket systems (MLRS) in partnership with a United States firm, the LTV Corporation. Turkish arms manufacturers' most ambitious undertaking has been a consortium with United States firms to produce F-16 fighter aircraft. Under this arrangement, airframes for the F-16s are produced in a factory at Akıncı (formerly known as Mürted) Air Base near Ankara by TÜSAŞ (Türk Uçak Sanayi Şirketi) Aerospace Industries, with 51 percent ownership by Turkish interests, 42 percent by General Dynamics, and 7 percent by General Electric. The engine plant near Eskisehir is a joint venture with General Electric.

Communications equipment and electronic warfare systems for the Turkish military are produced by ASELSAN Military Electronics Industries, a state-owned company whose dominant shareholder is OYAK. ASELSAN manufactures under license a United States-designed family of manpack and vehicular battlefield radios and voice scramblers. It supplies the inertial navigation systems and fire control for the TÜSAS F-16 project and produces components for the Stinger missile program.

Much of Turkey's indigenous naval construction has been carried out with cooperation from German shipbuilders. Turkey has the capacity of producing frigates, submarines, fast-attack boats armed with Harpoon missiles, as well as destroyer escorts, patrol boats, landing craft, auxiliary craft, minesweepers and patrol boats at the main naval shipyard at Gölcük.

Looking with a general perspective, the requirements of the Turkish defense industry can be divided into 27 categories [6]:

1. Airborne Electronic Warfare Equipment / Airborne Radio Transmitters and Receivers / Airspace Control and Airborne Early Warning Equipment / Weapons and Weapon Control Systems for Aircraft
2. Aircraft, Helicopters and Unmanned Aerial Vehicles, Aircraft-Helicopter Engines and Components
3. Airport and Ground Support Equipment / Other Air Equipment and Services
4. Bombs, Ammunition and Ammunition Components
5. Documentation Services
6. Electronic and Electrical Equipment
7. Engineering Equipment, Land Mines, Explosives, Construction and Excavation Machinery
8. Field Accomodation and Catering Equipment
9. Ground-Based Communication Systems

10. Internal Combustion Engines / Power Supplies and Batteries
11. Land Target Detection Equipment, Fire Control Systems, Night Vision Systems
12. Logistic Support and Service Vehicles
13. Maintenance, Repair and Renewal service
14. Manufacturing Services
15. Material Handling Equipment / Workshop Machinery, Tools and Equipment
16. Medical Supplies and Hospital Equipment / Fire Fighting and Alarm Equipment
17. Naval Combatants and Patrol Ships
18. Naval Underwater and Surface Sensors / Underwater and Surface communication System / Naval Auxiliary Machinery and Equipment / Naval Services
19. Raw Materials and Semi-Finished Products / Paints and Chemicals
20. Research-Development, Consultancy and Supporting Services
21. Rocket and Missile Systems
22. Software Services
23. Submarines Landing and Auxiliary Vessels
24. Tanks, Armoured Vehicles and Related Equipments
25. Test Equipment / Training Equipment
26. Uniforms, Protective Clothing and Equipment / Personnel Equipment
27. Weapons Systems for Land Forces

Industrial development in all these areas will, on one side directly help balancing of the imports and exports of the Turkish industry, and on the other side will be a governing power to push up the technological level of the Turkish industry in general. The most important input for the realization of these targets is the increase in R&D activities and the number of patents received [7, 8].

4. CONCLUSIONS

The effort to create a modern defense industry on a narrow technological base was risky for Turkish defense planners. However, it appears to have been successful in enabling Turkey to rely on domestic sources to meet an increasing portion of its advanced equipment needs. The results have included reductions in costs and in the demand for foreign exchange, as well as the opening of foreign markets, mainly through offset provisions. A broader goal was to set new standards for quality and productivity in Turkish industry generally and thus increase the country's competitiveness through the lead established by the defense industry. Looking at the last decade, it can be said that at least in electronics this bifold objective is achieved making Turkey catching up with the standards of European Union. Developments in the other fields also are to be expected in the near future.

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