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NATIONAL INTELLIGENCE SURVEY

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Armed Forces

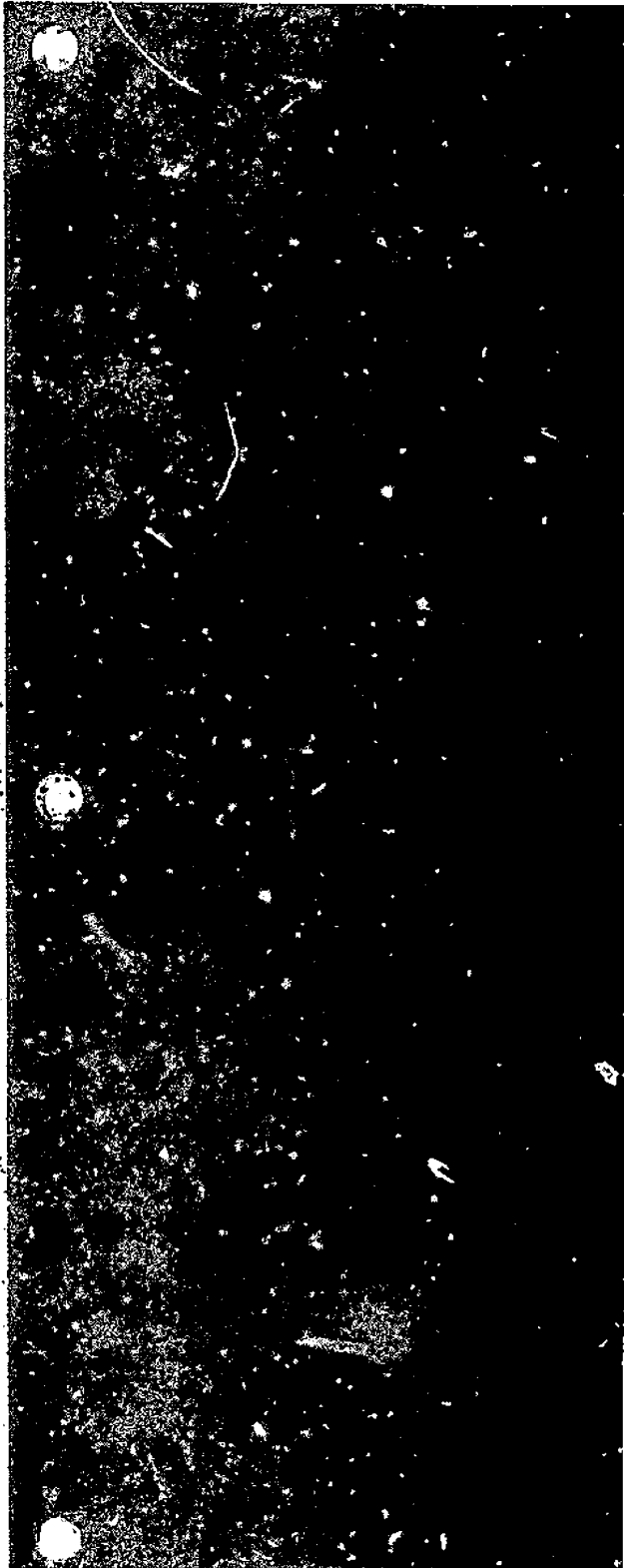
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ECUADOR

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Armed Forces



Air force S-55 Sikorsky helicopter

A. Defense establishment

The Ecuadorean Armed Forces, which total 21,815 men, rank considerably below those of the adjacent countries of Colombia and Peru in size, equipment, and general effectiveness. The 17,000-man army is primarily a lightly armed force having 69 light tanks, 38 other armored vehicles, and 52 howitzers (65-mm to 105-mm). The navy, which has 3,150 men, including 580 marines, bases its strength on seven combat ships and 10 patrol craft, including three West German-built fast patrol boats. The air force has 1,665 men and 91 aircraft. Of these, 32 are combat aircraft, among which are 28 jets. In times of emergency, the 7,050-man National Civil Police, normally under the Minister of Government and Police, comes under the control of the Minister of National Defense, and the

850-man Customs Police, normally under the Minister of Finance, comes under the control of the Army Commander. (S)

The mission of these forces, as stated in the 1945 Constitution, is to "preserve the national sovereignty, defend the integrity and independence of the Republic, and guarantee the execution of the articles in the Constitution and the laws." Although the armed forces are relatively low in effectiveness compared with similar units in the armed forces of neighboring countries, officer training is excellent, and enlisted personnel are well disciplined and inured to hardship. The major problems are that about half the personnel are 1-year conscripts, much of the materiel is old and poorly maintained, the logistics system is poor, and the country is dependent upon foreign sources for materiel, including ammunition. Moreover, during

1960-61 and 1970-72, many capable senior military officers were retired by President Velasco Ibarra, and this practice has crippled the military leadership and thus the effectiveness of the armed forces. During 1970-72 alone he retired over 60% of the army colonels, filling key military posts with officers chosen for personal loyalty to him regardless of their skill or effectiveness. Armed forces capabilities are further hindered by a chronic shortage of funds that has prevented any major purchases of new equipment since World War II. The government renewed its efforts to update and modernize the armed forces through equipment purchases in 1970 and 1971, however. Anticipated oil revenues also should allow a major modernization of the materiel inventory. (C)

Ecuador's dissatisfaction over a boundary settlement with Peru is considered to be the only potential source of armed conflict with a neighboring country. Historically, fear of an invasion by superior Peruvian forces has caused Ecuador to keep three of its six brigades in the southern zone of the country. (C)

In internal security, the armed forces are effective in controlling urban disorders and in operations against small guerrilla bands, although they would be ineffective if confronted with the unlikely contingency of widespread guerrilla action. They became particularly aware of the importance of training for internal security as a result of the urban disorders beginning in 1959 in connection with the Inter-American Conference planned for Quito. Since that time, the armed forces have devoted considerable attention to internal security, particularly in urban areas. The army is more effective than the police in controlling urban disorders and frequently is given this responsibility when there are serious problems. It has received training and experience in riot control and is very alert to developing urban threats. The navy, also, is occasionally involved and has created a marine battalion for internal security, especially at Guayaquil. The army has devoted attention to the threat of guerrilla insurgency, creating four special security detachments of about 42 to 58 men each, deployed at strategic locations in the interior for quick use against rural insurgents and against saboteurs in the important petroleum areas of the Oriente region in the northeast. In addition, the army has a 300-man rapid reaction force available for transport by the air force to control security crises developing anywhere in the country. These forces have been successful in controlling the few insurgent attempts that have been made, but those movements have been weak and have been unable to gain the support of the rural population, which is relatively suspicious of all

outsiders. There has been no active rural insurgency since 1962, but the military continues to give considerable attention to the potential threat. (C)

As part of its concern with internal security and as a contribution to national development, the armed forces devote considerable effort toward civic action. Major army projects include roadbuilding into the interior by the army's two engineer battalions, community development projects undertaken by the army's two civic action battalions, and the training of some 400 conscript personnel per year in agriculture and frontier settlement under the program of the army's Military Agrarian Training Center. The navy uses its floating repair shop to perform minor machine work, welding, electrical repair, and other services in small coastal towns that lack shop facilities. It controls *Transportes Nacidos Ecuatorianos* (TRANNAVE), organized in early 1972 under a September 1971 decree, and, through that company, manages a new mixed-capital shipping company established 14 September 1972—the *Flota Petrolera Ecuatoriana* (FLOPEC). FLOPEC is to transport half of the petroleum brought by pipeline from eastern Ecuador to the Pacific. The navy is to provide officers to command the ships owned or leased by FLOPEC. The air force for many years has operated and staffed a domestic commercial airline, *Transportes Aereos Militares Ecuatorianos* (TAME), providing service to remote areas not profitable for, or served by regular commercial airlines. It also supervises an international commercial airline, *Compania Ecuatoriana de Aviacion*, acquired by the government in August 1972; both airlines have been merged in the single Mixed-Capital Aviation Company of Ecuador, 52% of whose shares are owned by the government through TAME. Both the navy and air force provide medical rescue and medical service to outlying areas that would otherwise not receive any medical care. The training of military regular and conscript personnel also assures the existence of a national pool of technically qualified personnel, who, upon release from military service, contribute intellectually and economically to national development. (C)

Ecuador is a member of the Organization of American States and of the Inter-American Defense Board, which plans for the joint defense of the Western Hemisphere. It is a signatory of the Inter-American Treaty of Reciprocal Assistance (Rio Treaty) of 1947, under which it assumes the obligation to support other American states threatened by aggression. In 1954, Ecuador signed the Caracas Resolution, which declared that the domination or control of an American state by the international

Communist movement constitutes a threat to the hemisphere and requires Inter-American consultation. The armed forces have displayed a willingness to support these agreements. Until 1972, the military consistently sided with the U.S. position on Cuba. For example, in 1962 the military leaders forced leftist President Carlos Julio Arosemena to break diplomatic relations with the Cuban Government. Upon coming to power in 1963, the military junta outlawed the Communist Party and arrested many leftists. To preclude rank-and-file support of communism, anti-Communist doctrine has been included in the initial training of all new personnel since the mid-1950's. In mid-1972, the military government voted in the OAS in favor of the Peruvian-sponsored resolution which would have permitted each nation to establish relations with Cuba if it so desired. Ecuador's vote, however, was motivated by its desire to maintain a revolutionary image for internal political considerations rather than by its desire to renew relations with Cuba. Ecuador supports international arms control agreements and has ratified the nuclear nonproliferation treaty. (S)

Foreign military missions have exercised an important influence on the Ecuadorean forces. The first foreign officers who assisted in training the Ecuadorean Army came from France in the 1890's. A Chilean military training mission served in Ecuador from 1899 until World War I, French advisers served with the air force Aviation School until 1922, and an Italian military mission served from 1922 until the beginning of World War II. Since that time, the United States has exercised the predominant influence. As a result of a 1940 agreement, a U.S. naval and a military aviation mission served in Ecuador after early 1941. Under a 1942 agreement, the United States established air bases on the Galapagos Islands and at Salinas on the mainland for protection of the Panama Canal. In 1944 a U.S. military mission was assigned to Ecuador, and small amounts of U.S. military equipment were provided under Lend-Lease and, later, under other aid programs. Ecuador was the first Latin American country to sign the Military Assistance Program Agreement, on 20 February 1952. This agreement provided the basis for the continuing in-country presence of the U.S. Army, Navy, and Air Force missions and for military assistance to the country. These were the only training missions except for a number of small training teams from other countries—a small Chilean mission at the Army War College during 1956-61, an Israeli adviser on agricultural training from the early 1960's, an Israeli adviser on the

military reserve system in 1971-72, three Colombians (two in 1970-71 and an additional officer in 1972) giving training in canine corps and military police techniques, two Brazilian officers advising the Institute of Advanced National Studies (since 1972), two Chilean officers advising the Army Advanced School (since 1973), and a French officer advising the army on the maintenance of its new French tanks and vehicles (1972-73). The United States supplied significant amounts of assistance, almost all as grant aid, and contributed toward improvement in the organization, training, and equipment of the armed forces. (S)

In September 1969, Ecuador denounced the 1952 mutual defense assistance agreement, and the navy, army, and air force mission agreements of 1940, 1944, and 1940, respectively, and asked for a single agreement to replace them. Friction had existed since the 1950's over Ecuadorean seizures of U.S. tuna boats fishing inside Ecuador's claimed 200-mile territorial waters. The problem assumed critical proportions beginning in mid-January 1971, when Ecuador began to seize and impose sizable fines on unprecedentedly large numbers of U.S. tuna boats. The first of 51 Ecuadorean seizures during 1971 occurred on 11 January. There were only two seizures in 1970, both in February. On 12 January 1971 an amendment to the U.S. Foreign Military Sales (FMS) Act was enacted. It directed the suspension of FMS transactions to any country seizing a U.S. fishing boat beyond 12 miles from its coasts. The suspension was to remain in effect for 12 months from the date of the last seizure unless waived by the U.S. President. Ecuador seized two boats, one on 15 January and one on 17 January, and on 18 January 1971 the U.S. suspended military sales to Ecuador. The Ecuadorean Government reacted by requesting the withdrawal of the U.S. Military Group, which accordingly was inactivated on 5 March 1971. Since the termination of U.S. military sales and interruption of U.S. training programs, U.S. influence has declined. Ecuador had relied largely on the U.S. for materiel, although in 1970 it purchased US\$4.5 million of materiel from third countries. With the suspension of U.S. sales, Ecuador again is acquiring items from third countries to replace its deteriorating U.S. inventory. Purchases include transport and fighter aircraft from the United Kingdom; tanks, armored cars, and helicopters from France; munitions from Belgium and three fast patrol boats from West Germany. The Soviet Union reportedly tried to sell materiel to Ecuador in February-March 1971, but the military did not accept the offer. On 30 October 1972, the Soviets reportedly offered Ecuador substantial

grant military aid, but this offer, if still outstanding, also probably will be rejected. (S)

Ecuador has participated regularly in UNITAS, the annual combined U.S.-Latin American naval exercises, but largely because of the dispute with the United States over offshore fishing rights, the Ecuadorean Government in 1971, 1972, and 1973 decided against participation. (S)

1. Military history (S)

The Ecuadorean Army and Navy grew out of the forces that fought for independence from Spain during 1809-22. Subsequently they formed part of the forces of Gran Colombia until Ecuador gained its independence from that entity in 1830. A military academy was first established in 1838 but was later closed. (The present military academy was founded in 1899 by Eloy Alfaro, considered by Ecuador to be its greatest military leader.) The Naval Academy was established in Guayaquil in 1853, and the Air Force Aviation School was created in 1921. Generally the military forces have performed poorly in war. They were involved in a number of indecisive clashes with the forces of Colombia and Peru during 1845-60, primarily over border disputes. The only full-scale military confrontation in the 20th century was with Peru over a boundary demarcation. After a number of border clashes, Peru invaded Ecuador and inflicted a humiliating defeat in July 1941 on the very inferior Ecuadorean forces. Ironically, Ecuador's chief military glory also stems from that war, when, in the naval Battle of Jambeli, an Ecuadorean gunboat, the *Abdon Calderon*, on 26 July 1941 fought and crippled the much larger Peruvian destroyer *Almirante Villar*. As a result of the war, Ecuador was forced to concede to Peru nearly half the territory to which it has laid claim since independence, losing its direct access to the Amazon River.

The armed forces occasionally intervened in the government during turbulent political periods in the 19th and early 20th centuries, but they generally have sought to avoid such action. The 1926 Law of Military Status and Promotions for Officers, designed to free the armed forces from political pressures, encouraged the military to become more professionally oriented. However, military men occasionally have felt compelled to intervene in governmental affairs because of their responsibility to "guarantee the execution of the articles in the Constitution." On 28 May 1944, the military ousted President Carlos Arroyo del Rio for rigging his successor's election and allowed the installation of Jose Maria Velasco Ibarra, the most

popular contender, who had been excluded from the election. On 24 August 1947, the military ousted Velasco Ibarra but relinquished power to civilian rule within a month. In succeeding years, military men several times took decisive action to forestall threatened coups. In 1961 they unsuccessfully tried to forestall a Congressional coup, maneuvered by ultraleftist Vice President Carlos Julio Arosemena, that ousted President Velasco Ibarra from his fourth term and permitted Arosemena to become President. The military leaders endured his radical policies and disgraceful public behavior until 1963, when his toleration of a threat of developing Communist guerrilla warfare and terrorism, together with the chaotic domestic situation, forced their intervention. A military junta governed for 3 years and attempted to institute administrative and fiscal reforms, enacting an agrarian reform law, improving the investment climate, and preparing a long-range development program. Despite their good intentions few actual reforms were accomplished. When the junta sought to collect higher business taxes to compensate for a failing economy, business interests refused. Political opposition leaders, labor leaders, radical students, and businessmen united to force the junta from office. From 1966 to 1972, the military remained in the background, although in 1970 they encouraged again-President Velasco Ibarra to assume dictatorial powers when Congressional intransigence paralyzed government operations. However, when Velasco seemed unable to prevent radical leftist Assad Bucaram, the most popular contender, from running in the mid-1972 election, the military ousted Velasco on 15 February 1972. The new government of Gen. Guillermo Rodriguez Lara has espoused a policy of economic development, elimination of corruption, and social improvements. It established the Institute of Advanced National Studies to assist in the planning and formulation of national policy. Military officers now hold most of the high administrative positions in the national and provincial governments and the presidencies of two mixed-capital corporations.

2. Command structure (C)

The President of the Republic, by the 1945 Constitution, is the Commander in Chief of the Armed Forces and is responsible for public order and the external security of the nation. He is supported by two committees—the National Security Council and the National Defense Board (Figure 1). The army is the largest and most influential of the three services, and army officers hold the largest number of important government positions.

The National Security Council advises the President on external and internal security and plans and coordinates security measures throughout the government. It is headed by the President, has the Minister of National Defense as Vice President of the Council, and also includes all other Cabinet ministers, the three service commanders as members of the Joint Command of the Armed Forces, the President of the Economic Planning and Coordination Board, the President of the Foreign Trade and Integration Institute, and the President of the Monetary Board. The Secretary General of the National Security Council, a senior military officer, advises the President on security affairs. The Secretariat General includes four functional divisions, for planning and coordination. The National Security Council also supervises the senior national agencies concerned with intelligence, mobilization (to be activated), and civil defense (to be activated), as well as the Institute of Advanced National Studies. The council originally was created by the military junta that governed during 1963-66. It was fairly active during that period, but seldom met thereafter and had little influence during President Velasco Ibarra's 1968-72 term. It is now active again.

The National Defense Board administers the nonbudgetary Special Accounts of the defense establishment. The board consists of the Minister of National Defense, the Minister of Government and Police, the Minister of Foreign Affairs, a representative of the Consultative Staff of the Ministry of Foreign Affairs, the Minister of Finance, the Assistant Comptroller General, the General Manager of the Central Bank, the President of the Supreme Court, a delegate from the Office of the Cardinal, the members of the Joint Command of the Armed Forces, and the Chief of the Joint Staff of the Armed Forces.

When the military assumed power in February 1972, a Council of Government consisting of one representative from each of the three services was formed. This military council, responsible for advising the President on legislation and for investigating cases of governmental graft, was phased out the following November and replaced by a legislative commission of five civilian lawyers.

The President exercises control over the military establishment through the Minister of National Defense. The minister normally is a civilian but presently is a retired army general. The Subsecretary of National Defense, who assists the Minister of National

Defense, is traditionally a military officer. The minister and subsecretary have a small executive staff of five departments and rely on the armed forces Joint Staff for most staff support. The minister directs the armed forces through the Joint Command of the Armed Forces. He also chairs the National Council of Merchant Marine and Ports, established in September 1970 as the highest level advisory body on policy matters concerning ports.

The Joint Command of the Armed Forces is a corporate body consisting of the three service commanders. The service commander who is senior in rank is designated as Chief of the Joint Command, a largely honorary position, which includes membership on the Foreign Relations Consultative Board (advisory body to the President) and on the Directorate of the Ecuadorean State Petroleum Corporation. The Chief of the Joint Command of the Armed Forces theoretically exercises command over the three services but, in actuality, has no authority over the individual service commanders. The Joint Command was established in May 1971 to replace the overall command position of the Chief of the Armed Forces General Staff. The Joint Command of the Armed Forces advises the President, the Minister of National Defense, and the National Security Council on security matters, coordinates joint military operations, and reviews the plans and programs of the three services, including their budget submissions. It also supervises the security forces assigned to protect high government officials in Quito. The Joint Command is supported by the Joint Staff and, through that body, exercises command over the joint-service Military Medical Service. (The Armed Forces Military Hospital, at Quito, however, is under the command of the Logistics Department (D-IV) of the Army General Staff.) The Joint Staff always has been somewhat ineffective because of a lack of training, funds, and interest, but the military government that came to power in February 1972 has shown greater interest in the staff and reportedly plans to increase its responsibilities. The Joint Staff is headed by the Chief of the Joint Staff, and consists of four numbered directorates and three other sections.

The individual service commanders exercise the real command authority for their respective services and have considerable autonomy in internal service matters. However, President Rodriguez, an army brigadier-general who has remained in active duty status, plays a fairly active role in all important military matters, particularly in the army.

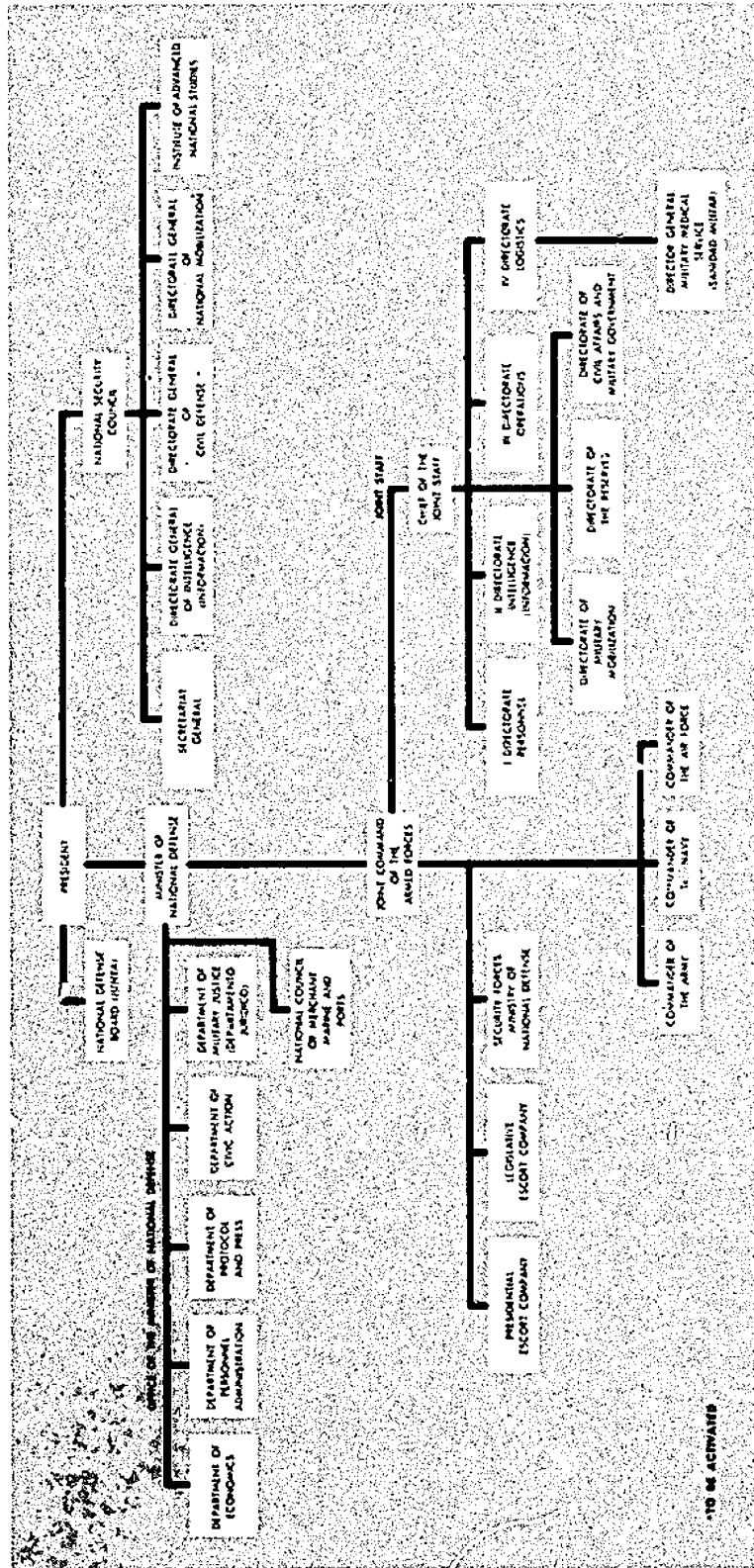


FIGURE 1. National defense organization (C)

B. Joint activities

I. Military manpower and morale (S)

Estimates of the total available manpower by 5-year age groups and the maximum number of males fit for military service as of 1 January 1973 are as follows:

AGE	TOTAL NUMBER OF MALES	MAXIMUM NUMBER FIT FOR MILITARY SERVICE
15-19	368,000	255,000
20-24	304,000	200,000
25-29	248,000	160,000
30-34	213,000	140,000
35-39	174,000	105,000
40-44	144,000	80,000
45-49	121,000	60,000
Total, 15-49	1,572,000	1,000,000

It is estimated that an average of 65,000 men will reach the military conscription age of 20 annually during 1973-77

Commissioned officers usually come from the middle and upper middle classes. Almost all army, navy, and air force officers are graduates of their respective service academies; a few have graduated from other Latin American and U.S. service academies. Some nonflying air force officers are graduates of the army's Eloy Alfaro Military Academy, the Naval Academy, or civilian universities. Army officers who are technical-service specialists are university graduates who have been given a special military course to qualify them for commissions.

Morale among officers of all services suffered from the political maneuverings of President Velasco Ibarra during his 1968-72 and earlier terms of office. During these periods, officers were selected for command positions primarily on the basis of their loyalty to the President and only secondarily for their talent and experience. Morale improved, at least temporarily, following the 15 February 1972 military ouster of President Velasco and the relaxation in governmental financial stringency as a result of revenues from the newly developed oil deposits in eastern Ecuador. The armed forces usually have enjoyed a moderate degree of popular acceptance and esteem. Low pay, overwork, slow promotions, lucrative civilian employment, and the unattractive prospect of having to fill many civilian governmental positions since the 15 February 1972 military coup have caused applications for early retirement to increase drastically in the navy, whose officer corps is already depleted by a high attrition rate. The army and air force officer corps also must fill government positions, but the

navy's officer corps is smaller than that of either the army or air force and, thus, is less able to meet the demand upon its supervisory personnel.

Noncommissioned officers for all the services are obtained by selection from among the regular and conscript enlisted men who elect to make the military a career. Although the educational level of the NCO's is somewhat higher than that of the conscripts, their training and practical experience are insufficient to enable them to accomplish some of the more complex tasks frequently assigned the noncommissioned officers of modern armed forces. The loyalty and morale of the NCO's are greater than those of the conscripts.

The army obtains some volunteers, but relies primarily on conscription. The navy and air force rely almost entirely on volunteers; conscripts entering the navy are generally destined for service with the marines. Entering enlisted men usually come from the lower classes and generally have a low educational level. Few have had any mechanical training or experience, and the armed forces must devote considerable time to elementary technical instruction. Major sources of discontent include poor quality food, low pay, and the poor condition of personal equipment.

All physically fit male Ecuadoreans, by the 1945 Constitution, are subject to compulsory military service. Those born after 1924 who are at least 18 years old are not permitted to accept any public office or to leave the country without prior presentation of their identification booklets or military certificates. Physical and mental examinations are given at age 19, and those males who qualify for military service are placed in a pool from which conscripts are chosen by lot. Those selected for training enter service during the year after they reach age 20. About three-fourths of the inductees enter the service in February and the remainder in August. Active duty formally lasts 1 year, but conscripts generally are released after about 10 months of service. After completion of their active duty, conscripts are kept on the active personnel list of the Ministry of National Defense and are subject to recall for a period of 5 years until age 60. All former naval and air force personnel are subject to recall until age 60.

The conscription system always has followed a liberal exemption policy. A person is exempt if he is an only son, is enrolled in a higher educational institution, or is the major supporter of his family. Conscripts participating in the Ecuadorean Military Agrarian Conscription program for 1 year receive a document certifying fulfillment of the military service

obligation. To be exempt, students called by the draft are required to prove their enrollment in an educational institution and, thereafter, to demonstrate regular attendance in premilitary courses if these are offered by their schools. Students enrolled under a premilitary training program attend a half day of military classes each Saturday morning during their final year of high school and continue this training in the university. The course culminates in two 1-month sessions of intensive training with a regular army unit at the end of the 3d and 4th years of college. After this training, the students are commissioned as reserve second lieutenants.

The reserve system provided no refresher training prior to 1972, but an active reserve program was inaugurated in January 1972, under the guidance of an Israeli colonel engaged in advising the Ecuadorians on mobilization techniques. All ex-conscripts in the army born since 1946 were required to report to the army and update their service records. In May 1972, several thousand former army conscripts were recalled to active duty to receive instruction for a 20-day period. Periodic callups for such training probably will continue. Since July 1972, former Customs Police personnel (officers and enlisted men) have been considered to be part of the armed forces reserve.

2. Strength trends (S)

The strength of the Ecuadorean Armed Forces is 21,815 men, or about 0.3% of the population. About 78% of the total number of military personnel are in the army, 14% in the navy, and 8% in the air force. The army strength increased substantially in 1961-62 because of border tensions with Peru but was reduced in 1963-64 after the crisis had passed. During late 1970 and 1971, the army underwent a substantial but unexplained increase in its strength from 12,000 to at least 17,000, and perhaps 20,000. It is assumed that this increase was part of the planned expansion announced by the Minister of National Defense in December 1970. The navy's strength fell off in 1960 for economic reasons, increased temporarily during border tensions with Peru in 1962, and experienced a substantial, permanent increase in 1964 in anticipation of the planned purchase of two destroyers from the United Kingdom which was never completed. Air force personnel strength has remained fairly stable since 1959 except for a moderate, permanent increase during the 1961-62 tensions. The strengths of the armed forces for selected years are shown in (Figure 2).

FIGURE 2

ARMED FORCES STRENGTH TRENDS (S)

YEAR	ARMY	NAVY	AIR FORCE	TOTAL
1945	10,000	700	1,000	11,700
1949	10,000	1,000	800	12,400
1959	13,000	2,100	1,400	16,500
1960	13,000	1,700	1,400	16,100
1961	13,000	1,800	1,400	16,200
1962	15,000	1,900	1,600	18,500
1963	15,000	1,700	1,600	18,300
1964	10,000	2,300	1,600	13,900
1965	10,000	2,600	1,600	14,200
1966	10,600	2,600	1,600	14,800
1967	11,600	2,500	1,600	15,700
1968	12,000	2,500	1,700	16,200
1969	12,000	2,600	1,655	16,255
1970	12,000	2,600	1,600	16,200
1971	17,000	3,000	1,665	21,665
1972	17,000	3,150	1,665	21,815

3. Training (S)

Most military training is provided by the respective services, although some army schools also provide technical training to naval and air force personnel. The senior officer schools, which are all at the command and staff college level, are formally under the Joint Command of the Armed Forces, although, in practice, each school is under its respective service commander. They are the Army and Air War Colleges, in Quito, and the Naval War College, in Guayaquil. The Army and Air War Colleges provide a 2-year program and the Navy War College an 18-month program to qualify officers for senior command and staff assignments. Following the 18-month period, beginning in 1972, the students from all three schools reportedly will participate in a joint 3-month period of instruction and seminars. Students are in the grades of major or lieutenant commander and lieutenant colonel or commander. Enrollment in the first-year class usually is about 15 students in the army school, seven in the air force, and nine in the navy. The training is intensive and difficult, and the schools lose about one-third of their students through attrition. The Army War College formerly was the only senior service school and reportedly had navy and air force students until about 1960. The Naval War College was inaugurated in March 1964, initially as a correspondence school, but also with residence courses from 1966. It has separate programs corresponding to the naval specialties of the individual students. After about 1960 and prior to the establishment of the Air War College in October 1971, air force officers received all their advanced staff training abroad at the

U.S. Air Command and Staff College, Maxwell Air Force Base, Alabama; at the Brazilian Air Command and General Staff School, in Rio de Janeiro; and at the Chilean Air War College, in Santiago. The new Air War College offers courses in such subjects as economics, air warfare, and navigation.

The senior service school, the Institute of Advanced National Studies, located in Quito, was inaugurated in mid-1972. Funded through the National Defense Board, it is headed by a retired army general and is subordinate to the National Security Council. Its courses are generally parallel to those of the U.S. National War College; it provides a 10-month course covering such subjects as national security, command and joint staff, national mobilization, and strategic intelligence, and conducts research on national security. Thirty percent of the students are to be military, in the ranks of lieutenant colonel and navy commander or higher, and 70% civilian. The Military Geographic Institute, under the Commander of the Army has developed a curriculum designed for personnel of all three services and for civilians, and in 1972 graduated its first class of six army officers attending a new program leading to a degree in "geographic engineering." Until the Military Group withdrawal, Ecuador relied heavily on the United States for military training. Armed forces personnel regularly attended service schools both in the United States and in the Panama Canal Zone (President Rodriguez graduated from the Command and General Staff School at Ft. Leavenworth, Kansas, in June 1968). Through mobile training teams, the United States also had provided in-country training, including practical training in counterinsurgency. Ecuadoreans have graduated from the U.S. Military Academy since 1937 and from the U.S. Naval Academy since 1947. Because nominations to the academies were not affected by the withdrawal of the Military Group, one Ecuadorean entered the Military Academy and two entered the Naval Academy in July 1972. Ecuador also regularly participated in UNITAS, the annual combined U.S.-Latin American naval exercises, but, largely because of the dispute with the United States over offshore fishing rights, the Ecuadorean Government in 1971 and 1972 decided against participation.

Since the expulsion of the U.S. Military Group, a number of countries in Latin America have moved to fill the military training gap. Of the Latin American nations now providing assistance, Brazil provides more than all other countries combined and continues to expand its course offerings for Ecuadoreans. A substantial number of Ecuadorean Army officers

presently attend training in Brazil in such subjects as ordnance, mapping and charting, and intelligence procedures; 12 naval officers attended courses in Brazil in 1972; air force cadets receive pilot training, and higher ranking officers attend Brazil's command and general staff course. A Brazilian Navy captain is adviser-instructor to Ecuador's Naval War College, and a Brazilian Air Force colonel, assisted by a warrant officer, acts in a similar capacity at the Air War College. Since at least the early 1960's, a Brazilian Army colonel has been adviser to the Inter-Oceanic Highway Planning Commission. Brazil also sent a triservice mission for 90 days to help organize the Institute of Advanced National Studies on the Brazilian model. A Brazilian Army colonel and a Brazilian Navy captain were subsequently assigned as advisers to that institute, the colonel on a 2-year assignment beginning in December 1972 and the captain on a 3-month tour beginning in April 1973. Argentina has offered courses for a few army personnel. Chile is training 12 naval officers, and a Chilean Navy captain instructed at the Naval War Academy until late 1971 when he was withdrawn; two army captains are now guest instructors at the Army Advanced School. A Colombian Army captain has been training the army in canine corps operations since 1970, and a Colombian National Police colonel was sent in 1971 to instruct the Army's military police as well as the Ecuadorean National Police. Of the extrahemispheric nations providing training, Israel supplies the greatest amount. In 1963 it furnished the initial training for Ecuadorean officers in agricultural colonization procedures, and two Israeli officers currently train conscripts in agrarian skills. A third Israeli officer advises the armed forces in mobilization and electronic computerization techniques and in 1972 helped establish a reserve program. A French armored cavalry officer arrived in Ecuador in June 1972, following the signing of a France-Ecuadorean 1-year military technical cooperation agreement, to advise the army on the maintenance of its new French tanks and armored cars. Officers also received intelligence instruction in West Germany prior to 1968.

4. Military budget (C)

The annual military budget is prepared by an interservice committee in the Ministry of National Defense from individual service submissions approved and forwarded by the Joint Staff. It is then reviewed by the Ministry of Finance. Under the constitutional system, the military budget was reviewed by a council

of ministers and then incorporated in the central government budget and forwarded to the legislature for final review and approval. Since 1970, when constitutional practices were suspended, all government budgets have been approved and published by presidential decree.

The military budget during the period 1969-71 averaged 12.3% of the central government budget and 1.7% of GNP—about average for Latin America. The military budget includes funds for pay and allowances and for day-to-day operations and maintenance costs. Funds for the procurement of weapons and major items of equipment and for major military construction are provided by separate appropriations known as Special Accounts administered by the National Defense Board. These accounts, which are constituted as a percentage of certain taxes such as those on theater tickets, beer, and escheated estates, are administered outside the government budget. They were established originally for the construction of defenses against Peru, but since the late 1950's they have been used for major procurement and construction. These Special Accounts are kept secret but reportedly have ranged between US\$2.5 million and \$4 million a year, which would represent a supplement of about 10% to the military budgets. Annual military budgets for recent years and their relationship to the central government budgets and GNP are shown below.

5. Economic support and logistics (C)

Ecuador has little capability to provide industrial support for its armed forces, although there is a small but growing manufacturing sector which provides some basic consumer goods, drugs, pharmaceuticals, and a few simple industrial chemicals. Ecuador's petroleum industry is experiencing a boom. In mid-1972, a 250,000-barrel-per-day trans-Andean pipeline from the eastern jungle oilfields to the Pacific coast was completed, thereby making Ecuador Latin America's largest crude oil exporter after Venezuela. Although the country is basically agricultural, it is not self-sufficient in food production.

Domestic output in direct support of the armed forces is limited to food, individual clothing, and some petroleum products. All other military materiel is imported and, until January 1971, came primarily through the U.S. Military Assistance Program (MAP). For the period mid-1951 through mid-1971, U.S. equipment valued at US\$50.5 million was delivered under MAP, of which over \$43 million was grant aid. Western European countries, notably the United Kingdom, Belgium, West Germany, and France, also have been suppliers of ground force weapons, naval vessels, and aircraft.

The Directorate of Logistics of the Armed Forces Joint Staff has overall responsibility for supervision of the logistics activities of the three services, but, in practice, the services have virtual autonomy in these activities, because little planning or staffing is actually carried out at the joint staff level. Major expenditures for materiel acquisition and building construction, however, usually are provided from the Special Accounts administered, allocated, and controlled by the National Defense Board.

C. Army

The missions of the Ecuadorean Army are maintenance of internal security, defense of the nation against aggression, and support of national civic action projects. The army is incapable of defending the nation against a modern combat force or of successfully waging aggressive war against either neighboring Peru or Colombia. It has the capability of maintaining internal security in urban areas with its airborne battalion and four jungle (special security) detachments and could quickly control small rural disorders. There has been a change in the conscription system since the early 1960's, when a complete annual turnover was the practice. Under the new system induction is in two increments annually: three-fourths of the conscripts are called up in February, the remainder in August. Conscripts represent approximately 60% of the force; three-fourths of the conscripts are released in February (and usually

	1968	1970	1971	1972
Military budget (U.S. dollars*)	26,402,840	28,847,325	29,378,215	35,346,535
Military budget as a percent of central government budget	12.2	12.3	12.5	10.4
Military budget as a percent of GNP	1.6	1.7	1.9	**2.0

*Converted at exchange rates as follows: 1 January 1968-17 August 1970, 18.18 sucres equal US\$1.00; 18 August 1970-31 December 1972, 25.25 sucres equal US\$1.00.

**Estimated.

earlier), and the army is seriously weakened for several months each year until the new conscripts can be trained. A poor logistics system results in equipment and vehicles being out of service for prolonged periods. (S)

1. Organization (S)

The Ecuadorean Army theoretically is coequal with the navy and air force under the Joint Command of the Armed Forces, but in actuality it exerts much greater influence than the other services because it is the largest and strongest force. The army forces are headed by the Commander of the Army (Figure 3). He is assisted by the Army General Staff. The Chief of the Army General Staff, in addition to his other army duties, is responsible for the army security units assigned to guard the President, the ministers, and the legislators.

Directly subordinate to the Commander of the Army are four military zones (each including a brigade), two separate brigades, six separate battalions, the Army Engineer Service, the Logistics Center and its four technical services and six schools, the Military Geographical Institute, and the Military Agrarian Training Center. The First Military Zone comprises the northern and central sections of the country, with headquarters at Quito; the Second Zone includes the central coastal area, with headquarters at Guayaquil; the Third Zone is responsible for the southern section of the country, with headquarters at Cuenca; and the Fourth Zone comprises the eastern jungle region, with headquarters at Canelos (also known as Pastaza). The zone commanders direct most of the army units within their areas of responsibility. The major exceptions are in the southernmost military zone, where three brigades are located for defense against Peru. But to prevent any one field commander from having so much power that he might pose a threat to the governmental leadership, two of those brigades are not under the respective zone commander but under the army commander. The six separate battalions include two civic action battalions, which are under the operational control of the commander in whose zone they are located.

The troops under each zone commander are organized into an army brigade and have a headquarters coinciding with that of the zone; the zone commander usually also fills the position of brigade commander. Each zone headquarters consists of a small staff organized along the lines of a U.S. division staff. The staff is headed by a Chief of Staff and is composed of Personnel, Intelligence, Training,

and Transport and Supply Departments. There are also legal, recruitment and induction, and finance offices on each staff.

2. Strength, composition, and disposition¹ (S)

The army has an estimated strength of 17,000—880 officers, 2,500 noncommissioned officers, 850 regular privates, and 12,770 conscripts. In addition, there are 325 cadets. The rapid turnover of conscript privates makes the noncommissioned officers' corps particularly important for providing continuity, experience, and proficiency to the army. Peak effectiveness in most units is reached in November and December, shortly before the major release of conscripts.

The army tactical elements are organized into six brigades and six separate battalions. Five of the brigades are infantry (including one with some specialization in jungle operations), and one is cavalry. The maximum brigade size is about 2,500. The six brigades have a total of 22 battalions and squadrons (called *grupos* in cavalry and artillery) (11 infantry, three mechanized reconnaissance, four horse cavalry, three artillery, and one air defense artillery) and 12 separate infantry companies. The infantry battalions range in size from 200 to 350 personnel, including 15 to 20 officers.

The six separate battalions consist of two engineer battalions, which are trained and equipped mainly for civic action (generally performed by company-sized detachments); two civic action battalions, involved in community development projects; a signal battalion; and an airborne battalion. The 300-man airborne battalion, located in the capital, is capable of quick action in quelling local insurgency. There are also four 48- to 52-man jungle-trained special security detachments. Three are stationed at dispersed locations for rapid deployment to suppress guerrilla warfare before it could assume serious proportions; the fourth was formed in 1969 specifically to provide antisabotage and plant security in the developing petroleum areas of eastern Ecuador. In addition, some officers and enlisted men trained in riot control and counter guerrilla techniques are distributed throughout all army units. A Military Agrarian Training Center (CAME), headquartered at Cayambe, has four widely dispersed training companies, each with a capacity for 100 trainees. Major troop concentrations are in the large population centers of Quito and Guayaquil and in the smaller city of Cuenca.

¹For current information see the *Military Intelligence Summary*, published by the Defense Intelligence Agency.



FIGURE 4. French AMX-13 light tank (U/OU)

The present materiel inventory consists mostly of a deteriorating and, in some cases, obsolete collection of items manufactured in Europe and supplemented by more standardized U.S. and NATO equipment acquired through the former U.S. Military Assistance Program. Major items in the army inventory are 69 light tanks (42 U.S. M3A1 and 27 French AMX-13, Figure 4), 20 U.S. M113 armored personnel carriers and six French Panhard armored cars (Figure 5), twenty 65-mm Italian pack howitzers, eight 75 mm pack howitzers (four U.S. and four German), twenty-four 105-mm howitzers acquired from the United States, and sixty-six 81-mm mortars (10 U.S. and 56 Argentine). Since the suspension of U.S. military sales in early 1971, other nations have offered military equipment. Offers of tanks, artillery pieces, machineguns, and vehicles are being extended by West Germany, Belgium, the Soviet Union, Czechoslovakia, Israel, Spain, Denmark, and France. Colombia has offered spare parts for the U.S.-type vehicles. The most recent significant army purchase was the French tanks and armored cars in 1970.

3. Training (S)

Training in the Ecuadorean Army, particularly for officers, provides good theoretical knowledge but tends to be somewhat weak in general application, particularly in field combat. Army conscripts receive their training in the units to which they are assigned, and the short period of conscription (usually about 1 year) allows little time for other than basic training. The program produces a tough soldier who can fire a rifle with some accuracy, keep his equipment clean,

and follow orders. The formal training schedule divides conscript instruction into basic, platoon, and company training phases. The four periods last a total of 8 months and 1 week, and the remainder of the 1-year service obligation is scheduled for maneuvers; on rare occasions joint operations with other branches of the army are conducted. Basic training consists mainly of close-order drill, basic weapons familiarization, personal hygiene, and garrison housekeeping duties. A few simple and rather ineffective field training exercises are given in the immediate vicinity of the barracks. Shortages of equipment and ammunition curtail rifle marksmanship practice and generally preclude live fire exercises with either mortars or machineguns.

Since 1966, CAME units at Tenguel, Cayambe, Santa Cecilia, and Sangolqui,² just outside Quito, have provided military instruction and training in agricultural and cattle-raising techniques to about 400 conscripts each year. Modeled after that of the frontier cooperative military farming colonies in Israel, the training is under the direction of an Israeli technical assistance team. The purpose of the program is to assist in the development of infrastructures for future civilian colonization of remote and less developed regions of the country, particularly the Oriente, and, at the same time, to provide a reserve force for the maintenance of border security. At the end of 1 year the conscript receives a document certifying the fulfillment of his military service obligation and may be awarded a small plot of farmland (Figure 6). A

²For diacritics on place names see the list of names at the end of the chapter.

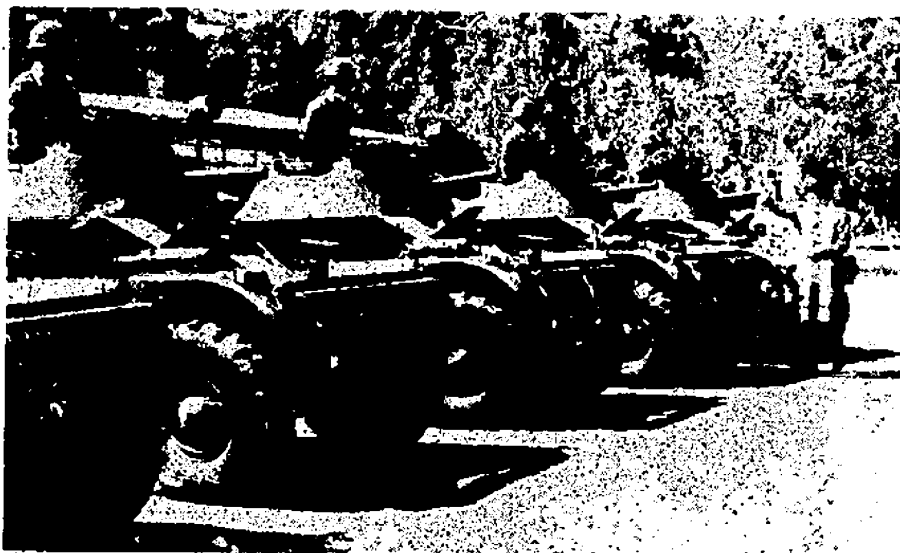


FIGURE 5. Blessing of the army's new Panhard AML-245 armored cars (U/OU)

projected increase from the present four to a total of 10 CAME units is anticipated, but the date of implementation is not known.

Officers of the combat arms and service branches receive their commissions through courses at the Eloy Alfaro Military Academy, in Quito. The combat arms program consists of a 5-year course; the first 3 years cover the final 3 years of academic high school plus military subjects; the fourth year provides general military training, and the fifth year provides specialization in one of the six combat branches—infantry, cavalry (horse), artillery, armor, engineering, and communications. All cadets must attend the full 5-year program except those who have had 2 years of military service and have completed 3 years of the 5-year high school; these are exempt from the first 3 years of the course. All cadets in the course receive parachute training, and the enrollment generally ranges from about 300 to 325. Applicants must be native-born Ecuadorians, single, 15 to 19 years of age, and must successfully pass mental and physical examinations. The standards of training and professional competence of instructors are good. Academic and disciplinary standards are high, as is the attrition rate. Cadets for the service branches must be high school graduates and attend a 2-year course, the first year covering general military subjects and the second specialized in one of the branches—finance, ordnance, transportation, administration, or cartography. The third course at the academy provides 3 months of summer training for university students as

the final portion of their compulsory military service. Officers in the ordnance, quartermaster, transport, and veterinary services have had university background before coming to the army and receive direct commissions after completion of initial military training in the qualifying course at the Army Advanced School.

Advanced training for officers and enlisted men is provided primarily in the Army Advanced School, in Quito. It has two programs, required for officers desirous of promotion in the combat arms (including combat engineers and communication) and in the services. Each program consists of a course required for promotion of second lieutenants, a basic course for first lieutenants, and an advanced course for captains. The school also provides similar promotion-qualifying courses for enlisted men, as well as courses for such enlisted specialists as medical technicians, vehicle drivers, mechanics, and administrative personnel. In addition, it provides courses for officers and enlisted men in parachute operations, jungle warfare, commando operations, ordnance, intelligence, army aviation, and English. More advanced officer training is given at the Army War College.

A number of other schools provide technical training. The most important is the Armed Forces Polytechnic School, in Quito. It is the former Engineers Technical School, which was expanded, improved, and given its present name in mid-1972. It offers 4-year, university-level courses in civil, industrial, mechanical, electronic, cartographic, and

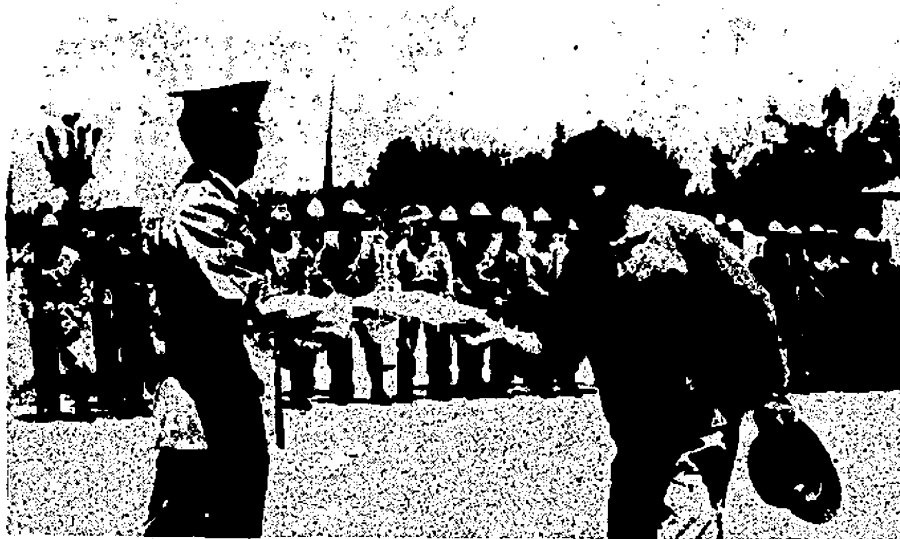


FIGURE 6. Conscript receives title to land upon completion of training (U/OU)

agricultural engineering to officers of all three services and to civilians. The Military-Industrial Training Center, in Latacunga, trains enlisted men in auto mechanics and industrial mechanics. Training is intended to benefit both the armed forces and the civilian economy after the trainee has left the army. There are about 100 students in each program, chiefly conscripts. The army also operates a small aviation school in Quito that provides limited basic flight training.

Until the U.S. Military Assistance Program was suspended in early 1971, army officers and enlisted men regularly attended U.S. military schools in the United States and the Panama Canal Zone. Ecuador has since turned to other countries for advanced training of army personnel, particularly Brazil. Seven officers were sent to Brazil for technical training in February 1972. Another five officers began a course at the Brazilian Institute for Military Geography and Research in May 1972. Because of its emerging petroleum industry, the Ecuadorean Government is seeking to train armed forces personnel in all phases of that industry. Seven army graduate engineers studied petroleum courses abroad in 1971—one in France, one in Argentina, two in Spain, and three in Brazil. Another four were attending similar courses at an Argentine university in early 1972.

4. Logistics (S)

The army logistics system is one of the major obstacles to the improvement of army capabilities.

The Logistics Directorate of the Joint Staff (Figure 1) is responsible for managing logistics. In practice, however, the army itself provides for its own supply requirements. *Ad hoc* directives issued by the Army General Staff provide the only centralized guidance for logistics operations. The entire system works on an *ad hoc* basis, and little if any planning is actually carried out; parts are procured and repairs made only after equipment has become nonoperational.

The battalions and separate companies have had to provide their own first-echelon maintenance and storage facilities because the brigade headquarters are unable to provide them. Some supplies, such as rations, are purchased by individual units from funds provided according to the personnel strength of individual units, but a shortage of funds has restricted such purchases. As a result, beginning in 1971, units were authorized to purchase land on the outskirts of the towns in which they were situated in order to grow their own food. The Logistics Center in Quito and subdepots in Guayaquil and Cuenca do provide some supplies, as well as major centralized vehicle and weapon maintenance; they receive requirements from brigade headquarters and directly from individual battalions and separate companies and deliver supplies directly to the user units. The distribution of the supplies that are provided, such as ammunition, remains highly inefficient since little centralized control is exercised, and allocation to units in many cases bears little relation to their needs. Four technical services—Ordnance, Quartermaster, Transport, and

Veterinary—are under the Logistics Center (Figure 3) in Quito, but they are small and poorly organized.

Weapons, generally of World War II vintage, are maintained in fair condition by individual units. Because of the lack of spare parts, however, units rely to a large extent on cannibalization.

Because of maintenance problems and a lack of spare parts, the army communications system is nearly inoperable. A substantial amount of signal equipment was received under the U.S. Military Assistance Program, especially in the early 1960's. The purchase in 1970 of walkie-talkies for riot control, however, represents the only recent acquisition of communication equipment. There have been no purchases of urgently needed larger, longer range radio or wire communications equipment. A planned microwave network linking all military zones and other government agencies with the central government has not yet been established.

The transportation system also constitutes a major logistics weakness. Vehicles are few in number per unit, diverse in origin, widely dispersed throughout the country, and poorly maintained. The entire transport inventory is badly in need of replacement. Many vehicles are inoperable because of the lack of spare parts. The scarcity and poor maintenance of roads, aggravated by the topography and climate, further complicate the military transport problem.

Much of the logistics problem stems from the cutoff of U.S. military assistance in January 1971. In an effort to eliminate the great variety of old, nonoperational vehicles in the army inventory and to standardize equipment, the Minister of National Defense initiated a modernization and standardization program in 1972. As of January 1973, the army reportedly was in the process of acquiring at least US\$20 million worth of military equipment, munitions, and supplies from France, Belgium, Italy, Japan, Mexico, Spain, the United Kingdom, and West Germany. Items being considered consisted of communication, medical, and quartermaster equipment and supplies, arms (including .45-caliber pistols, 9-mm UZI submachineguns, 7.62-mm FAL rifles, 81-mm and 120-mm mortars, and 105-mm and 155-mm howitzers), ammunition, armored personnel carriers, transportation vehicles such as jeeps, trucks, and automobiles, and a small number of aircraft, including helicopters. Most of the communication equipment and the arms and ammunition reportedly had been contracted for, and some of the items had begun to arrive.

5. Army aviation (C)

The missions of army aviation are logistical support of army units in the Guayaquil and Canelos areas and support of the mapping activity of the Military Geographic Institute. Army aviation is small—nine utility and one transport aircraft—and is integrated into various units. It does not constitute a separate organization. The army relies on the air force for aircraft maintenance except at Guayaquil, Canelos, and probably Zumba, where it provides its own very limited facilities. Army dissatisfaction with the lack of air force support for the army's supply and transport needs reportedly has resulted in an effort by the army to expand its own aircraft inventory. Accordingly, during 1971 the army increased its light aircraft inventory with the acquisition of two Fairchild-Hiller Porter PC-6 short-takeoff-and-landing aircraft (STOL). Based at Zumba on the Peruvian border, they provide passenger, medical, and mail service. One Short Skyvan SC-7 STOL transport, also acquired in 1971, is engaged in logistic support tasks in the Oriente jungle region. The inventory also includes seven other small utility aircraft: one Cessna 172, two Piper Super Cubs, and one Piper Comanche (PA-24) stationed at Guayaquil and Canelos, used for flight instruction and in general support of army units in remote areas; one Cessna 185 based at Canelos used to supply jungle units; one Beechcraft 65 and one Cessna 206 stationed at Quito assigned to the Military Geographic Institute for cartographic purposes. The army in late 1972 was seeking to purchase at least one additional Skyvan transport.

D. Navy

The missions of the navy are to protect the country from seaward attack, to regulate fishing within the 200-mile territorial waters claimed by Ecuador, and, by a presidential decree in late October 1971, to patrol against coastal smuggling. The fleet, one of the poorest in South America, has 10 ships and 15 craft. The small naval force could provide only token resistance to the superior navies of Peru and Colombia. It could conduct only limited coastal convoy, coastal surveillance, and intercept operations against insurgency threats from the sea. The navy has a very limited amphibious warfare capability with its small marine battalion. Although it has some ships equipped with the necessary weapons and sonar for successful antisubmarine warfare (ASW) operations, training is so infrequent that overall ASW capability is very low. The navy is capable of controlling the country's

fisheries and the port facilities. It lacks training, equipment, and personnel to perform adequate coastal surveillance and intercept operations under combat conditions. Major problems include the small size of the service; old equipment; serious officer shortages as a result of the requirement for navy officers to share the burden of government administration; frequent reassignments of key personnel; inadequate training afloat; shortages of hand weapons and ship armament and equipment; dependence upon foreign sources for supply, particularly ships and weapons; and inadequate maintenance procedures. (C)

I. Organization (C)

The Ecuadorean Navy is theoretically coequal to the army and air force under the Joint Command of the Armed Forces. The naval forces are headed by the Commander of the Navy (Figure 7), who has both operational and administrative control over the forces afloat and the shore establishment. Directly subordinate to the commander is a Navy General Staff of five numbered departments and five other staff sections.

Command lines extend from the Commander of the Navy, in Quito, to the Naval Squadron Commander, the three Naval Zone Commandants, the Commander of the marine corps (Naval Infantry Battalion), the Director of Supply and Material, the Director of Naval Personnel, the Commandant of the Naval War College, and the Director of Merchant Marine and of the Littoral. The Commander of the Navy, through the Director of Maritime Affairs, also supervises TRANSNAVE (Transportes Navieros Ecuatorianos—Ecuadorean Naval Transport). The president of its governing board, who is also the Commander of the First Naval Zone and, in this capacity, reports to the Commander of the Navy. The Naval Squadron is based at Guayaquil, Ecuador's principal port and the main navy base. The squadron includes the Destroyer Division, a Motor Torpedo Boat Division (formed in 1971), and an Auxiliaries Division. The First Naval Zone, with headquarters in Guayaquil, encompasses most of the navy's shore facilities, including the main base, at Guayaquil, and two secondary bases, one at San Lorenzo (on the Colombian border) and the other at Salinas. Beginning in the fall of 1970, the navy established small detachments at the coastal ports of Manta, Esmeraldas, Rocafuerte, and Puerto Bolivar. It reportedly has plans for establishing at least two other detachments. The First Naval Zone also has a Patrol Launch Division and an Auxiliaries Division. The marine corps is based in the First Naval Zone. In

mid-1972 the marine corps was planning to station a 52-man detachment at the oil port of Balao, near Esmeraldas, to provide security for the Texaco-Gulf facilities. The Second Naval Zone, with headquarters in San Cristobal, comprises the Galapagos Islands, which are wholly administered by the navy. It includes the naval base at San Cristobal, a naval air facility at Seymour, three naval detachments stationed at Isabela, Santa Cruz, and Isla Santa Maria (also known as Floreana island), and an auxiliaries division. It serves primarily as a port control authority and has no combat craft. The Third Naval Zone, established by decree in May 1972, has its headquarters at Coca (also known as Puerto de Orellana), in eastern Ecuador. It reportedly has authority over all naval activity on rivers within the Ecuadorean borders in the oil-rich area east of the Andes Mountains. It is not known what vessels, if any, have been assigned to this new zone.

The Directorate of Supply and Material, based at Guayaquil, maintains the Naval Shipyard, the Supply Center, the Combustibles and Ammunition Depot, the Medical Center, and the Office of Reserve Ships. The Directorate of Naval Personnel controls the Naval Academy and the Recruit Training School, both at Salinas; the Specialist School, split between Salinas and Guayaquil; and the Welfare Service, which looks out for the welfare of naval personnel. The Directorate of Merchant Marine and of the Littoral is responsible for port captains and for registering ships in the merchant marine. It also directs the Naval Oceanographic Institute, in Guayaquil. This institute, created by decree in July 1972, replaced the Hydrographic and Meteorological Service and has been given expanded responsibilities for oceanographic studies. Using the hydrographic ship *Orton*, it collects data for charts of the coast and harbors. It also has begun a series of studies of the physical, chemical, geological, and biological characteristics of the ocean. TRANSNAVE is an independent body reporting through the Director of Maritime Affairs to the Commander of the Navy. Established in early 1972, it is under the directorship of a seven-member board whose president is the Commandant of the First Naval Zone. Its primary missions are to provide the government with commercial ocean transport capability, including the transport of half of Ecuador's exported oil and the provision of maritime transportation to the Galapagos Islands. In the latter function, TRANSNAVE will supplement the transport service available to the Galapagos performed by one auxiliary craft assigned to the Second Naval Zone. TRANSNAVE, thus, will enable the navy to earn extra

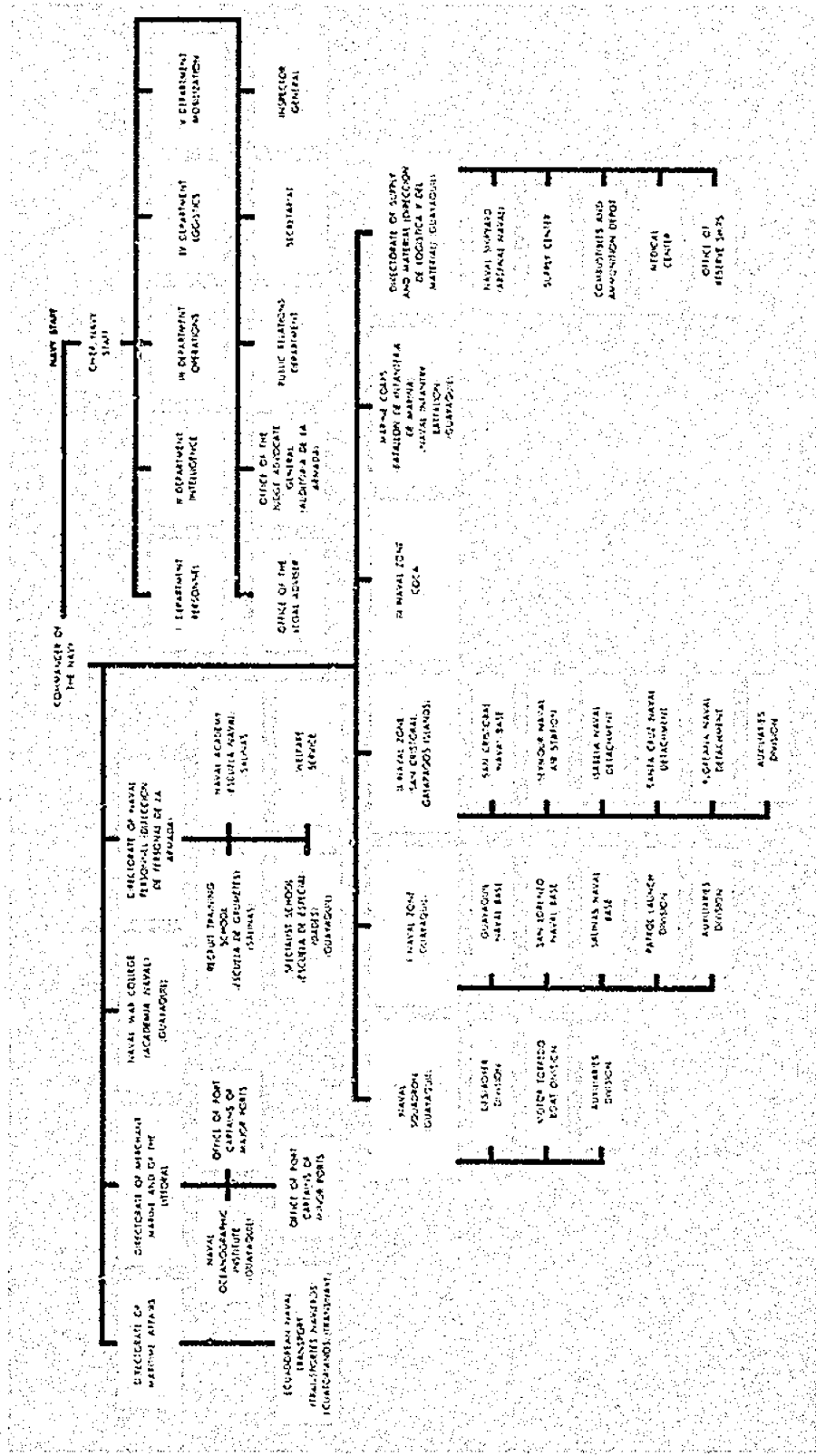


FIGURE 7. Navy organization (CI)

income and will give additional sea experience to naval officers and crews. Navy communications were rated as good as recently as 1970 in a joint exercise, but the equipment has been poorly maintained, particularly since the navy lost its primary source of spare parts when U.S. military materiel support was suspended in January 1971.

2. Strength, composition, and disposition³ (C)

The navy has 25 vessels: seven combat ships, 10 patrol craft, three auxiliaries, and five service craft. The seven combat ships, all built during World War II, consist of two *Hunt* class (Type I) patrol escorts (PE), acquired from the United Kingdom in 1955; two escorts (PCE), acquired from the United States in 1960 under the Military Assistance Program; and three former U.S. amphibious ships—one small amphibious transport (LPR), received in 1966, and two medium landing ships (LSM) acquired in 1959. The LPR is a modified destroyer escort (DE) and carries four vehicle/personnel landing craft (LCVP). It was renamed the *25 de Julio* and now serves as the flagship (Figure 8). The 10 patrol craft consist of three fast patrol craft (PTF), acquired from West Germany in 1971; two 100-foot motor gunboats (PGM), acquired in 1965 under the U.S. Military Assistance Program; and five riverine and roadstead patrol craft (P8E), two of which were acquired from the United States under the Military Assistance Program in 1962 and three from West Germany in 1954. The condition of the combat ships and craft ranges from poor to satisfactory. The three auxiliaries, all built during World War II, consist of one hydrographic ship (AGS), acquired in 1965 under the Military Assistance Program; one small coastal transport (AKL), acquired on loan from the United States in 1964; and one fleet ocean tug (ATF), acquired from the United States in 1960. The five service craft include one non-self-propelled auxiliary repair dock (ARD), acquired from the United States in 1961, and one floating workshop (YR), acquired on loan from the United States in 1962. All ships and craft are based at Guayaquil, the principal port. The Naval Squadron has operational control over most of the combatants, and the Directorate of Supply and Material has operational control over the repair dock and the repair shop. The hydrographic ship *Orion* is assigned to the Naval Oceanographic Institute. The navy has been negotiating with a West German firm for the purchase of six additional PTF-type motor torpedo boats as the

³For current information see the *Military Intelligence Summary*, published by the Defense Intelligence Agency.

second phase of a procurement program whose goal is a total of 12 PTF's. The craft, similar to the three PTF's provided by the *Fr. Luerssen Werft* shipyard in 1971, reportedly will be armed with the MM-38 *Exocet* surface-to-surface missile and are to be delivered in 1976-78. In December 1972 the navy reportedly requested that the United Kingdom, France, Italy, and West Germany be asked to submit tenders, including price and availability, on either two 400-600-standard-ton coastal submarines or two 50-100-ton small submarines.

The Ecuadorean Navy has a total of 3,150 personnel, including a 580-man marine battalion. There are 250 officers and 2,900 enlisted men (plus 125 midshipmen). Of all the naval personnel, 40% generally are assigned afloat. Most personnel are based in the Guayaquil area, one-half of them under the Squadron Commander and the other half under the Commander of the First Naval Zone.

Because of a shortage of personnel, many officers hold two positions—a practice which has seriously affected naval capabilities. Many naval officers have been forced simultaneously to serve in two different positions since early 1972, when the military took over the government and assumed many government positions previously filled by civilians. In an effort to offset its officer shortage, the navy is planning to give direct commissions to a number of university graduates. The navy obtains most of its enlisted men from volunteers, being dependent upon conscription for only a small percentage. The prospect of obtaining useful technical training has been a major inducement for enlistment, and enlisted pay and living conditions are good when compared with the general standard of the population. There is a modest turnover of enlisted personnel. Those who receive advanced schooling are subject to an extension of their term of service. Noncommissioned officers are obtained by selection from among the regular and conscript enlisted men who elect to make the navy a career.

The navy has very little in addition to its own resources which can be mobilized in time of emergency. It operates a Merchant Marine Officers School at Guayaquil, which has a capacity for about 40 students; the navy can also call upon the country's small "Banana Fleet" of five cargo ships and two tankers, which reportedly were acquired by TRANSNAVE in December 1971. The fleet has a very modest potential for short-haul (48 hours' steaming) troop-lift operations and logistics supply with its dry-cargo ships. One of these vessels is equipped with booms having a lift capacity of 80 tons, large hatches (52 feet in length), and a service speed of 21 knots. The



FIGURE 8. Navy flagship 25 de Julio, a modified LPR, at anchor (U/OU)

two tankers have little military potential because they are old and slow.

3. Training (C)

Most naval officers receive their initial service training as cadets at the Ecuadorean Naval Academy, in Salinas. A very small percentage are graduates of other Latin American naval academies or of the U.S. Naval Academy. Cadets must be high school graduates. The navy in October 1972 established its own high school, in Guayaquil. The present Ecuadorean Naval Academy was organized in 1946 by U.S. Navy officers, and its program of instruction is modeled after that of the U.S. Naval Academy, with a 4-year curriculum. Scholastic standards are high, and graduates automatically hold the equivalent of a university degree upon completion of the 4-year term. As of 1972, the academy had an enrollment of 125; it commissions about 18 to 20 graduates annually. In 1972, under a new program, university graduates in the fields of naval engineering, electrical engineering, civil engineering, mechanical engineering, jurisprudence, and administration are to be commissioned directly as navy officers upon completion of a 3-month indoctrination course at the Naval Academy. Advanced training is received at the Naval War College.

Enlisted men receive an initial 6-month basic training course at the Recruit Training School, at Salinas. Upon completing the course, recruits are placed according to aptitude in either the engineering

or the deck department. After about 2½ years of service, a recruit is sent to the Specialist School, in Guayaquil, for a course of 3 to 10 months in a needed specialization. Although some improvements have been made, the training is still deficient. The poor educational background of many recruits has been a major problem. Although the educational level of the NCO's is somewhat higher than that of the conscripts, their training and practical experience are insufficient to enable them to accomplish some of the more complex tasks frequently assigned to NCO's of modern navies. A few enlisted men also have received instruction in technical subjects in Chilean, Brazilian, and, until the suspension of U.S. military assistance in 1971, in U.S. schools.

Training afloat remains inadequate because of insufficient time at sea and the lack of attention to multiship exercises. Most of the time spent at sea is allocated to independent ship operations. The annual UNITAS operation, a combined U.S.-Latin American naval exercise, has provided the Ecuadorean Navy with its only multiship training of any consequence, but Ecuador refused to participate in 1971-72 as a result of the fisheries and territorial waters dispute with the United States. In the past, U.S. naval observers generally have rated the Ecuadoreans as the lowest in overall effectiveness among participating Latin American navies. The Ecuadoreans have made some effort to increase their capabilities, however, and in the 1969 and 1970 UNITAS exercises were rated high in the use of communication equipment.

The marine corps, in addition to training in marine tactics, theoretically must be parachute and ranger qualified. This training, however, is limited by a shortage of funds. The marines are intended to be an elite force and are the only unit, in addition to the army's four special security detachments, which is given priority in personnel, equipment, and training. U.S. Marine training manuals are used in the marine corps training program.

Naval aviation pilots are trained by the Aero Club of Ecuador and by a civilian under contract to the navy.

4. Logistics (C)

The poor logistics system is a principal weakness of the navy. Ecuador must obtain all ships and equipment from foreign sources, traditionally from the United States (through the Military Assistance Program) and Western Europe. Except for specialized lubricants, POL is obtained from a local refinery. Supplies are issued on orders from the Logistics Department of the Navy Staff and are provided from the naval supply and storage facilities in Guayaquil directly to ships and shore stations.

Reserve supplies are not maintained systematically because of a lack of command interest and a shortage of funds. Available spare parts are not sufficient to meet normal peacetime requirements, and most of the navy's ships are in critical need of vital spare parts because of a lack of logistics planning. The stocks of ammunition are small and would be depleted almost immediately in case of combat.

Maintenance suffers from a lack of command concern, obsolescent equipment, and a shortage of technically skilled officer and enlisted personnel. The Guayaquil Naval Base shipyard has the capability to make most repairs on all naval units, provided that spare parts and materials are available. The repair facilities available at the naval base yard include an auxiliary repair dock (ARD) that has a lifting capacity of 3,500 tons and a marine railway with a hauling capacity of 1,200 tons. There is also a floating workshop (YR). The shipyard reportedly is financially self-sufficient because of civilian contracts. Major overhauls and the repair of highly technical equipment have been accomplished abroad, particularly in Panama and the United States.

The small naval air arm relies upon the air force for maintenance support for its aircraft.

5. Marine corps (S)

The Ecuadorean marine corps, an elite, high-priority force, was organized in 1962 and is

organizationally a part of the navy. Its commandant, usually a lieutenant commander, reports directly to the Commander of the Navy, although the marine corps is based in the First Naval Zone. The marine corps consists of one battalion of 580 personnel, including eight officers, 500 enlistees, and 72 conscripts. The marines are well led, well trained, and have excellent morale and discipline. The marine battalion is composed of a headquarters company, a service and logistics company, two rifle companies, a reconnaissance company, and one heavy weapons platoon. It is equipped with 7.62-mm FAI rifles and .38-caliber automatic pistols from Belgium, with .30-caliber machineguns and with 12 U.S. 81-mm mortars. The majority of its personnel are stationed at Guayaquil, although a detachment of about 50 men reportedly was to be stationed near the oil port of Balao, near Esmeraldas, beginning in July 1972 and smaller detachments may be assigned to the Third Naval Zone in 1973. The mission of the marine corps is the maintenance of security at naval installations, support of national civic action projects, and support of the army in defense against foreign attack and in the maintenance of internal security, particularly riot control in Guayaquil. The detachment near Esmeraldas reportedly is to provide perimeter and compound security for the local Texaco-Gulf tank farm and pumping facilities.

The marines are staffed by a dedicated and professional officer and NCO corps and are capable of providing physical security at their installations. Their capability to counter major insurgency is weak, essentially because of a chronic shortage of funds for training, weapons, and equipment. The amphibious capabilities of the marines were strengthened in 1967 when a small amphibious transport (LPR) having a capacity for 162 troops and four vehicle/personnel landing craft (LCVP) was acquired. The marines have had little practical experience. A successful riot-control mission was carried out in September 1967, when 50 to 75 marines were deployed to the port of Manta to assist in quelling local civil disorders. In June 1971 and several times in 1972, elements of the battalion, in concert with customs agents, apprehended small groups of contraband smugglers.

6. Naval air arm (C)

Naval aviation is integrated into the navy and does not constitute a separate organization. Its inventory consists of five light propeller aircraft, including one Cessna model 172 and one Cessna 177 mostly used for administrative flights, and one Cessna model 310 and two Cessna model 377's received in October 1971 and used for coastal patrol. All aircraft are based at Simon

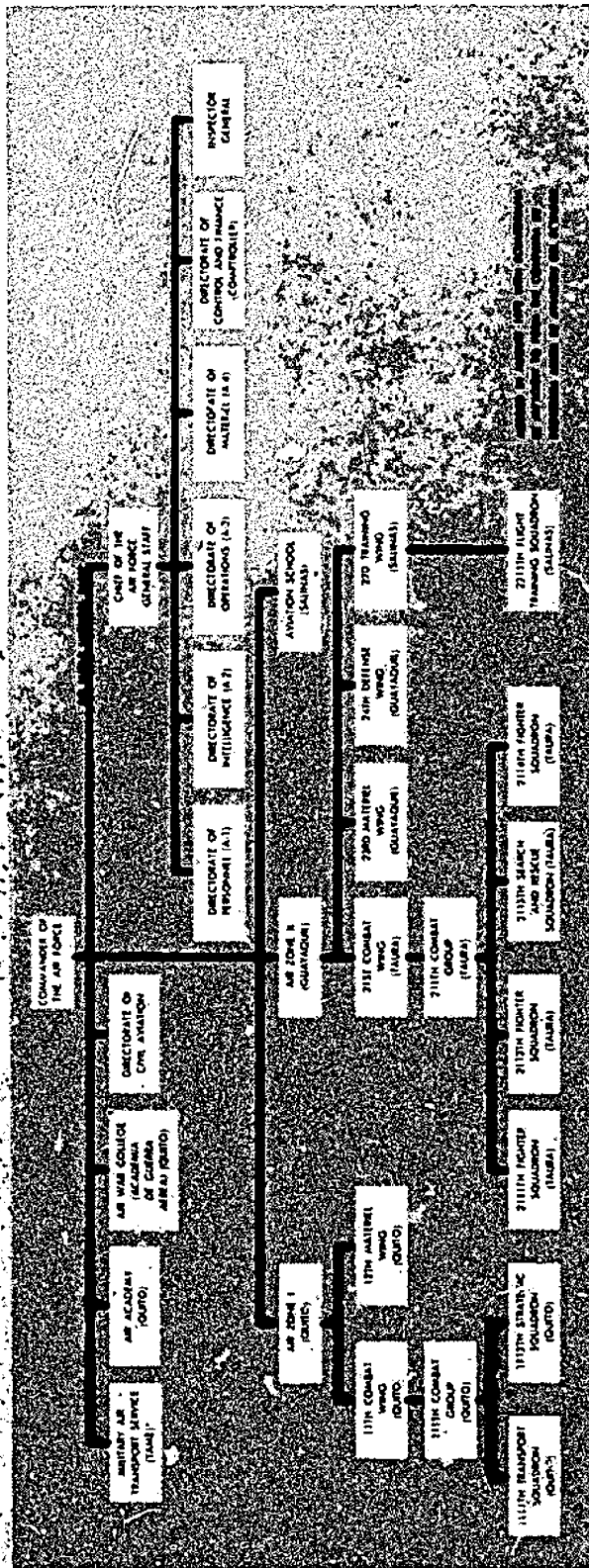


FIGURE 9. Air force organization (C)

Bolivar Airfield, in Guayaquil. Aircraft are capable of limited coastal patrol in support of navy surface units enforcing fishing regulations

E. Air force

The air force is one of the smallest in South America and is weaker than that of neighboring Colombia or Peru. Its missions are to provide air defense, to assist the ground forces in maintaining internal security, to aid national development through civic action projects, and to participate in search and rescue operations. In actuality, the air force devotes most of its time to transport and training operations. It fulfills these functions effectively, although it suffers from serious weaknesses. Its overall capability is low because of a chronic shortage of funds, poor logistic support, antiquated equipment, the small size of the service, a shortage of skilled mechanics, and total dependence on foreign sources of supply. The air force has a very limited strategic capability with its five Canberra B-6 light bombers, which can conduct only daylight operations. Minimum defense of key installations in daylight hours during good weather is possible initially, but shortages of aircraft and spare parts would preclude any sustained operations. The air force has no early warning or ground-controlled-interception capability and little navigation equipment. Its meager air defense force consists of eight FR-9 Meteors in poor condition, and three antiaircraft batteries of towed 40-mm antiaircraft guns, augmented by .50 caliber machineguns. The air force has a low capability for conducting tactical air operations against enemy ground forces and can provide only minimal support to the ground forces in maintaining internal security. It is seeking to enhance its capability through the purchase of jet, light-attack, and trainer aircraft. (S)

The air force operates a domestic commercial airline, the Military Air Transport Service (TAME), which provides airlift service to remote areas of the country not serviced by regular commercial airlines. Also, it is likely to play the principal role in running Ecuador's international airline, *Compania Ecuatoriana de Aviacion*, which merged with TAME in August 1972 to form a mixed-capital enterprise. The air force also operates and controls the country's commercial airfields. (C)

1. Organization (S)

The Ecuadorean Air Force (Figure 9) theoretically is coequal to the army and navy under the Joint Command of the Armed Forces. It is smaller in size

and influence than the army or the navy. The Commander of the Air Force exercises direct control over the service's two air zones, the Aviation School in Salinas, TAME, the Air Academy in Quito, the Air War College in Quito, the Directorate of Civil Aviation, and the Air Force General Staff. The First Air Zone comprises the northern part of the country and has its headquarters at Mariscal Sucre Airfield in Quito. It has a strategic (bomber) and a transport squadron. The Second Air Zone comprises the southern part of the country and has its headquarters at Simon Bolivar Airfield at Guayaquil. It has three fighter squadrons and one search and rescue squadron. It also has a flight training squadron, based at the Aviation School, at Salinas. The Directorate of Civil Aviation, under the supervision of the Air Force Commander, controls and operates the country's commercial airfields. The Commander of the Air Force is assisted by the Air Force General Staff, which is headed by the Chief of the Air Force General Staff and is organized into four traditionally numbered directorates and two separate sections. Although joint exercises with army counterinsurgency units were initiated in 1965, there is very little coordination with other services for joint operations and exercises.

2. Strength, composition, and disposition⁴ (S)

The air force has 1,665 personnel, of whom 280 are officers and 1,385 enlisted men. In addition, there are

⁴For current information, see the *Military Intelligence Summary*, published by the Defense Intelligence Agency.

an estimated 110 cadets. Of the 117 pilots (all officers), less than half are jet qualified. There are about 400 maintenance personnel. The 91 aircraft in the inventory include 28 jets, three turboprops, 51 prop aircraft, and nine helicopters. The government, at the behest of the air force, reportedly has allocated US\$120 million for the purchase of jet fighters, prop light attack, and prop transport aircraft. Under this program, the air force purchased six Alouette Type III helicopters, which were received in late 1972, and four additional Strikemaster aircraft (Figure 10), making a total purchase of 12 of this type. (Six of the original 1970 purchase of eight Strikemasters arrived in late 1972 and early 1973; the remaining two are expected by mid-1973, but it is not known when the additional four are to be delivered.) The air force long has been interested in purchasing six F-5B and 12 to 16 F-5E aircraft from the United States, but probably has opted for a number of Jaguars—high-performance, multipurpose fighter aircraft developed jointly by France and the United Kingdom—because of numerous impediments to the sale of the F-5's. The air force reportedly has promoted negotiations with the French for the purchase of two Puma helicopters and also is actively seeking 12 Lockheed T-33 aircraft and eight Bell helicopters (two of these would be for the navy). It also would like to purchase six De Havilland (Canada) Buffalo aircraft or at least two C-130-type transports.

The current aircraft inventory is as follows:

AIRCRAFT	MANUFACTURER	ROLE	NUMBER
Jet:			
Canberra B-6	English Electric (U.K.)	Light bomber	5
Meteor FR-9	Gloster (U.K.)	Day fighter	8
T-33A Shooting Star	Lockheed (U.S.)	Day fighter	9
BAC 107 Strikemaster	British Aircraft Corporation (U.K.)	Light attack	6
Turboprop:			
Avro 748	Hawker-Siddeley (U.K.)	Light transport	3
Propeller:			
T-28A Trojan	North American (U.S.)	Trainer	3
T-28D Trojan	North American	Trainer/fighter bomber	4
T-34A Mentor	Beech (U.S.)	Trainer	2
T-41A Mescalero	Cessna (U.S.)	Trainer	19
T-6 Texan	North American (U.S.)	Trainer	4
DC-6B	Douglas (U.S.)	Medium transport	4
C-47 Skytrain	Douglas	Light transport	10
DC-3	Douglas	Light transport	1
Cessna 337C	Cessna	Utility	2
PBY Catalina	Consolidated/Vultee (U.S.)	Utility	1
PA-23 Apache	Piper (U.S.)	Utility	1
Helicopter:			
Alouette III	Sud-Aviation (France)	Utility	6
Sikorsky S-55	Sikorsky (U.S.)	Utility	3

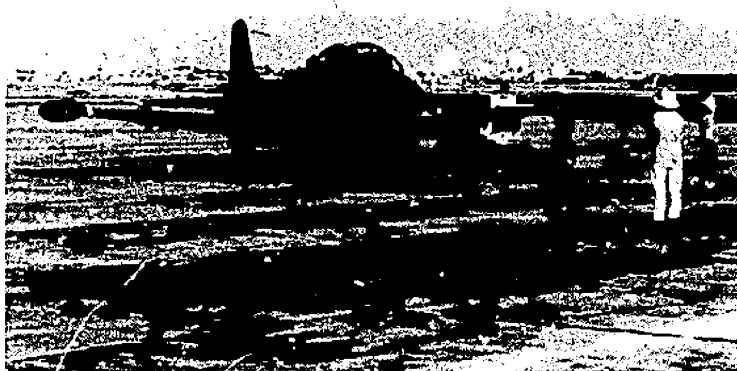


FIGURE 10. Air force BAC 167 Strikemaster light attack aircraft (U/OU)

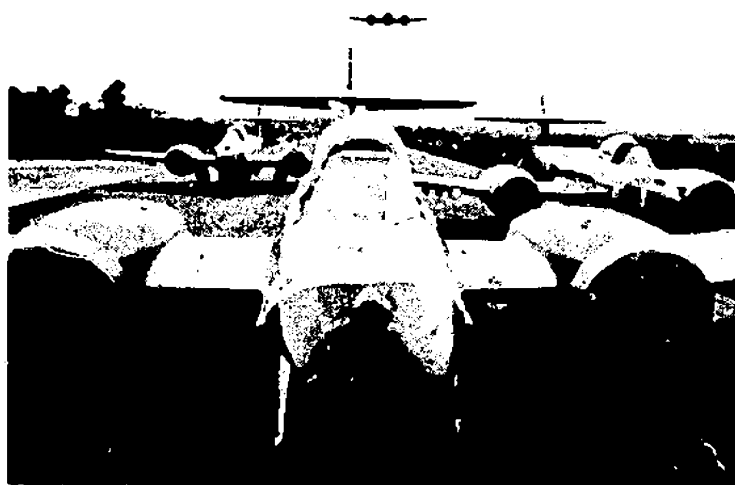


FIGURE 11. FR-9 Meteor aircraft, on the ground and in flight (U/OU)

The air force has seven operational and flight units—one bomber squadron, three fighter squadrons, one transport squadron, one search and rescue squadron, and one flight training squadron. In the First Zone, the Canberra B-6's are assigned to the 1112th Strategic (Bomber) Squadron; the 1111th Transport Squadron operates several trainers (four T-6 Texans and a T-34A Mentor), all the medium and light transports, and one utility aircraft (the PBV Catalina). This squadron also operates the Military Air Transport Service (TAME), utilizing about half of its transports. In the Second Zone, the Meteor FR-9's, (Figure 11) are assigned to the 2111th Fighter Squadron, the T-33A Shooting Stars to the 2112th Fighter Squadron, while the 2114th Fighter Squadron operates a number of T-28 Trojans. The Sikorsky helicopters are assigned to the 2113th Search and

Rescue Squadron. Several T-28 Trojans and all of the T-41A Mescaleros are assigned to the 2211th Flight Training Squadron, at Salinas. The six Alouette helicopters acquired in late 1972 reportedly are split between the Mariscal Sucre and Simon Bolivar airfields, but no specific unit assignments are available for the Alouettes. The six Strikemaster aircraft received in late 1972 and early 1973 are stationed at Salinas but ultimately will operate out of Taura Air Base, near Guayaquil, in order to avoid the problem of salt-air corrosion at Salinas.

The Ecuadorean Air Force operates from four major airfields: Mariscal Sucre Airfield, at Quito; Simon Bolivar Airfield, at Guayaquil (both shared with commercial airlines); Taura Air Base, near Guayaquil; and General Ulpiano Paez Air Base, at Salinas, the air base of the Aviation School. Mariscal Sucre is the most

important airfield, but it can support only daylight operations because of the lack of lighting facilities; the air field is in a hazardous location because of mountains, high elevation, and frequent bad weather. Thirty-six minor airfields can be used by DC-6's and light aircraft of the military services; two of the more significant airfields are at Seymour (Galapagos Islands) and Latacunga.⁶

There is no air force reserve or mobilization program, and there is no existing legislation which would provide for the mobilization of the civil air sector in the event of a national emergency. The largest Ecuadorean airline, *Compania Ecuatoriana de Aviacion, S.A.*, is now a mixed government-private corporation whose aircraft probably could be used in an emergency. About 450 pilots, including 165 qualified for major transport aircraft, are engaged in civil aviation. There are 43 civil aircraft of at least 20,000 pounds gross weight.

3. Training (S)

All formal in-country training, except flight training, is provided at the Air Academy, in Quito. The academy provides officer-cadet training (pilot and technical courses); prerequisite promotion courses for lieutenants, captains, and majors (14-16 weeks); NCO technical training; and occasionally other courses for enlisted men. Limited facilities and a reduction in operating funds, however, have curtailed the frequency with which new classes can be organized. Ground school and primary flight training (a minimum of 25 hours) is provided at the Aviation School, at Salinas; more advanced flight training is given at Taura Air Base, near Guayaquil. On-the-job training suffers from a scarcity of funds. The termination of the U.S. Military Assistance Program in January 1971 has seriously affected the training level of the air force, because training in the United States under the program was of higher quality and more extensive than in-country training. Training under the program had included officer flying courses, a squadron officer's course, an air command and staff course in the United States, and enlisted specialist courses at the Inter-American Air Forces Academy, in the Canal Zone. The air force is unable to accept all available third-country training because of a shortage

⁶The Ecuadorean airfield system is briefly summarized in the Transportation and Telecommunications chapter of this General Survey. For detailed information on air facilities, see Volume 6, *Airfields and Seaplane Stations of the World*, published by the Defense Mapping Agency, Aerospace Center, for the Defense Intelligence Agency.

of training funds, but it regularly sends a few officers to study in third countries.

The air force took advantage of an exceptional invitation from Venezuela in January 1968 and sent 16 enlisted men to that country for technical training similar to that offered at the Inter-American Air Forces Academy. In 1969, the air force had students in Brazil, Spain, Mexico, and Chile. Thirteen Ecuadorean Air Force cadets attended 10 months of pilot training in Brazil in February-December 1972, including training in jet aircraft. Staff training for majors and above is obtained at the Air War College, in Quito.

4. Logistics (S)

Ecuador can barely provide logistical support for all air force units. The air force is completely dependent on foreign sources for aircraft, replacement parts, electronic equipment, and most categories of aviation gasoline. From the advent of U.S. grant aid in the early 1960's to its 1971 suspension, an estimated 90% of all air force materiel support was derived from the U.S. Military Assistance Program. Units procure food locally, and most POL is obtained locally from the International Petroleum Company, Ltd.; jet fuel and lubricants are refined in Ecuador, but high-octane gasoline is imported, primarily from Aruba, in the Netherland Antilles. The air force ideally seeks to continually maintain a 60-day supply of fuel, but the actual supply fluctuates considerably; jet flying is curtailed frequently because of lack of fuel. At best, POL stocks at air bases are not sufficient to maintain more than 2 or 3 days of maximum-effort operation. Resupply to Quito is by truck and rail from Guayaquil; both methods are slow, rail tank cars requiring a 4-day round trip. Resupply to Taura and Salinas is rapid but limited by the stocks at Guayaquil, which are minimal even for normal operations. Since fuel storage facilities at all airbases are substandard, fuel contamination is frequently a problem.

The Directorate of Materiel of the Air Force General Staff administers the two supply groups, one in each zone. The major supply stock is at Guayaquil, where over 34,000 line items are kept in the inventory. The supply groups operate depot-type storage areas at the various military airfields. Whenever possible, requisitions are filled and shipped directly to the requisitioner. If procurement action is necessary, the supply groups forward requisitions to the Director of Materiel. All procurement abroad is handled by the A-4 at Air Force Headquarters.

Maintenance in the air force is generally good for the small scale of normal operations. The percentage of deadlined aircraft was low until the suspension of

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U.S. Military Assistance early in 1971. Since then, the lack of spare parts has hindered operations. All units are capable of limited field maintenance support; fighter units at Taura have little more than flight-line maintenance capability, and other maintenance up to depot level is performed at Quito. Because repair facilities were insufficient to allow for major overhaul of engines even before the suspension of the U.S.

Military Assistance Program, these items were sent to the United States. Air force maintenance capability is handicapped by a lack of skilled mechanics and by frequent shortages of spare parts. The diversity of aircraft also constitutes a major problem, as the air force operates more than 18 different models. Ecuador would need significant external logistic support in the event of a major conflict.

Places and features referred to in this chapter (u/ou)

	COORDINATES	
	° 'S.	' W.
Canelos.....	1 35	77 45
Cayambe.....	0 03 N.	78 08
Coca.....	8 28	78 58
Cuenca.....	2 53	79 59
Esmeraldas.....	0 59 N.	79 42
Galapagos Islands (isl).....	0 30	90 30
Guayaquil.....	2 10	79 50
Isla Isabela (isl).....	0 59	91 06
Isla Santa Maria (isl).....	1 17	90 20
Latacunga.....	0 56	78 37
Manta.....	0 57	80 44
Nuevo Rocafuerte.....	0 56	75 24
Puerto Bolivar.....	3 16	79 59
Quito.....	0 13	78 30
Salinas.....	2 13	80 58
San Cristóbal.....	0 55	89 34
Sangolquí.....	0 19	78 27
San Lorenzo.....	1 17 N.	78 50
Santa Cecilia.....	0 03	78 58
Santa Cruz.....	0 32	90 21
Seymour.....	0 25	90 17
Taura.....	2 18	79 23
Tenguel.....	3 00	79 46
Zuñiba.....	4 52	79 09