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Yemen (Aden)

July 1973

NATIONAL INTELLIGENCE SURVEY

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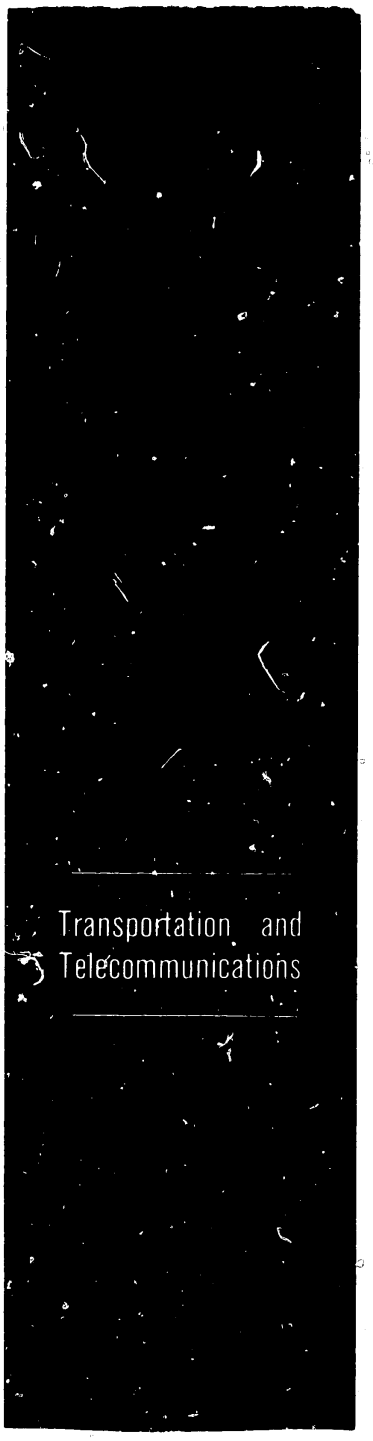

NATIONAL INTELLIGENCE SURVEY PUBLICATIONS

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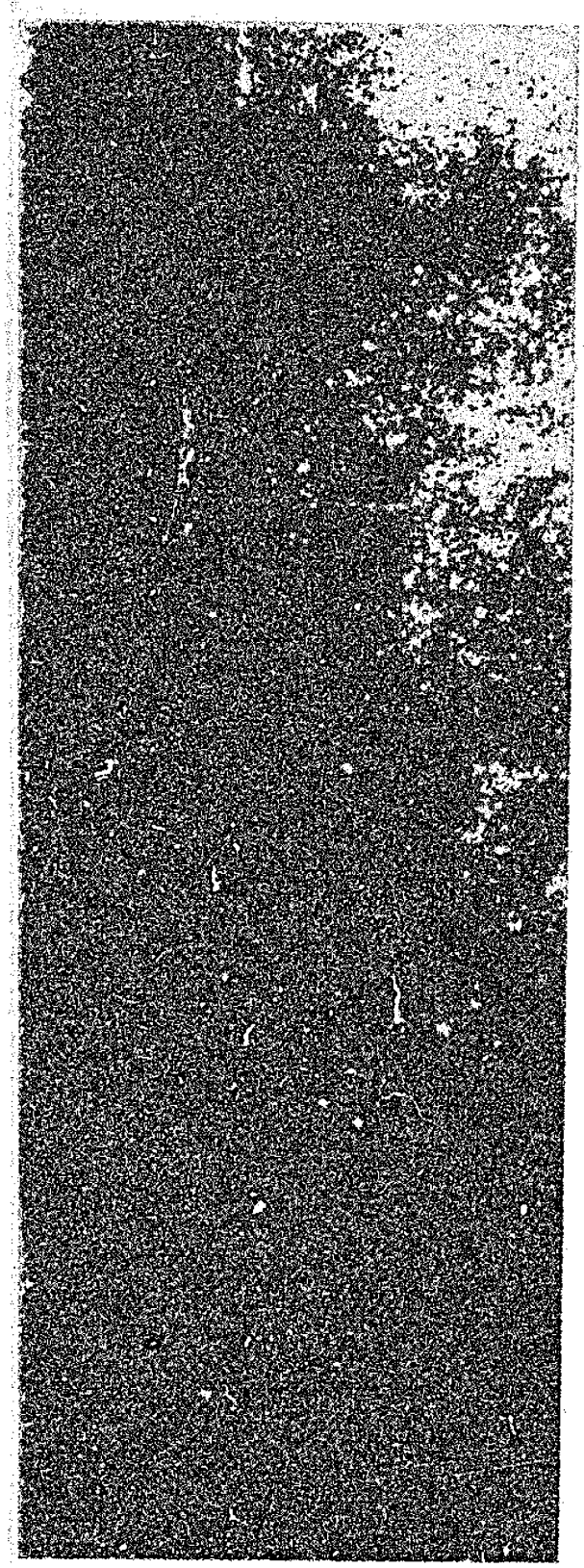
This chapter was prepared for the NIS by the Defense Intelligence Agency and includes contributions on merchant marine from the Department of the Navy and on airfields from the Defense Mapping Agency, Aerospace Center. Research was substantially completed by April 1973.



YEMEN (ADEN)

CONTENTS

This chapter supersedes the transportation and telecommunications coverage in the Southern Yemen portion of the General Survey on Southern Yemen/Muscat and Oman dated September 1969.

FIGURES

Transportation and Telecommunications

Wadi Hadramawt at Tarim (UPI)

A. Summary (C)

1. Systems

Transportation and telecommunications (telecom) in Yemen (Aden)—the People's Democratic Republic of Yemen (P.D.R.Y.)—are minimal and inadequate to serve the country's requirements. An important facility is the port of Aden. One of the world's largest bunkering facilities until the closure of the Suez Canal, it is the only port in the country with alongside accommodations for oceangoing ships. Three pipelines run from a large refinery at Little Aden to bunkering depots at the port. The merchant marine consists of only one ship over 1,000 gross register tons. There are no railroads or inland waterways. The sparse highway network, of poor quality, is the sole means of surface transportation, but most of the 200 miles of paved roads are in the vicinity of Aden. Except for one surfaced road to Yemen (San'a'), the only connections

with neighboring areas are via motorable desert tracks or unimproved earth roads. There is only one significant international airfield. The national airline, Alyemda, has seven major transports and serves several domestic and international points.

Beasts of burden, especially camels, provide transportation in many areas served only by trails and tracks. The lack of roads has hindered the development of agricultural areas, impeded trade, and made the distribution of commodities to isolated towns and villages difficult. Transportation is the responsibility of the Ministry of Public Works and Communications. There are no major improvement projects underway, but financing for several significant highway improvement plans has been secured, and feasibility studies have been completed.

The telecom network is very sparse and concentrated in the Aden area, with almost no facilities in the rest of the country. Facilities consist of telephone, domestic and international high-frequency radiocommunication, and three TV stations. Government agencies control telecom and radiobroadcast programing.

2. Strategic mobility

The road network, sparse and poorly maintained, is mostly primitive sand and gravel tracks. Movement and supply of military forces would be seriously hampered by the lack of through and connecting routes, by the large number of physical bottlenecks, and by the adverse effects of climate.

Most of the country's ports are adaptable to military use, and Aden could handle substantial amounts of military supplies and equipment. Most of the 82 airfields are small and have earth runways. However, airfields at Aden, Beihan, and Mukayris have hard-surfaced runways and could support military operations to varying degrees. The Alyemda fleet would be available for use in military movements.

The telecom system is very limited and would be of only minor use for military operations within the country. Facilities would be useful, however, to naval operations in the Gulf of Aden and the Indian Ocean.

B. Highways (C)

The 3,300-mile road network is sparse, disjointed, and unevenly distributed. Only about 200 miles are bituminous surfaced, and 180 miles are crushed stone and gravel roads; the remaining mileage consists of unsurfaced roads and desert tracks. The bituminous-surfaced roads, located mainly in the vicinity of Aden, range from 18 to 26 feet in width and are in good condition. Crushed stone and gravel roads are 12 to 24 feet in width and vary from fair to good condition. Dry streambeds (wadies) frequently serve as roads. Shoulders, where they exist, range from 1 to 6 feet in width. The crossing of many water courses and wadies is generally accomplished by fording at the most convenient points. On some of the more regularly used routes causeways have been constructed at main crossings.

There are structures at four major water crossings: a 476-foot reinforced concrete beam structure at Az Zanjabar;[1] a 710-foot steel truss bridge extending across an arm of the Bandar at Tawahi (bay) in the Little Aden area; a 4½-mile causeway combined with a 260-foot steel and reinforced concrete bridge across the Bandar at Tawahi in the Aden area; and a 640-foot combination causeway and culvert across an arm of the Bandar at Tawahi, also in the Aden area. Most of the numerous short bridges and culverts are on the surfaced roads in the Aden area. There are no tunnels or ferries on the network.

The road network is under the jurisdiction of the Ministry of Public Works and Communications. Under the ministry there is a Planning and Statistics Department responsible for planning and surveying roads and a Public Works Department responsible for road construction and maintenance. Both departments are understaffed and operate inefficiently because of loss of foreign personnel. While the few senior engineers are well qualified, there is a shortage of intermediate-level engineers and technicians experienced in road construction and maintenance; however, this shortage is being partially alleviated through overseas training of personnel.

Most construction and maintenance problems stem from adverse terrain and climate. Road construction in the highlands requires excavation, blasting, embanking, and the construction of retaining walls. Rockslides present a recurring clearance problem in the highland areas. Sand dunes, drifting sand, sandstorms, intense summer heat, and the scarcity of water present construction and maintenance problems in desert areas. The lowlands of the southern coast are subject to flash floods which cause washouts. Because of the limited mileage of surfaced roads, some maintenance is also performed on motorable tracks to keep them open. The general practice is to bulldoze or tow a V-shaped drag along the track to clear the route of oversized rocks and sand. Since many tracks are aligned through or along wadies, it is necessary to perform maintenance after each rain to remove water-

[1] For diacritics on place names see the list of names on the apron of the Terrain and Transportation map and the map itself.

carried debris. Irrigated agricultural areas require the construction of numerous culverts and fords. The shortage of skilled labor and mechanical equipment affects construction and maintenance. Also, more than 40% of the equipment is out of order due to a lack of spare parts. Construction materials such as sand, stone, and gravel are plentiful in most parts of the country. Some cement is produced, and bituminous materials are available as a refinery byproduct. Quantities of cement and all lumber and structural steel are imported.

Most road development projects are in the planning stage. Credits totaling approximately US$2 million from the International Development Association, an affiliate of the World Bank, and a grant of approximately $680,000 from the United Nations Development Program are being used for detailed engineering and technical assistance. Proposed projects include: feasibility studies of selected roads totaling about 500 miles; detailed engineering of about 150 miles of roads designated by the feasibility studies as having high economic priority for construction; highway maintenance workshop and communication equipment and spare parts for existing equipment; provision of a technical assistance team to advise and assist in improving the organization, operations, and methods of the Public Works Department; and overseas fellowships for Public Works Department staff. Roads of sufficiently high priority to warrant feasibility studies are as follows: Al Mukalla–Say'un road and connecting roads in Wadi Hadramawt (200 miles), Al Hisn–Yemen (San'a') border (95 miles), Ad Dali'–Yemen (San'a') border (12 miles), As Sa'id–'Ataq–Ansab (50 miles), 'Ataq–Bayhan al Qisab (96 miles), Lawdar–Mukayris (25 miles), and Ath Thumayr–Ad Dali' (20 miles).

Highway traffic is impeded by poor roads, sharp curves, and steep grades in mountainous areas and drifting sand in desert areas. During the infrequent torrential rains, sections of road are washed out and the motorable tracks that are aligned through wadi beds must be forded or are unusable. Intense summer heat and dust contribute to the difficulty of operating motor vehicles.

Highway transportation is subject to some government regulations. Most transport firms are privately owned and have only a few vehicles. Their operations usually consist of local short-distance hauling, mostly transporting farm produce to market. The Aden Bus Company provides service in the Aden area, including Crater, Ma'alah, at Tawahi, and Shaykh 'Uthman. Camels, although declining in importance, are still used for the transport of goods between inland oases.

There are approximately 9,500 passenger cars and 3,250 trucks and buses, and about 1,000 motorcycles and motor bicycles. All vehicles are imported; primary sources are the United States, the United Kingdom, West Germany, and the U.S.S.R.

Characteristics of the most important highways are listed in Figure 1.

FIGURE 1. Characteristics of selected highways (C)

ORIGIN AND DESTINATION	DISTANCE	SURFACE TYPE	SURFACE WIDTH	SHOULDER WIDTH	REMARKS
	Miles		*Feet*		
Aden to Yemen (San'a') border:					
Aden to Lahij	25	Bituminous	23	3	Flat alignment. Causeway at Khormaksar. Also approximately 14 minor structures.
Lahij to Nubat Dukaim	20	Bituminous treatment	20 to 25	3	Mountainous alignment.
Nubat Dukaim to Yemen (San'a') border	17	Gravel; crushed stone	12 to 15	3	Mountainous alignment. Wadies subject to flooding after heavy rains.
Aden to Little Aden	10	Bituminous	22 to 25	0 to 3	Flat alignment. A causeway across the inner harbor at Aden. Also two bridges on this route.
Turbah to Musayni'ah	575	Unimproved earth, sand, and gravel	8 to 10	0	Short stretch of bituminous between Az Zanjabar and Shuqrah. Many low-level bridges. Impassable for periods following rains and high tides. From Musayni'ah to Oman border only intermittent tracks exist.

C. Pipelines (C)

There are three pipelines, all running roughly parallel to the principal road around Bandar at Tawah. The lines have a combined length of about 20 miles, and lead from the British Petroleum Refinery at Little Aden to the bunkering depots in the main harbor. Two of the pipelines, a 16-inch line with a capacity of 80,000 barrels per day (b.p.d.) of furnace and diesel oils and a 6-inch line with a capacity of 10,000 b.p.d. of diesel oil, terminate at the British Petroleum subdepot at Ra'a Hedjuff, from which point the products are pumped to the bunkering depots. The third pipeline, a 6-inch line with a capacity of about 500 b.p.d. of diesel oil supplies the Aden Electricity Corporation; a spur line serves the airfield at Khormaksar.

D. Ports (C)

Yemen (Aden) has approximately 860 miles of coastline with two major ports, Aden and Al Mukalla, and several insignificant minor ports. The ports are scattered along the coast from the western extremity of the Gulf of Aden to the border of Oman, and on Kamaran, Perim, and Socotra islands.

FIGURE 2. Aden; discharging cargo at quay at Ma'alah (U/OU)

Aden, the largest facility, handles over 860,000 tons of cargo yearly (Figure 2), in addition to large quantities of petroleum. Since 1967 a decrease in shipping and related activities in the port has resulted from the closure of the Suez Canal and the transitional period following independence. Aden was one of the largest bunkering stations in the world, an export center for refined petroleum products, and a transshipment center for general cargo. With shipping curtailed, the only major activities at the port are the oil refinery and a modern fish industry. The U.S.S.R. has provided pilots and assists with the dredging of the port. Al Mukalla is a lighterage port which serves the eastern part of the country.

Port facilities are administered by a Board of Trustees under the Ministry of Public Works and Communications. The harbor and port meet all maritime requirements. Implementation of plans for major expansion of oil terminal facilities has been delayed because of the unstable political situation.

Figure 3 lists characteristics of the two major ports of Yemen.

E. Merchant marine (C)

The merchant fleet consists of one privately owned ship of 1,000 gross register tons (g.r.t.) and over. This 38-year-old dry cargo ship of 1,581 g.r.t., or 2,565 deadweight tons (d.w.t.), has oil-fired boilers and a service speed of 12 knots. Beneficial owner (entity which assumes profit or loss from operations) is Ahmed Abdulla Elaghil, Aden. In addition, Ali Mohamed Eljabaly, Aden, beneficially owns two dry cargo ships of 1,000 g.r.t. and over, totaling 4,420 d.w.t., registered in Panama. Addafar Yemenite Navigation Company, Aden, beneficially owns three dry cargo ships ranging between 393 and 935 g.r.t., two registered in Yemen (San'a') and one in Panama.

The fishing fleet of more than 6,000 small craft has about 1,000 motorized units.

F. Civil air (C)

Civil aviation is a small but important enterprise which earns valuable foreign exchange while providing a link with the outside world. Alyemda Democratic Yemen Airlines, the national airline and only domestic carrier, serves eight domestic points and seven international points including Beirut, Cairo, Djibouti, Hargeisa, Kuwait, Mogadiscio, and Ta'izz. Alyemda was formed in March 1971 by presidential decree to provide scheduled and chartered services. The privately owned Brothers Air Services Company (BASCO), which had been operating in Yemen since 1966, was nationalized and incorporated with Alyemda.

FIGURE 3. Major ports (C)

NAME; LOCATION; MILITARY PORT CAPACITY*	ACTIVITIES	HARBOR	BERTHS
Aden..... 12°47'N., 44°59'E. 6,850	Large oil bunkering station, an export center for refined petroleum products and transshipment center for general cargo. Principal receipts—manufactured goods, crude oil; principal shipments—refined petroleum products, salt, cotton goods. Headquarters of navy. Three shipyards overhaul and repair naval and merchant ships. Three floating drydocks available, lifting capacity of largest is 1,800 long tons; nine marine railways, hauling capacity of largest is 1,500 long tons.	Improved natural; unprotected outer harbor 26 sq. miles; breakwater-protected inner harbor 3 sq. miles; general depths 18-60 ft.	Alongside—2 small ocean-type cargo vessels, 20 lighters, 4 large ocean-type tankers, 2 minesweepers and 6 motor torpedo boats. Fixed mooring—7 large and 6 small ocean-type cargo vessels. Offshore pipeline—11 large and 2 small ocean-type tankers. Anchorage—Numerous for all classes of vessels in Outer Harbor.
Al Mukalla..... 14°31'N., 49°07'E. 800	Lighterage port handling fish, POL, and general cargo. Principal receipts—food, construction materials, POL products, vehicles; principal shipments—tobacco, cotton, dates. Minor marine engine repairs at three small workshops.	Open roadstead in Mukalla Bay; unprotected from seaward; quay fronts town in small cove. Berthing capability limited by berths rather than fairways. General depths 3-18 ft.	Alongside—3 lighters. Anchorage—Several berths of all classes about 1 mile offshore.

*The estimated military port capacity is the maximum amount of general cargo—expressed in long tons—that can be unloaded onto the wharves and cleared from the wharf aprons during a period of one 24-hour day (20 effective cargo-working hours). The estimate is based on the static cargo-transfer facilities of the port existing at the time the estimate is prepared and is designed for comparison rather than for operational purposes; it cannot be projected beyond a single day by straight multiplication.

Alyemda has a fleet of three Douglas DC-3 and four Douglas DC-6A/B aircraft, and employs about 650 persons. Some aircraft maintenance operations are conducted in Aden, and technical standards are believed to be relatively good. Major airframe and engine overhaul work is contracted outside the country, much of it to Middle East Airlines of Lebanon. Air navigation and aeronautical meteorology facilities are being established by the government with assistance from the United Nations and the International Civil Aviation Organization (ICAO).

Civil aviation activities are controlled by the Directorate of Civil Aviation under the Ministry of Public Works and Communications. The directorate employs an estimated 200 persons and includes departments for accident investigation, air transport licensing, airworthiness, administration, and air traffic control.

Yemen became a member state of ICAO in February 1970; its international civil air relations consist of formal civil aviation agreements or informal arrangements with at least 16 countries. Twelve foreign air carriers, including the U.S.S.R.'s Aeroflot, conduct scheduled flights that link Aden with 23 foreign cities in 14 countries. Eight of these cities are also served by Alyemda.

G. Airfields [2] (C)

Yemen (Aden) has 82 airfields, 55 sites, and 1 seaplane station. Two airfields are joint civil/military, 1 is military and 29 are civil. Most are small with a single graded earth runway, located in remote areas near water sources, at military camps, or in areas where there is oil exploration. The few well-equipped regularly used airfields are located near population centers.

Aden/Khormaksar, a joint civil/military airfield, is the only significant international airport. It has a 8,385-foot asphaltic concrete runway which can support Boeing 707-type aircraft. It has full communications, maintenance, and support facilities.

[2] For detailed information on individual air facilities in Yemen (Aden), consult *Volume 16, Airfields and Seaplane Stations of the World*, published by the Defense Mapping Agency Aerospace Center for the Defense Intelligence Agency.

FIGURE 4. Selected airfields (C)

NAME AND LOCATION	LONGEST RUNWAY; SURFACE; DIMENSIONS; ELEVATION ABOVE SEA LEVEL	ESWL*	LARGEST AIRCRAFT NORMALLY SUPPORTED	REMARKS
	Feet	*Pounds*		
Aden/Khormaksar 12°48′N., 45°02′E.	Asphaltic concrete 8,385 x 150 10	56,607	C-135	Joint civil/military. International airfield, primary airfield in Yemen.
Ataq 14°33′N., 46°50′E.	Sand 6,240 x 150 3,600	28,160	DC-4	Civil. Near Yemen (San'a') border.
Beihan 14°47′N., 45°03′E.	Asphalt 5,400 x 75 3,800	28,160	C-54	Joint civil/military. Serves Bayhan al Qisab region. One of the 3 permanent-surfaced runways in Yemen.
Mukayris 13°56′N., 45°39′E.	Macadam 5,280 x 150 7,950	28,160	C-54	Military.
Riyan 14°39′N., 49°19′E.	Gravel/gypsum 6,000 x 150 83	28,160	DC-4	Civil. Serves Al Mukalla region.

*Equivalent Single-Wheel Loading: Capacity of an airfield runway to sustain the weight of any multiple-wheel landing-gear aircraft in terms of the single-wheel equivalent.

Beihan, a joint civil/military, and Mukayris, a military airfield, are the only other airfields with hard-surfaced runways; Riyan and Ataq are the only other airfields which have even limited auxiliary facilities. Electronic navigational aids are inadequate throughout the country except at Aden/Khormaksar, where they are good. Airfield maintenance at Aden/Khormaksar is also good, but at other locations it is performed at the bare minimum required to keep the airfield usable. Improvements to Riyan and Ataq to handle jet fighter aircraft have been planned, but actual work has never begun. The airfield sites are unusable in their present condition but could be rehabilitated by removal of sand and scrub growth or by regrading.

Figure 4 lists characteristics of the most important airfields.

H. Telecommunications (C)

The telecom system of Yemen (Aden) is small and restricted in extent (Figure 5). Facilities are concentrated in the Aden area with almost none in the rest of the country. Multiconductor cables are the most important links between towns, open-wire lines and radiocommunication stations lying of less importance in the system. Telecom links have played a vital role in Aden's growth as an international port and will be necessary for its future development as a trade center. The quality of local and international services in Aden is good, but service is poor in the remainder of the country. Telecom development is below that of other Middle Eastern countries except Yemen (San'a') and Oman; the total number of telephones, 9,600, is exceeded by all Middle Eastern countries except these two. Telecom administration is under the Ministry of Public Works and Communications. Radiobroadcast programing is under the Ministry of Information.

Interurban facilities are restricted to towns in the vicinity of Aden. A trunk multiconductor cable follows the coastline from Ra's Baradli to Al Burayqah with a spur from Ma'alah to Aden. A few radiocommunication stations link towns in this area with a small number of more distant points, including the offshore islands of Perim and Kamaran. One open-wire line stretches northward from Shaykh 'Uthman to Lahij. Almost all telephones are connected to automatic exchanges. The largest exchanges are in Aden, Little Aden, and Shaykh 'Uthman.

The principal international facility is a high-frequency radiocommunication station at Ra's Baradli providing telephone, telegraph, and telex circuits to worldwide points. In addition, old single-channel submarine telegraph cables reach to Sri Lanka, Sudan, India, and the Seychelles Islands. Special-purpose telecom facilities are operated by the aeronautical, fishery, maritime, and police authorities, and by the oil companies. Broadcast facilities consist of one

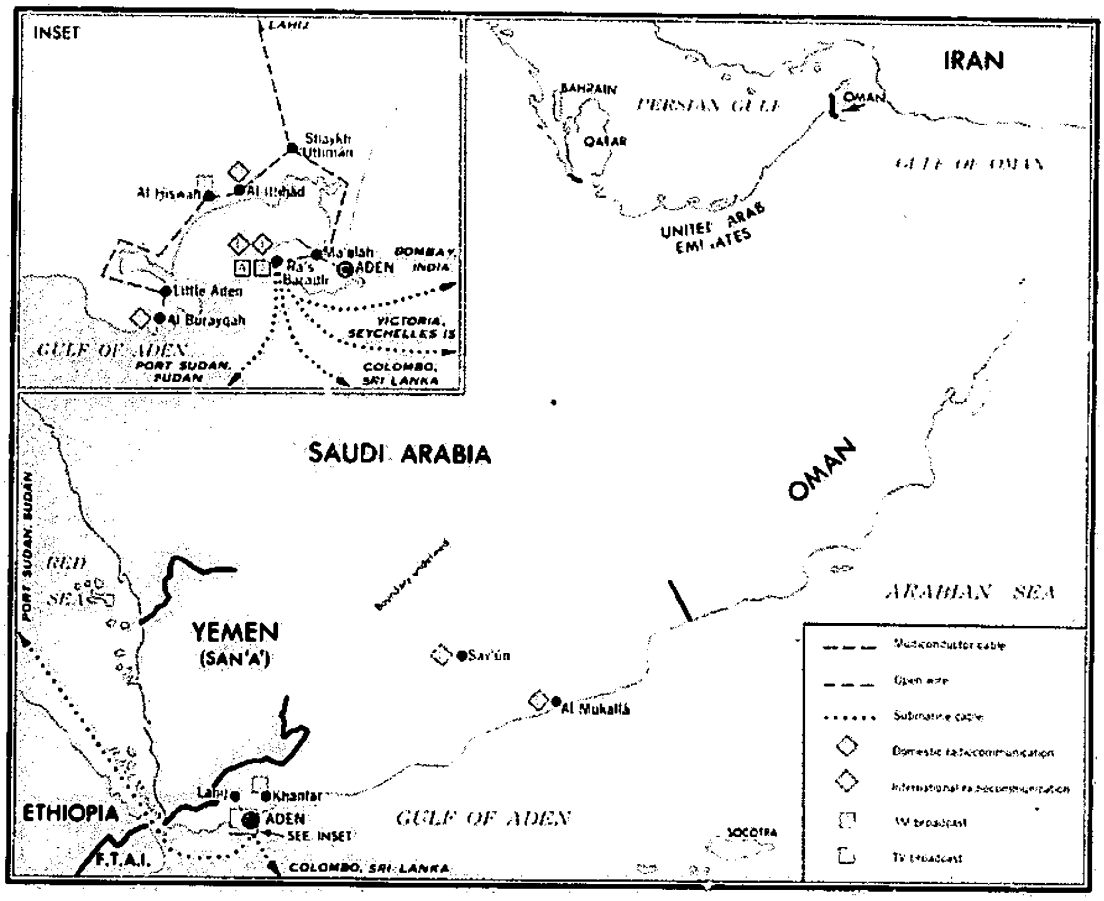


FIGURE 5. General telecommunications pattern, 1972 (C)

radiobroadcast AM station, with medium- and high-frequency transmitters for national and international programs, and three TV stations. About 250,000 radiobroadcast receivers and 25,500 TV receivers are owned by the populace.

The country is completely dependent upon imports for civilian and military telecom equipment. Almost all military items currently in use were obtained from the United Kingdom prior to 1968. Most civilian equipment comes from Czechoslovakia, Japan, the United Kingdom, the U.S.S.R., and West Germany. Trained telecom personnel are few, but some training efforts are being made. A few students are sent to Iraq to study wire and radio communications.

Telecom plans envision only limited development, possible only with foreign assistance. Telephone and radiobroadcast installations are under construction at Al Mukalla.

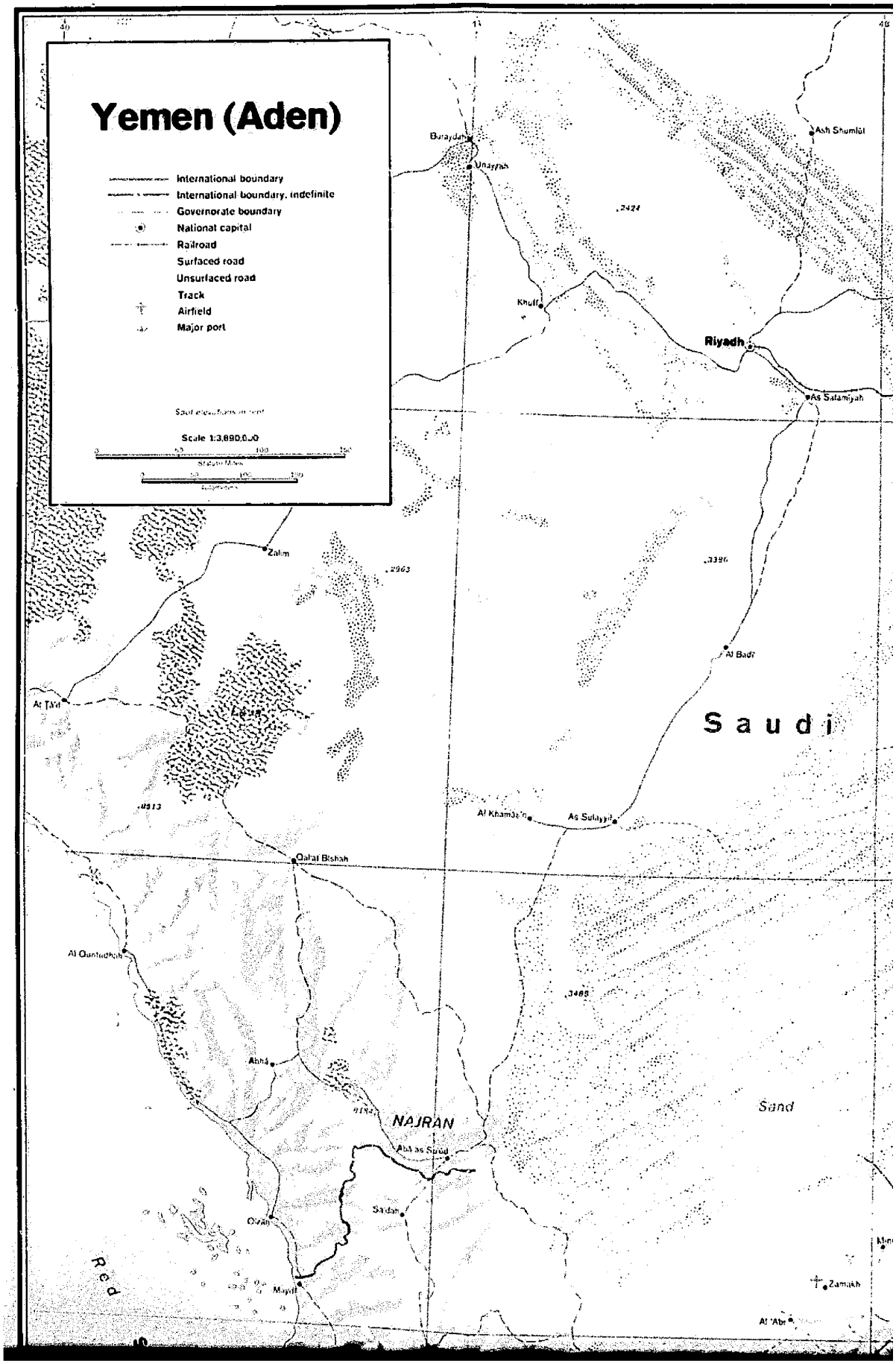
(1)

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

	COORDINATES	
	° 'N.	° 'E.
Abū 'Ubaydah (*military camp*)	12 49	45 02
Abyan	13 05	45 20
Aḍ Ḍāli'	13 42	44 43
Aden	12 46	45 01
Aden, Gulf of (*gulf*)	12 30	48 00
Aden Peninsula (*peninsula*)	12 45	45 01
'Alawi (*semidependent sheikhdom*)	13 28	44 45
Al 'Abr	16 05	47 22
Al 'Anad	13 13	44 47
Al Burayqah	12 44	44 53
Al Ḥawṭah	13 28	44 57
Al Ḥiṣn	13 17	45 17
Al Ḥiswah	12 50	44 57
Al Huraydah	15 34	48 13
Al Ittiḥād	12 50	44 56
Al Mahrah	17 50	54 30
Al Mukallā	14 32	49 08
Al Wahidi (*tribal area*)	14 20	47 50
Anṣāb	14 31	46 30
Arabian Sea (*sea*)	18 00	71 00
Ash Shiḥr	14 44	49 35
As Sa'id	14 20	46 52
'Aṭāq	14 33	46 48
Ath Thumayr	13 31	44 52
At Tawāhī	12 47	44 59
At Turbah	12 40	43 30
'Audhali Sultanate (*semidependent sultanate*)	14 20	46 52
Az Zanjabār	13 07	45 23
Bab el Mandeb (*strait*)	12 30	43 20
Balaq	15 19	45 23
Bandar at Tawāhī (*bay*)	12 48	44 57
Bayḥān al Qiṣāb	14 48	45 44
Crater	12 46	45 02
Dathina, State of (*semidependent state*)	13 50	46 00
Dhofar, Oman (*region*)	17 00	54 10
Fadhli Sultanate (*semidependent sultanate*)	13 25	45 40
Ḥabarūt	17 20	52 40
Ḥabbān	14 21	47 05
Ḥadhramaut (*region*)	15 00	50 00
Ḥadramawt, Wādi (*wādi*)	15 55	50 00
Ḥajr, Wādi (*wādi*)	14 04	48 40
Ḥalimayn	13 40	44 55
Ḥarib, Yemen (San'ā')	14 56	45 30
Haushabi (*semidependent sultanate*)	13 20	44 50
Ḥaṭṭ	16 37	53 01
Hūd, Qabr (*tomb*)	16 05	49 27
Jabal Ḥadid (*hill*)	12 48	45 01
Ji'ār	13 13	45 18
Kamaran Island (*island*)	15 21	42 34
Kathiri (*semidependent sultanate*)	16 00	48 50
Khanfar	13 13	45 18
Khormaksar	12 49	45 02
Kitsh	13 25	44 32
Khūryān Mūryān (*islands*)	17 30	56 00
Laḥij	13 04	44 53
Lawdar	13 53	45 52
Little Aden (*township*)	21 45	44 52
Lower 'Aulaqi (*semidependent sultanate*)	13 45	46 45
Lower Yafa'i Sultanate (*semidependent sultanate*)	13 40	45 25
Ma'alah	21 47	45 01
Maflahi Shiekhdom (*semidependent sheikhdom*)	13 45	45 08
Mayfa'ah	14 20	46 00
Mukalla Bay (*bay*)	14 30	49 06
Mukayris	13 56	45 10
Musayni'ah	15 04	50 38
Nūbat Dikaim	13 17	44 45
Oman, Gulf of (*gulf*)	25 00	58 00
Perim (*island*)	12 39	43 25
Persian Gulf (*gulf*)	27 00	51 00
Qa'ṭabah	13 51	44 42
Radfān	13 30	44 55
Ra's al Jarih	12 48	45 01
Ra's Baradli (*point*)	12 46	44 59
Ra's Fartak (*point*)	15 38	52 15
Ra's Hedjuff (*point*)	12 47	45 06
Ra's 'Imrān (*headland*)	12 44	44 43
Red Sea (*sea*)	25 00	35 00
Rub' al Khali, Saudi Arabia (*desert*)	20 00	51 00
Ṣalalah, Oman	17 00	54 06
Ṣan'ā', Y.A.R.	15 23	44 12
Say'ūn	15 56	48 47
Shaykh 'Uthmān	12 52	44 59
Shibām	15 56	48 38
Shu'ayb	24 53	51 57
Socotra (*island*)	12 30	54 00
Ṣubayḥī	12 45	43 42
Tarīm	16 03	48 59
Ta'izz, Y.A.R.	14 47	44 02
Upper 'Aulaqi (*semidependent sheikhdom*)	14 20	46 52
Upper Yafa'i Sultanate (*semidependent sultanate*)	13 50	45 20
Wuday'ah, Saudi Arabia	17 00	47 10

Selected airfields

Al Ghaydah	16 10	52 15
Khormaksar	12 50	45 02
Ataq	14 33	46 50
Beihan	14 47	45 43
Mukayris	13 56	48 39
Riyan	14 39	49 19



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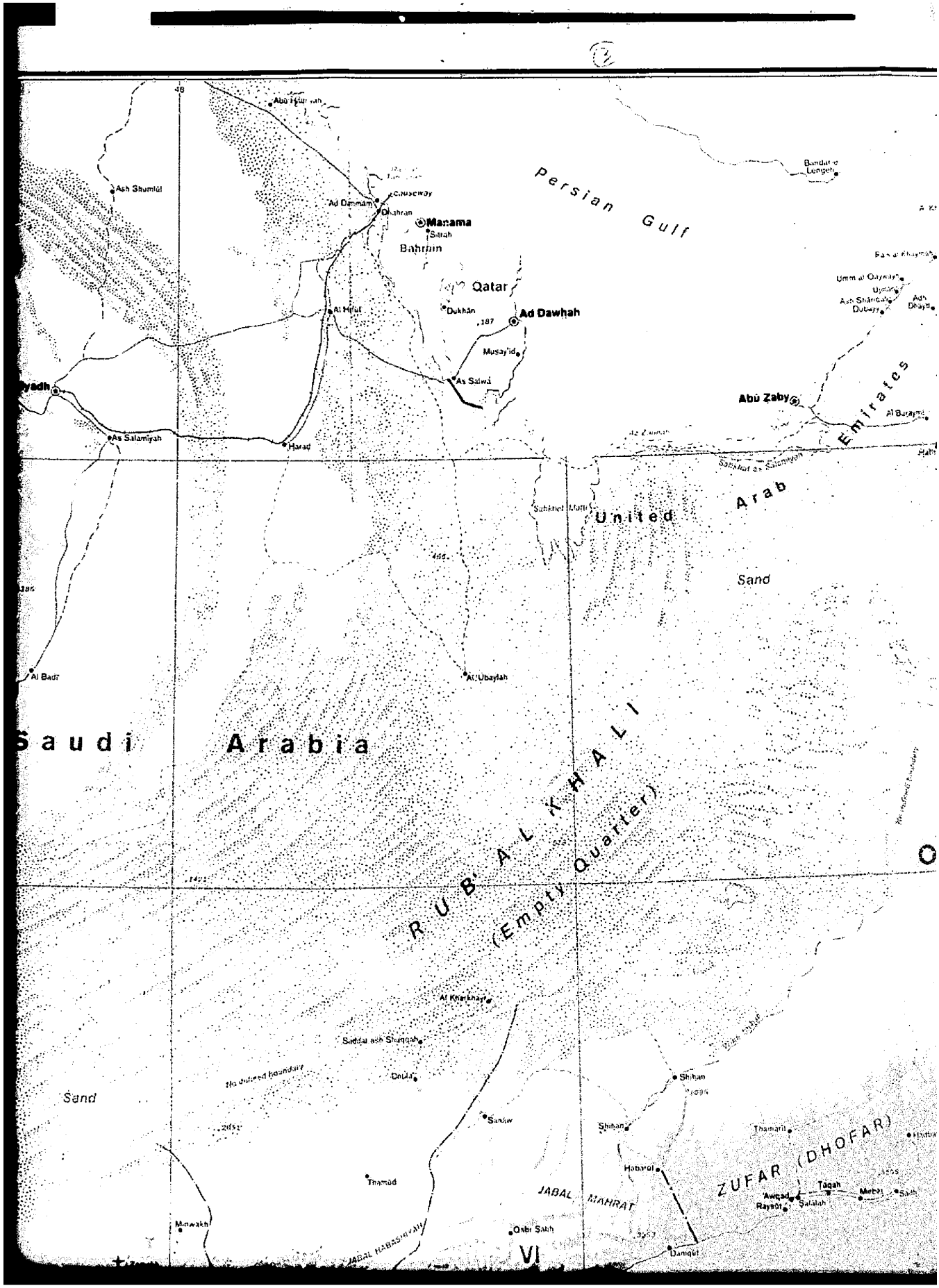

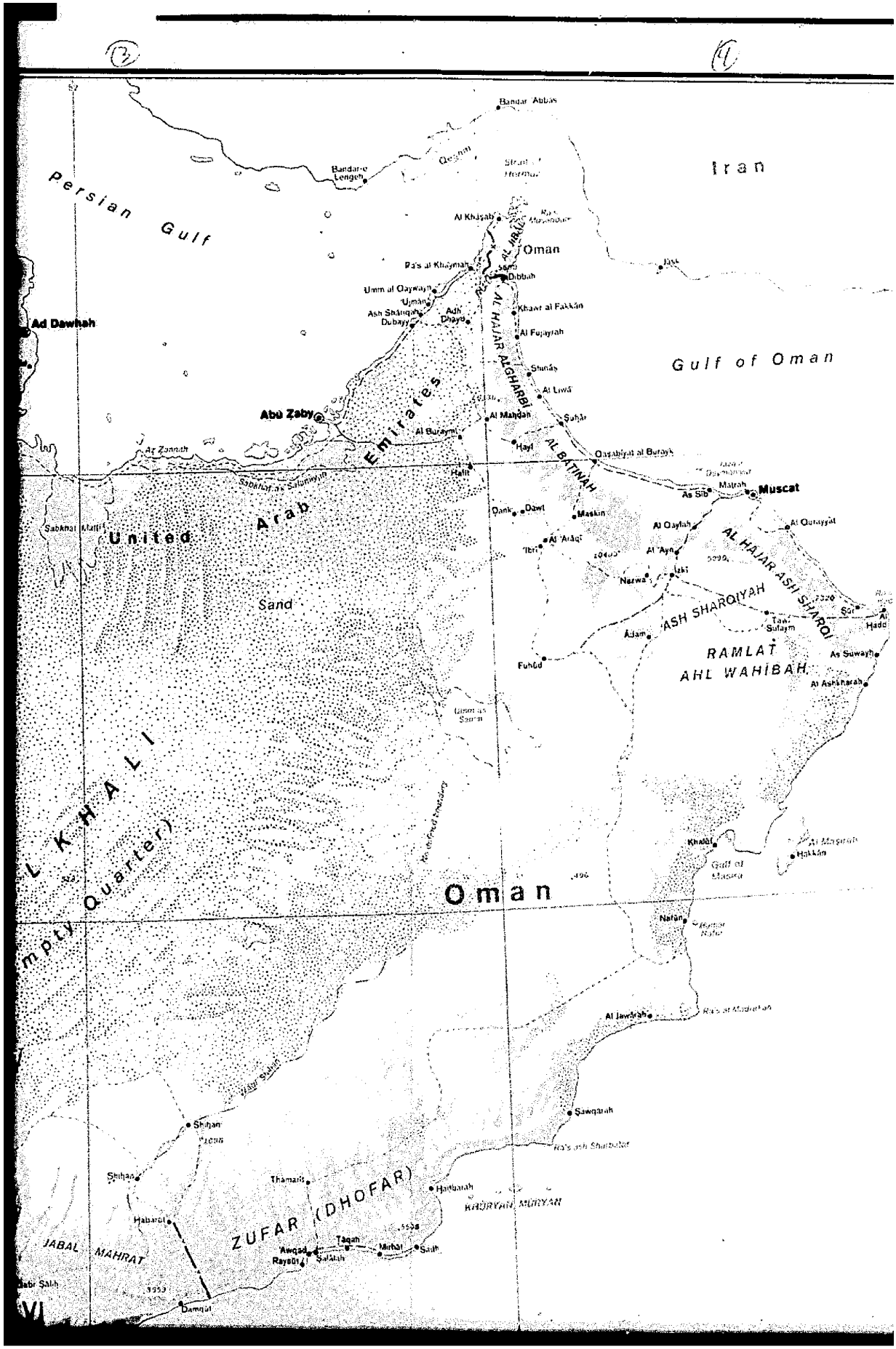

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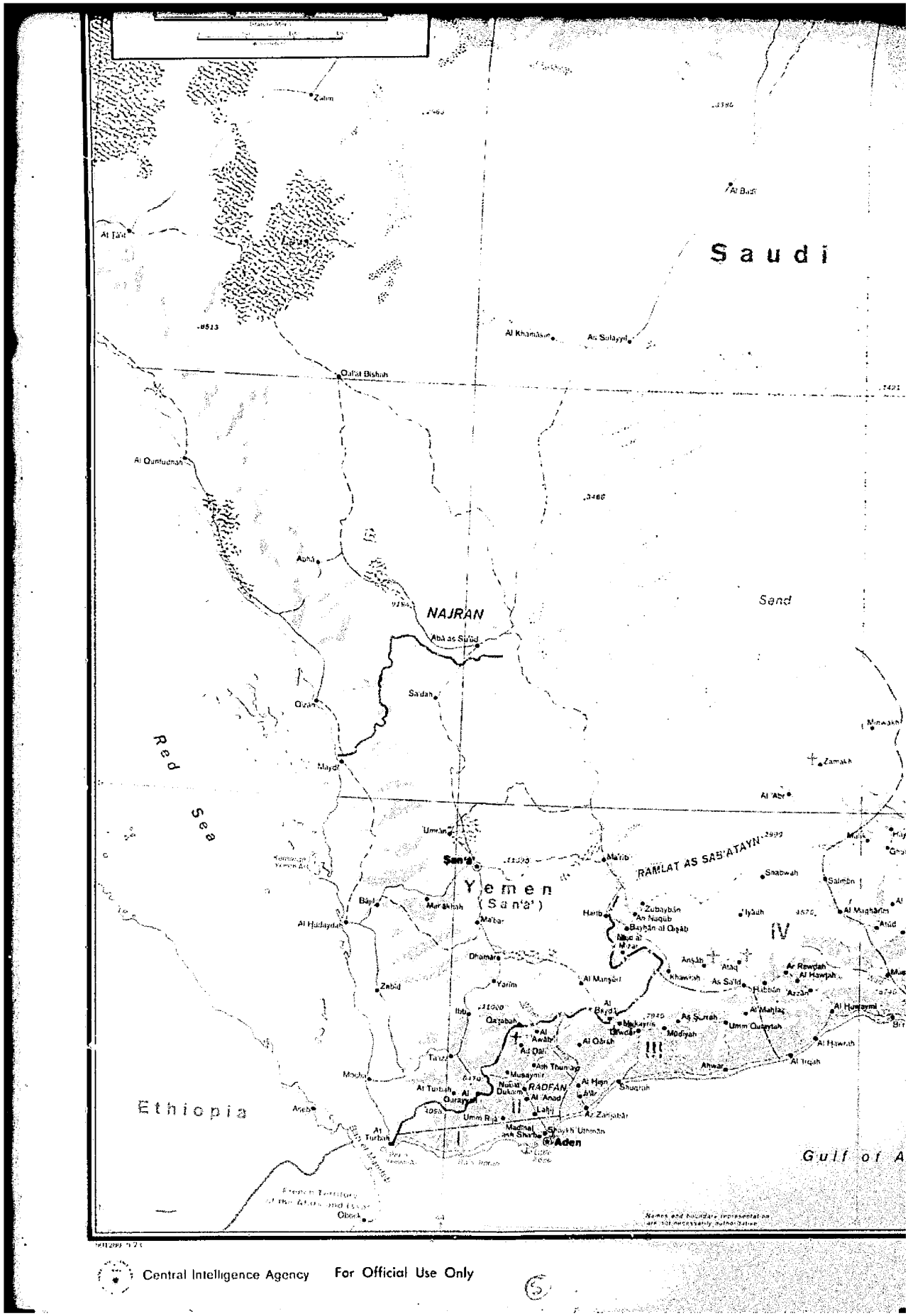

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(7) Terrain and Transportation Figure