

Poland Country Handbook

1. This handbook provides basic reference information on Poland, including its geography, history, government, military forces, and communications and transportation networks. This information is intended to familiarize military personnel with local customs and area knowledge to assist them during their assignment to Poland.
2. This product is published under the auspices of the U.S. Department of Defense Intelligence Production Program (DoDIPP). This handbook has been published as a joint effort within the Department of Defense (DoD). This product reflects the coordinated U.S. Defense Intelligence Production Community position on Poland.
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Poland

KEY FACTS

Official Name. Republic of Poland

Conventional Short Form. Poland

Local Short Form. Polska

Country Code. POL

Head of State.

President Aleksander Kwasniewski

Head of Government.

Prime Minister Leszek Miller

Capital. Warsaw

Time Zone. UTC (formerly GMT) + 1



National Emblem

Population. 38,633,900 (2001)

Language. Polish

National Flag. Two horizontal parallel strips of equal size, representing the national colors with a white upper stripe and a lower red stripe.

Currency. The zloty (zl). Coins are in 1, 2, 5, 10, 20, and 50 grosz (100 grosz = 1 zl) and 1, 2, and 5 zlotys. Bills are in 10, 20, 50, 100, and 200 zlotys. Bills with "proletariat" written on them are no longer legal tender.



National Flag

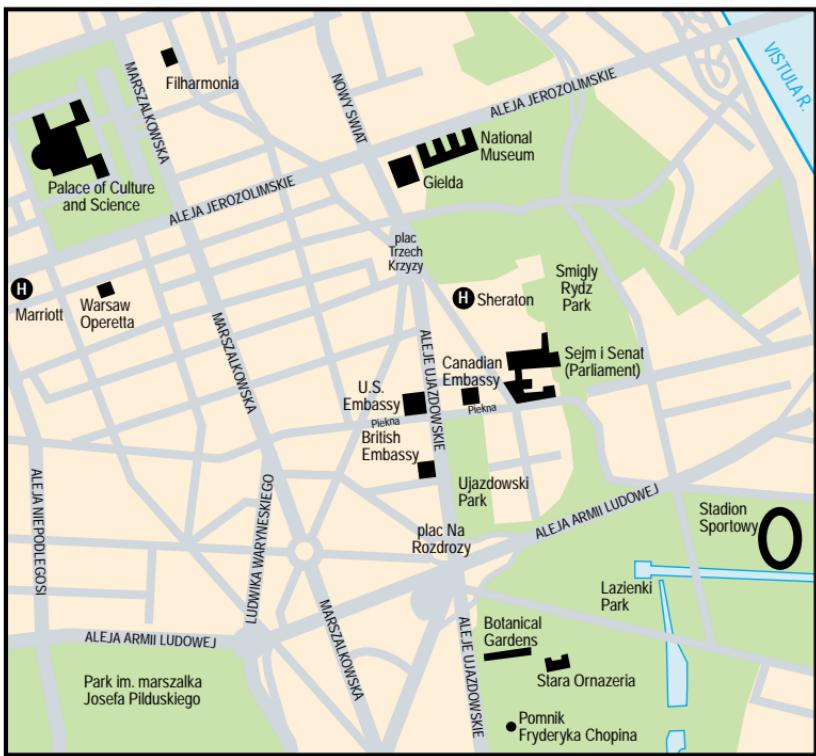
Exchange Rate. US\$1 = 4.06 zl (November 2001).

Electricity. 220V at 50Hz; round, European two-pin plugs are used; 110V/60Hz electrical equipment requires the use of an adapter.

U.S. MISSION

U.S. Embassy

The U.S. Embassy is located on one of Warsaw's main streets. An entrance to the Consular Section and the library is around the corner at Ulica



Warsaw City

Piekna 12, and an Embassy office is at Ulica Piekna 14, next to the Embassy. The Embassy's office hours are 0830 to 1700 weekdays.

Ambassador	Christopher Hill
Location	Aleje Ujazdowskie 29/31, Warsaw, Poland
Mailing Address	Box 5010, Unit 25402, APO AE 09213
Embassy Telephone	(48)(22) 628-3041
After Hours Telephone	(48)(22) 625-0055
Fax	(48)(22) 628-8298
E-Mail	mateljx@pd.state.gov for more information

U.S. Consulate

Location	Ul Stolarska 9, Krakow
Mailing Address	31043 Krakow, Unit 25402, APO AE 09213
Telephone	(48)(12) 424-5100
Fax	(48)(12) 424-5103

U.S. Consular Agency

Location	Ulica Paderewskiego 7, Poznan
Telephone	(48)(61) 851-8516
Fax	(48)(61) 851-8966

Entry Requirements

Passport and Visa Requirements

Visitors must have a passport valid for at least 6 months beyond the expiration date of their visa. U.S. citizens should ensure that passports are date-stamped upon entry as visas are not required for stays up to 90 days. Those planning to stay in Poland for more than 90 days must obtain a visa in advance.

Visitors staying longer than 30 days are required to register with the police (*milicja*). Hotels in Warsaw will usually keep passports for several days for this purpose.



U.S. Embassy in Warsaw

Customs Restrictions

The import of weapons, ammunition, animals (except pets), animal products, plants, and certain plant products is restricted. The import of explosives, radioactive materials, pornography, narcotics, poisons, and intoxicants is prohibited.

Polish customs authorities may enforce strict regulations concerning temporary import and export of items such as works of art, particularly those created before 1945. Art produced by living artists after 1945 may be exported with the permission from the Provincial Conservator of Relics. Some art produced after 1945 may still be subject to restrictions if the artist is deceased and the work is considered of high cultural value.

Upon entry into Poland, visitors must request a form to declare currency, traveler's checks, and other cash instruments in amounts in excess of 5,000 euros. The declaration form must be retained by the traveler for presentation on departure. Visitors carrying undeclared cash may be subject to criminal penalties and have their cash confiscated upon departure. Most major banks cash traveler's checks. ATM machines are available in major cities and credit cards are becoming increasingly accepted.

GEOGRAPHY AND CLIMATE

Geography

Land Statistics

Poland is located east of Germany in central Europe on the Baltic Sea. It covers 312,680 square kilometers (121,945 square miles), making it the size of New Mexico. Only 3 percent of the country is water.

Boundaries

Poland's boundaries total 2,888 kilometers (1,790 miles). It shares borders with Belarus, 605 kilometers (375 miles); the Czech Republic,

658 kilometers (408 miles); Germany, 456 kilometers (283 miles); Lithuania, 91 kilometers (56 miles); Russia, 206 kilometers (128 miles); Slovakia, 444 kilometers (275 miles); and Ukraine, 428 kilometers (265 miles).



Eastern Europe

Topography

Poland is a flat, low-lying country, with an average elevation of 173 meters (567 feet). More than 75 percent of the country lies below 200 meters (656 feet). The most developed and highly populated region is the central plain, which covers more than a third of the country. The



Topography and Drainage

plain is crossed by the Oder and Vistula Rivers, which rise in the Sudetic and Carpathian Mountains along the Polish-Czech border and flow into the Baltic Sea. South of the central plain lies a plateau, which is drained by the Bug, San, and Vistula Rivers.

On the southern border, between the Sudetic Range in the west and the western Carpathians in the east, is the Moravian Gate, a broad depression that is the traditional route into central Europe. The north central plains have belts of shallow lakes near the Oder and Vistula estuaries. These lakes border the coastal lowlands.

Coastline

Poland's coastline extends 491 kilometers (304 miles) along the Baltic Sea. The coastal plains are low-lying regions formed from sediment deposited by the sea. Two major inlets are the Pomeranian Bay on the German border to the far northwest and the Gulf of Gdansk in the east.

The Oder River empties into the Pomeranian, and the Vistula River forms a large delta at the head of the Gdansk. Sandbars with large dunes form lagoons and coastal lakes along the coast. Its natural harbors are in the Gdansk-Gdynia region and Szczecin in the far northwest. Poland shares



Polish Coastline

maritime boundaries with Sweden and Denmark. Poland's potential maritime claim within the Baltic covers an area of 8,300 square nautical miles.

Forests

Forests with rich undergrowth cover 27 percent of the land. The largest forests include the Bory Dolnoslaskie, Bory Tucholskie, Puszcza Augustowska, Puszcza Knyszynska, Puszcza Bialowieska, and Puszcza Solska. Poland lies in a mixed forest zone, but there is a fragment of forest-steppe vegetation in the southeast. Mountain vegetation varies with altitude. As altitude increases, fir and beech woods give way to spruce, which is replaced by subalpine, alpine, and snow-line vegetation.

Mountains

The Sudetic and Carpathian Mountains stretch along Poland's southern borders. The Sudetic are among the oldest mountains in Europe. The Tatra Range is in the central portion. It is ringed by four basins: Podhale, Orawa, Liptow, and Spisz. The Tatra Range runs west-east for 51.5 kilometers (32 miles). The entire chain is 15 kilometers (9 miles) wide and occupies 795 square kilometers (310 square miles). Poland's highest peak, Mount Rysy, at 2,499 meters (8,197 feet) above sea level, is found here. The Carpathians are densely populated.

Lakes

Poland has more than 8,000 lakes. The largest is Lake Sniardwy, which covers 109,700 hectares (271,069 acres).

Land Use

Arable land	47%
Permanent crops	1%
Permanent pastures	13%
Forests and woodlands	29%
Other	10%

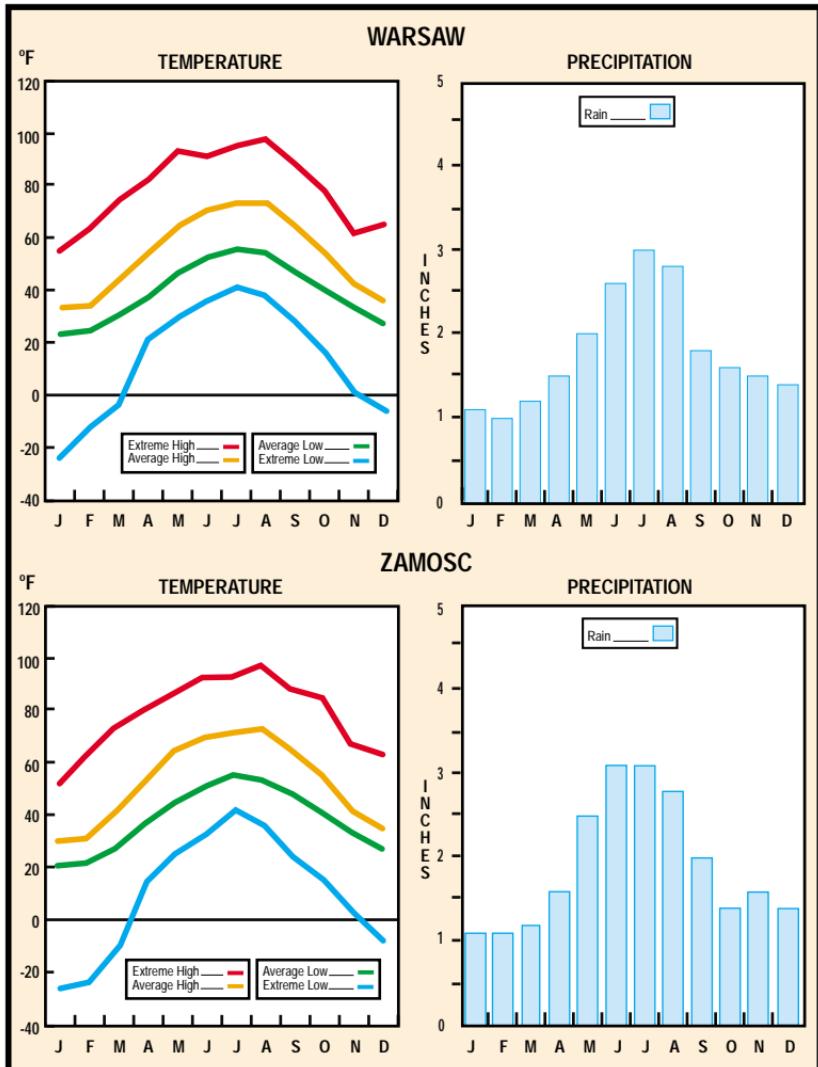


Polish Farmland

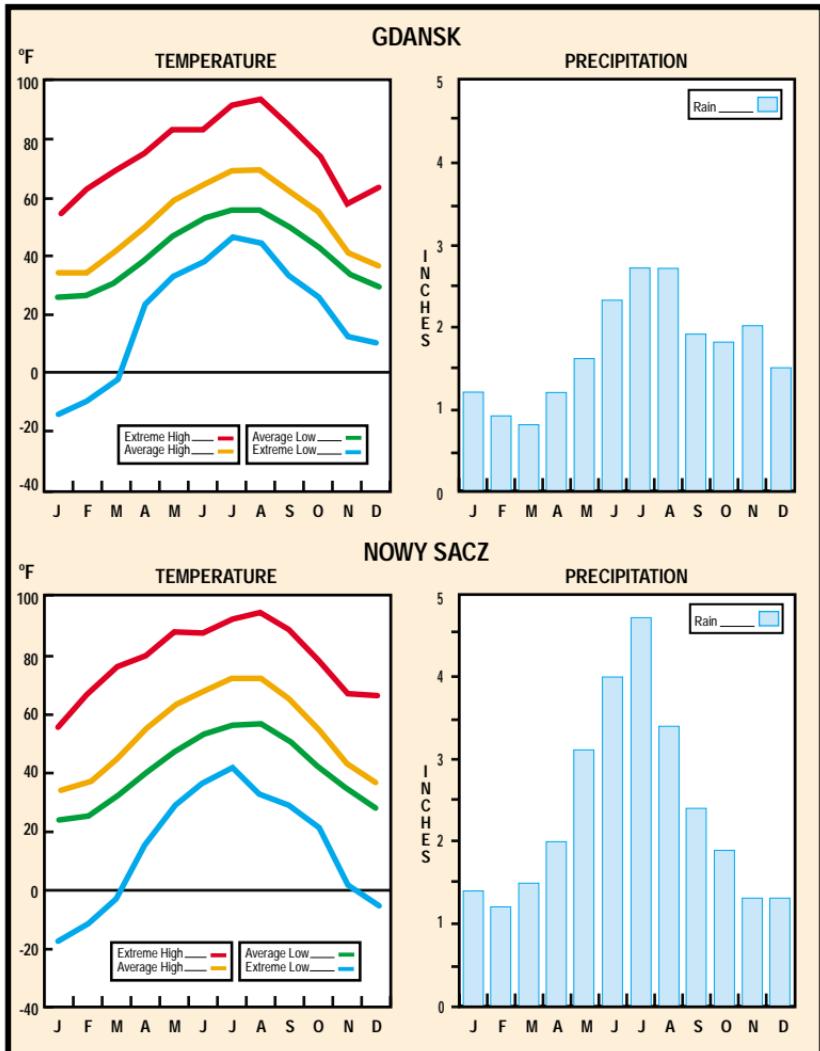
Climate

Poland's weather patterns vary as fronts move in from other regions. Sea air moves across western Europe, arctic air sweeps down from the north Atlantic, and subtropical air arrives from the south Atlantic. Although the arctic air dominates most of the year, its warmer currents moderate temperatures and generate considerable precipitation, clouds, and fog. Winter temperatures in mountain valleys may drop to -40° C (-40° F).

Spring begins in April. Summer, June through August, is less humid with showers and dry, sunny weather and prevailing southern winds.



Warsaw and Zamosc Weather



Gdansk and Nowy Sacz Weather

Early autumn is sunny and warm before a period of rainy, colder weather in November begins the transition into winter. Winter brings frequent snowstorms but relatively low amounts of precipitation.

Average temperatures range from 6° C (43° F) in the northeast to 8° C (47° F) in the southwest. On the highest mountain peaks, the average temperature is below 0° C (32° F). The Baltic coast, influenced by moderating west winds, has cooler summers and warmer winters. The southeast area along the border with Ukraine experiences the greatest temperature extremes with winter temperatures averaging 4.5° C (40° F) below those in western Poland. The growing season is 40 days longer in the southwest than in the northeast.

Average annual precipitation is 600 millimeters (24 inches), but isolated mountain locations receive as much as 1,300 millimeters (52 inches). Average precipitation is slightly higher in the southern uplands than in the central plains. A few areas, notably along the Vistula between Warsaw and the Baltic and in the far northwest, average less than 500 millimeters (20 inches). In winter, half the precipitation in the lowlands and the entire amount in the mountains falls as snow. Summer precipitation is double that of winter, providing a dependable supply of water for crops.

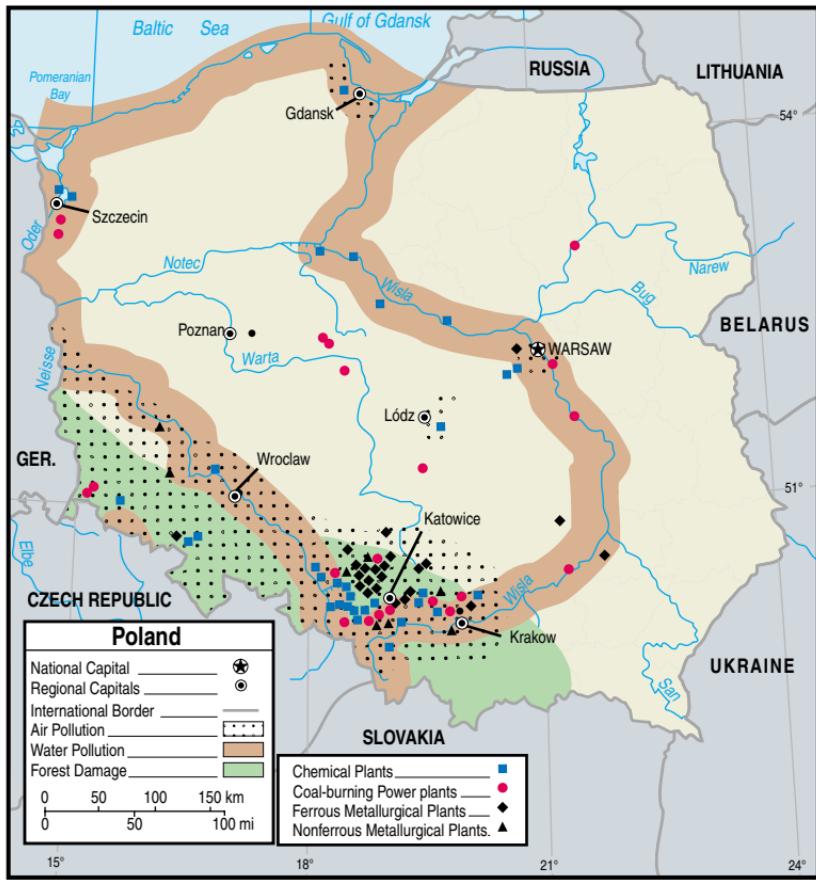
Drainage

Poland's water drains northward into the Baltic Sea via the Vistula and Oder Rivers and their tributaries. Half the country is drained by the Vistula, which originates in the Tatra Mountains. The Vistula Basin is drained by a system of rivers that join the Vistula from the east. One tributary, the Bug, defines 280 kilometers (174 miles) of Poland's eastern border with Ukraine and Belarus. The Oder and its major tributary, the Warta, form a basin that drains the western third of Poland into bays north of Szczecin. The drainage effect on terrain is minimal, especially in the lake region and the inland areas to the south. Swampland, level terrain, and small, shallow lakes restricts water movement. The rivers have two high-water periods per year caused by melting snow and ice in the spring and heavy rains in July. Flooding is a frequent springtime

problem. Ice jams downstream and melting snow and ice upstream cause plains to flood. Lowlands flood through March into April.

Environment

Poland is one of the world's most polluted industrialized countries. Pollution is worst in the southwest, including the Upper Silesia region and



Environmental Pollution

Krakow and Katowice provinces. The highest levels of water, air, and soil contaminants are found around industrial centers. The most polluted surface water sources are in the Krosno, Bielsko-Biala, Jelenia Gora, and Walbrzych provinces.

TRANSPORTATION AND COMMUNICATION

Transportation

Roads

Poland has 130,000 kilometers (80,600 miles) of improved hard surface roads, 24,000 kilometers (14,880 miles) of unimproved hard surface, and 100,000 kilometers (62,000 miles) of earth roads. Due to Soviet influence, most main roads were built east-west rather than north-south. Road signs follow the standard continental system. The rapid increase in automobile ownership since 1989 has not been matched with road maintenance and construction. Highways are not capable of accommodating truck traffic, which degrades Poland's distribution system. An extensive road network upgrade is planned, but little is even in the design phase.

Driving, especially after dark, is dangerous. Roads are narrow, badly lit, and frequently under repair, especially in the summer months. Pedestrians and animals often crowd roadways.

Full-service gas stations are common and are usually open from 0600 to 2200, with 24-hour services found in major cities and along international routes. Diesel fuel is called *olej napędowy*, marked with an ON symbol.

Rail

Polish State Railways (PKP) is the national railroad. Privatization and restructuring have caused funding cuts for modernization and maintenance and 60 to 80 percent of rolling stock is outdated. In 1998, PKP's



Transportation Network

fleet had 62 steam, 1,940 electric, and 2,472 diesel locomotives; 1,222 self-propelled electric trains; 14 diesel railcars; 7,000 passenger coaches; and 108,000 freight wagons. There is little mixed road and rail transport due to underdeveloped computer systems and lack of appropriate platforms, container handling equipment, and rolling stock for the transport of semi-trailers or containers.



Polish LOT Airliner

Air

Poland has 85 airports with paved runways, 38 unpaved airfields, and 3 heliports. Airport conditions are above developing country standards. Poland is upgrading its air traffic control system to NATO standards. The Polish air force uses several former Warsaw Pact bases. Some airports have both military and civilian functions.

The Okecie International is the main airport. Terminals are being refurbished and runways repaved as part of a building and upgrade project. A hangar is available for aircraft the size of IL-62 or B-767.

The Balice airport is 11 kilometers (7 miles) west of Krakow in the Vistula River Valley. The airport is used for both civil and military operations.

Primary Airports:

Airport/Location	Coordinates	Maximum Runway m (ft)	Surface/Elevation m (ft)	Suitability/Remarks
BABIMOST	5208N/ 015479E	2,495 x 60 (8,184 x 197)	Concrete 59 (194)	C-5, C-141, C-130, C-17 Day ops, VFR only
BALICE Krakow	500430000N/ 194728000E	2,550 x 60 (8,364 x 197)	Concrete 241 (790)	C-141, C-130, C-17 Day ops only
GOLENIOW Szczecin	533504380N/ 0145409900E	2,499 x 60 (8,197 x 197)	Concrete 179 (590)	C-141, C-130, C-17. Day ops, VFR only
JASIONKA Rzeszow	500632000N/ 0220140000E	2,502 x 60 (8,206 x 197)	Concrete 211 (692)	C-130

Airport/Location	Coordinates	Maximum Runway m (ft)	Surface/Elevation m (ft)	Suitability/Remarks
LAWICA Poznan	522523000N/ 164930000E	2,493 x 50 (8,177 x 164)	Concrete 93 (308)	C-141, C-130, C-17 Day ops only
OKECIE Warsaw	520956770N/ 0205801900E	3,690 x 60 (12,103 x 197)	Composite 110 (360)	C-5, C-141, C-130, C-17
POWIDZ	522250560N/ 0175059460E	3,525 x 80 (11,562 x 262)	Concrete 128 (420)	C-5, C-141, C-130, C-17 Day ops, VFR only
PYRZOWICE	502834000N/ 0190505000E	2,380 x 60 (7,806 x 197)	Concrete 303 (994)	C-141, C-130, C-17 Day ops only
REBIECHOWO	542237000N/ 0182835000E	2,798 x 44 (9,180 x 147)	Asphalt 146 (481)	C-141, C-130, C-17 Day ops only
STRACHOWICE	510614000N/ 0165254200E	2,499 x 59 (8,200 x 196)	Asphalt 123 (403)	C-141, C-130, C-17 Day ops only

Maritime

Poland's Baltic Sea ports play a major role in the country's economy. Many ports, such as Gdansk, have large shipbuilding facilities that produce both commercial and military vessels. In addition to the listed ports, there are several smaller ports along the Baltic coast.

Port	Latitude/Longitude	Harbor Size	Channel Depth m (ft)	Anchor Depth m (ft)	Pier Depth m (ft)
Gdynia	54N/018E	Large	11-12 (36-39)	10-11 (32-36)	11-12 (36-39)
Gdansk	54N/018E	Medium	11-12 (36-39)	10-11 (32-36)	11-12 (36-39)
Szczecin	53N/014E	Medium	8-9 (26-29)	10-11 (32-36)	8-9 (26-29)

Gdynia. Gdynia is in the Gulf of Gdansk, 32 kilometers (20 miles) west of Gdansk. Prolonged, severe frosts often cause ice to form in the basins and on connecting roads. However, the port is equipped with icebreaking equipment. The harbor is well protected on its seaward side by long breakwaters, extending south from the coast of Cypel Oksywski for 2.5 kilometers (1.5 miles), and has 3 entrances. The port accommodates vessels with a maximum length of 245 meters (803 feet) and a maximum

draught of 11.4 meters (37 feet) up to 100,000 DWT. Gdynia has extensive roll on/off and load on/off facilities at the Baltic Container Terminal.

Gdansk. Gdansk is on Dead Vistula, a tributary 32 kilometers (20 miles) from Gdynia. It has two parts – the Inner and the North ports. The Inner port is the smaller of the two. It can accommodate vessels up to 225 meters (738 feet) and a maximum draft of 10 meters (33 feet) up to 30,000 DWT. Specializing in general cargo, containers, and bulk chemicals, it has a passenger ferry and roll on/off terminal. Warehousing space totals 86,000 square meters (103,200 square yards) and open storage yards total 494,000 square meters (592,800 square yards).

Most cargo is handled at the north port, which has a separate entrance and anchorage. The north port can accommodate vessels of 300 meters (984 feet) length and maximum draft of 15 meters (49 feet) up to 150,000 DWT. The coal terminal is equipped with fully mechanized loading appliances and storage yards with a loading rate of 50,000 tons per day. The crude oil/liquid fuel terminal has 2 stands with maximum loading/discharging rates of 10,000 cubic meters (13,080 cubic yards) per hour per stand. The terminal is equipped with a water purification plant and cleaning facilities. Both ports have their own roads and approaching railways. Gdansk railway station is 16 kilometers (10 miles) from the port.

Szczecin. Szczecin is located at the Oder River's mouth, 65 kilometers (40 miles) from the open sea. Prolonged and severe frost can cause ice formation. Gale force winds may shift drifting ice flows and render navigation in Szczecin's firth difficult. However, icebreaking equipment does exist. Quay length is 19 kilometers (12 miles), 250 meters (820 feet) with a depth alongside of 7 to 8 meters (25 to 29 feet). The roll on/roll off facility is a single ramp at Czeskie Quay, which is being improved with a new warehouse and reconstructing road and rail links.

Future port developments include a multipurpose container/general cargo terminal at Grabowski. The port offers open storage of 240,000 square meters (288,000 square yards) for bulk cargo and 370,000 square meters (444,000 square yards) for general cargo. There

is good road and inland waterway and rail communication, especially to central Europe and the eastern Germany. Two electrified rail services link Szczecin with the rest of Europe. The Szczecin-Berlin highway provides direct access to the European road network.

There are secondary ports at Darlowo (5426N/1623E), Elblag (5410N/1923E), Kolobrzeg (5411N/1533E), and Ustka (5434N/1651E).

Merchant Marine

The merchant marine includes 178 ships. It includes 5 short sea passenger craft, 57 cargo ships, 8 roll on/off cargo ships, 8 container vessels, 1 oil tanker, 4 chemical tankers, 89 bulk carriers, and 1 passenger liner. Poland also owns three ships under Liberian registry.

Ferries

Polish Baltic Navigation Lines maintains ferry connections with Sweden, Denmark, and Finland. There are ferry terminals in Gdansk, Swinoujscie, and offices in Gdynia, Krakow, Warsaw, and Szczecin.

Inland Waterways. Poland has 348 kilometers (215 miles) of canals and 3,623 kilometers (2,246 miles) of rivers suitable for barge traffic. The inland waterway system is linked to the two major port complexes. From the Swinoujscie-Police-Szczecin, travel is possible into Lower Silesia, on the Oder River, and central Poland (via the Notec and Warta Rivers).

Dredging and improvements to the waterways have been planned to make the Wisla River accessible from the Swinoujscie-Police-Szczecin complex through the Bydgoszcz Canal. The Wisla is only navigable in portions, with full, future access from the Gdynia-Gdansk port complex planned. Inland shipping in Poland is based on the Oder River.

Poland is linked to Germany's inland waterways. Barge traffic can navigate from Hamburg and Rotterdam. Inland connections permitted to reach the Russian port of Kaliningrad lay on the Zalew Więcławski.



Ferry in Gdansk

Communication

Poland has a severely underdeveloped and outmoded communication system, consisting of cable, open wire, and microwave components. One satellite earth station uses INTELSAT, EUTELSAT, INMARSAT, and Intersputnik.

Radio and Television

There are five state-owned and commercial radio stations. The most popular commercial stations with a nationwide reach are RMF and Radio Zet, both of which feature Western music.

Television broadcasting is via state-owned channels (countrywide TVP1 and TVP2, 17 regional public channels, and TV Plonia, primarily for

Poles living abroad). There is also a growing number of commercial satellite and cable channels. Although public television remains a major source of news and information, private broadcast television, satellite, and private cable services (domestic and foreign) are available. Cable services, available in all major cities, carry the main public channels, two nationwide private networks (Polsat and TVN), as well as local and regional stations and a variety of foreign offerings. Polsat, the oldest satellite channel, reaches 90 percent of Polish households. The number of individual satellite television dishes is growing rapidly, giving Poles access to Western media. Twenty-five percent of the population has dish access.

Telecommunications

By December 2000, there were 12 million fixed-line telephone subscribers. The telephone network is growing 20 percent annually. However, Poland's system is poor, causing frequent, sometimes lengthy lapses in service, especially in the east. Only 7 percent of Poles in rural areas can access telephones. Five million cellular phones were in use by 2000.

Calls placed from public phones require prepaid phone cards, which can be purchased at any grocery store or newspaper stand. Major cities can be reached directly from the United States by dialing 0-11-48 (country code for Poland) followed by the city code and the telephone number.

Emergency numbers: Ambulance 999, Fire 998, Police 997.

Newspapers and Magazines

The constitution provides for freedom of speech and the press; however, there are some marginal restrictions in law and practice. Nonetheless, the press is vigorous and independent. Books expressing a wide range of political and social viewpoints are available, as are foreign periodicals.

The liberal *Gazeta Wyborcza* is the most popular daily newspaper. The *Rzecpospolita* daily covers business and government affairs, while the *Zycie* has broad Christian-Democratic sympathies. *The Warsaw Voice* is the most popular weekly English-language publication. It has national

coverage of politics, business, arts, and culture. Major Western and German magazines are available.

Postal Services

Post offices are open from 0800 to 2000. Province capitals have designated post offices open 24 hours. Main provincial post offices provide telex and telefax services and courier mail. A letter mailed in Poland will take approximately 2 weeks to reach the United States and 1 week to reach nearby countries. Federal Express contracts service to Universal Express. UPS makes regular flights to Poland. Major cities (Warsaw, Krakow) can receive overnight letters; packages to or from almost anywhere in Poland are received within 5 business days.

Internet

As of 1999, Poland had 161 internet service providers and 2 million internet users. Service is expected to grow 30 percent annually. The Polish government, political parties, newspapers, and numerous other organizations post information, but this is not yet a useful media.

CULTURE

Statistics

Population 38,633,912 (July 2001)

Age Structure

0-14 years	3,640,451 male
	3,463,604 female

15-64 years	13,288,471 male
	13,434,753 female

65 years and older	1,836,816 male
	2,969,817 female

Population Growth Rate

-0.03 percent

Birth Rate

10.2 births/1,000 population

Death Rate	9.98 deaths/1,000 population
Infant Mortality Rate	9.39 deaths/ 1,000 population
Life Expectancy Rate	73.42 years
Male	69.62 years
Female	77.82 years
Net Migration Rate	-0.49 migrant(s)/1,000 population

Society

Before WWII, there were significant ethnic minorities (4.5 million Ukrainians, 3 million Jews, 1 million Belorussians, and 800,000 Germans). Today Poland is 98 percent Polish. A German minority lives near Opole. There are still communities of Macedonians and Jews. A few Ukrainian communities are in the northern districts.

Education and Literacy Rates

Education has a central role in Polish society. The standard of education is high, with the state providing tuition-free education at all levels. Education is compulsory from 7 to 15 years of age. Secondary education is optional in general or vocational schools. Twenty percent of the population has completed post-secondary education. The private school sector in Poland is expanding rapidly. Poland has a 98 percent literacy rate.

Poland has colleges of engineering, agriculture, and economics, and the demand for computer science and information technology specialists is outpacing the numbers of qualified graduates entering the workforce. The oldest university in Poland is in Krakow; others are in Warsaw, Poznan, Lublin, Wroclaw, Torun, Lodz, and Katowice. There is also a Roman Catholic university in Lublin.

Language

Polish is derived from the western subgroup of Slavic languages. It is written in the Latin alphabet, with a few modified letters.

Common foreign languages spoken are English, German, and French. Most young, urban Poles can communicate in basic English. Russian used to be a compulsory subject throughout the educational system, however, learning Russian was regarded as unpatriotic and people would rarely admit to knowing it.

Religion

The constitution provides for freedom of religion. Ninety-five percent of Poland is Roman Catholic, which makes the country among the most uniformly Catholic nations in the world. Even while under Communist control, the Catholic Church continued its work. Talks between Solidarity leaders and Communist government members included Church representatives as a vital part of Polish public life.

The Virgin Mary's image (called the Black Madonna) at Jasna Góra Monastery in Częstochowa is a popular pilgrimage destination for Polish Roman Catholics.



Catholic Mass



Holy Cross Church

The Orthodox Church is active only along a narrow strip in the eastern frontier. Orthodox Christianity is the second largest religion in Poland. Orthodox churches feature onion-shaped domes.

Jews

Anti-Semitism is a problem; many rural citizens are openly anti-Semitic. Since the early 1990s, the number of Jews in Poland has been rising, as many Jewish orphans raised as Catholics are beginning to learn of their

heritage. Some younger Poles are hesitant to claim their Jewish heritage. Others are trying to revive the lifestyles of their forefathers.

Tatar Muslims

There are 3,000 Polish Muslims; descendants of Tatar warriors who fought alongside Polish armies against invading forces from the 5th century onward. Most live in six parishes: Bialystok, Bohonik, Kruszyniany, Gdansk, Szczecin, and Warsaw. There are mosques in Bohonik, Kruszynieny, and Gdansk.

The assimilation of Tatar Muslims into the Polish society caused their original language to disappear. Intermarriage with non-Tatars has diluted their distinct physical characteristics while encouraging religious conversion and cultural integration.

Customs and Courtesies

Ordinary courtesies in Poland are similar to those practiced elsewhere in Europe and in the United States.

Greetings

It is customary to greet by shaking hands in Poland. A Polish man may kiss a woman's hand upon introduction, at subsequent meetings, or when saying goodbye. Women greet close female friends by kissing both cheeks. When introducing a man, the term *pan* (pronounced pahn) is used with the last name; for a woman, *pani* is used.

A professional's title is used before the last name. Only the person's title is used in formal conversation or in business. First names are used between adult friends. Teenagers and children are also called by their first names.

Courtesies

Men are still expected to extend conventional courtesies to women, such as holding doors, helping with heavy packages, and assisting a woman with her coat. A man should stand when greeting a woman if she is standing.

Dress

Business attire is formal, including a suit and tie for men and a suit or dress for women. Casual wear, including jeans, is suitable for informal occasions, but formal dress is customary for visiting or entertaining.

Visiting

Sunday is the traditional day for visiting family and friends in Poland. It is customary to bring an odd number of flowers for even a brief visit. Guests may be entertained at a *kawiarnia* (cafe); however, going out tends to be expensive, so guests are more commonly entertained at home. Such visits often last several hours, but do not usually extend past 2300.

Working

Business hours are generally from 0800 to 1600 on workdays. Stores are closed on Sundays. Poland operates in a cash economy. However, banks



Traditional Polish Dancing

are issuing credit cards, and more stores are accepting them. Checks are rare. Most payments for regular transactions are made by wire transfer, if not by cash. Cash machine networks are expanding.

Dining

The average Polish diet is high in fat and laden with meat. Proper dining etiquette follows the continental style, with the fork in the left hand and the knife remaining in the right. Both hands (not the elbows) are kept above the table during the dinner meal. No one should eat until everyone has been served and the host has begun. In restaurants, the bill must be requested from the waiter and paid at the table. Toasting is often part of both formal and informal dinners. Vodka or wine, served between courses, may be used by the host to toast the guest; it is appropriate for the guest to reciprocate later in the meal. Tipping is not common in Poland. It is done for excellent service and then only in small amounts.

Sports

Soccer is the most popular sport in the country, and the Polish national team competes worldwide. Snow skiing is popular in the Tatra Mountains near Zakopane. Hiking and camping are popular among the younger citizens.



Polish Soccer Game

Major Cities

Warsaw

Warsaw is the capital of Poland and the Mazowsze Voivodship (province). Occupying both banks of the Vistula River, the Warsaw metropoli-

tan area has 2.1 million people, 5.5 percent of the country's total population. The city of Warsaw, with a population of 1.6 million, is a center of culture, science, education, finance, and a major transportation hub. Warsaw's Okecie Airport has direct connections to more than 50 airports around the world.

Warsaw accommodates 18 colleges, the National Philharmonic Orchestra, drama theaters, libraries, art galleries, and museums. The city also hosts cultural events of international renown. There are hundreds of historical monuments in Warsaw.

Lodz

The city of Lodz is located at nearly the geographical center of Poland, 130 kilometers west of Warsaw. Its population of 800,000 people makes Lodz the second largest city in Poland. Together, Lodz and Warsaw represent 10 percent of the total population of Poland.

Lodz is strongly associated with the textile industry, although this sector has been in steep decline for more than a decade. The major industries include light manufacturing, food, chemicals, and electrical engineering. Construction of planned highways will place Lodz at a major intersection of Warsaw-Poznan and Gdansk-Katowice. Primary academic centers in Lodz include the Institute of Technology, the University of Lodz, two medical academies, and a Polish Academy of Science branch, as well as many industry research centers.

Krakow

Krakow has a population of 740,000 and is the capital of Malopolska Voivodship. The city of Krakow is included on the UNESCO World Cultural Heritage list due to its historical and cultural value. It is the second largest research and academic center in Poland, with 15 institutions of higher learning and 96 research institutes. Among the major state academies are the Jagiellonian University, founded in 1364, the Academy of Economics, the Academy of Fine Arts, and the Music Academy.



Marketplace in Krakow

Wroclaw

Wroclaw has a population of more than 630,000. It is the capital of Lower Silesia Voivodship. More than 64,000 students study here at 13 state institutions and several private universities.

Wroclaw, located at the intersection of major east-west and north-south roadways, is served by three international highways, the largest railway network in Lower Silesia, and direct rail links with several European cities. An international airport and two river ports are located in Wroclaw together with other cities in the province. Wroclaw is a major industrial center in Poland, ranking ninth in industrial employment.

Poznan

Poznan, located in midwest Poland, is home to 577,000 people and is the capital of Wielkopolska Voivodship. Poznan is a major junction for rail and highway transport. The main route from eastern to western Europe and Scandinavia to the Czech Republic, Slovakia, and the Balkans runs through Poznan. Poznan's airport at Lawica serves as both a domestic and international airport.

Poznan has become the second largest banking center in Poland. Many insurance companies operate in the city as well. Manufacturing plays a leading role in the economy, employing one-fourth of the country's professionals. Products from the region include ship engines, passenger railway carriages, metallurgy, and food industry machines. This region also provides a large quantity of high quality agricultural products are available.

Gdansk

Gdansk is in northern Poland on the Baltic Sea coast and is a major seaport. The area's population of 1.4 million is concentrated in the Trojmiasto, or Three-City, urban area, made up of Gdansk, Gdynia, and Sopot. The city center, known as Stare Miasto, or Old Town, lies on the Motlawa, a river that runs into the Vistula 3 kilometers (1.8 miles) inland. The city is Pomorze Voivodship's capital. Gdansk is 330 kilometers (205 miles) north of Warsaw and has the second largest international airport in Poland. There are plans to build a north-



Town Hall in Poznan

south highway connecting the ports of Gdansk and Gdynia with southern Europe.

MEDICAL ASSESSMENT

Infectious Disease Risks to Deployed Personnel

Foodborne and Waterborne Diseases

Sanitation varies with location, but typically is well below U.S. standards. Local food and water sources (including ice) may be contaminated with pathogenic bacteria, parasites, and viruses to which most U.S. service members have little or no natural immunity. If local food, water, or ice from unapproved sources is consumed, diarrheal diseases can be expected to temporarily incapacitate a high percentage of personnel within days. Hepatitis A and typhoid fever can cause prolonged illness in a smaller percentage of U.S. personnel exposed to contaminated food or water sources. Consumption of unpasteurized dairy products or raw animal products increases the risk of contracting many diseases, including brucellosis and Q-fever.

Vectorborne Diseases

During the warmer months of May through September, ecological conditions in rural areas support tick vectors, with variable rates of disease transmission. Tickborne encephalitis is the major vectorborne risk in Poland that can severely debilitate or causing fatalities in a small percentage of personnel bitten by infected ticks. Lyme disease also occurs.

Sexually Transmitted Diseases

Sexually transmitted diseases (STDs), including gonorrhea and syphilis, occur year-round and countrywide. HIV/AIDS and hepatitis B are present at low levels. Though the immediate impact of HIV/AIDS and hepatitis B on an operation is limited, the long-term health effect on individuals is substantial.

Respiratory Diseases

Tuberculosis (TB) is also common among the local population. The annual number of new cases of active TB in 2000 was estimated at 25-49 per 100,000 (compared to the U.S. rate of approximately 6 per 100,000). Prolonged contact with the local population may result in conversion rates to tuberculosis skin testing (PPD screening) that may be elevated over US military baseline.

Water Contact Diseases

Lakes, rivers, streams, or other surface water may be contaminated with leptospirosis. Concentrations of the leptospirosis organism in lakes, rivers, or other surface water may vary significantly from location to location. Transmission primarily occurs in rural areas and may be increased during flooding. Infrequent or sporadic numbers of personnel directly exposed to bodies of water such as lakes, streams, or irrigated fields could develop symptomatic infection. In groups with prolonged exposure to heavily contaminated foci, attack rates can be high.

Animal Contact Diseases

Brucellosis and Q-fever occur in domestic livestock, and cases are reported among the local population. Infrequent or sporadic numbers of personnel consuming local food, particularly unpasteurized dairy products, or having contact with infected livestock could develop brucellosis or Q fever. If personnel are heavily exposed to highly contaminated areas such as barnyards or herds of farm animals, Q fever rates of 2 to 10 percent per month could occur.

The risk of rabies is similar to that in the U.S. and exists countrywide, associated with direct animal contact bites.

Medical Capabilities

Health care services in Poland frequently do not meet U.S. standards, but quality medical care is available. The quality of health services is

usually superior to that found in the neighboring eastern Europe countries and the former Soviet Union. General capabilities are inferior to those in Germany. The Polish Ministry of Health has reorganized extensively during the past 10 years, and programs to reform the health care system have successfully improved the quality of services available in most areas of the country.

Emergency medical services are readily available. Ambulances exist nationwide and have reasonable response times. Ambulance staffs are well trained and the vehicles are well equipped. Specialized ambulances for cardiac life support and trauma care are available in many areas. Ambulance personnel usually receive advanced trauma and advanced cardiac life support (ATLS/ACLS) training. Helicopter evacuation is available countrywide for severe trauma or critical cases.

Hospital and medical services are widely available. The country has about 700 public hospitals. Quality of services generally is good but does not always meet U.S. standards. Many facilities are old and do not have modern equipment.

The national language is Polish. Many Poles also speak English or German. Telephone operators and ambulance dispatchers often do not speak English. Use of an interpreter is helpful when seeking emergency medical care.

High quality pharmaceuticals and medical supplies are widely available. Most medications commonly used in the United States are readily available. Quality control standards generally meet European Union standards. Most pharmacies are privately owned.

Blood supplies are adequate. Blood is collected from unpaid voluntary donors and is routinely tested for hepatitis B and C, HIV, and syphilis. Collection, storage, and use of blood and blood products generally follow Red Cross standards.

Key Medical Facilities

Central Clinical Hospital

<i>Coordinates</i>	52-15-05N 021-05-20E
<i>City</i>	Warsaw
<i>Location</i>	Ulica Szaserow 28
<i>Type</i>	Civilian/Military
<i>Beds</i>	2,000
<i>Capabilities</i>	Medical — internal, neurology, nephrology, cardiology, dermatology; surgical — general, neurosurgery, urology, orthopedics, cardiothoracic; ancillary — 24-hour emergency room, intensive care, laboratory, pharmacy, blood bank, x-ray, computed tomography (CT) scanner, helipad.
<i>Comments</i>	One of Poland's best hospitals.

State Clinical Hospital #2

<i>Coordinates</i>	52-24-54N 016-53-45E
<i>City</i>	Poznan
<i>Location</i>	Ulica Przybyszewskiego 49
<i>Type</i>	Government
<i>Beds</i>	600
<i>Capabilities</i>	Medical — internal, nephrology, neurology, dermatology, cardiology; surgical — general, neurosurgery, cardiothoracic, orthopedics; ancillary — 24-hour emergency room, 8-bed intensive care unit, blood bank, laboratory, pharmacy, x-ray.
<i>Comments</i>	No designated helipad.

First City Clinical Hospital

<i>Coordinates</i>	54-21-XXN 018-40-XXE
<i>City</i>	Gdansk
<i>Location</i>	Adjacent to Gdansk State Medical College (Solidarity Branch) on M. C. Sklodowskiet Ul. 3A
<i>Type</i>	Government
<i>Beds</i>	1,000
<i>Capabilities</i>	Most major and minor specialties

<i>Comments</i>	Large teaching hospital associated with the Gdansk State Medical College and probably the best equipped and staffed medical facility in the area.
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HISTORY

The Poles are descendants of a Slavic people who settled between the Oder and Vistula Rivers before the time of Christ. In 966, the reigning monarch, King Mieszko I converted to Catholicism.

In the late 14th century, Polish life and culture flourished under the reign of King Kasimir the Great. The Polish state reached its zenith under the Jagiellonian Dynasty after the union with Lithuania in 1386 and the Teutonic Knights' subsequent defeat at Grunwald in 1410. Three successive partitions (1772, 1793, and 1795) by Prussia, Russia, and Austria resulted in the disappearance of Poland from European maps.

In 1939, Germany and the Soviet Union signed the Ribbentrop-Molotov Non-aggression Pact, which dissolved Poland into Nazi and Soviet controlled zones. In September, Hitler ordered his troops into Poland, and was followed 2 weeks later by Soviet troops. Germany invaded the Soviet Union in 1941 and drove the Soviets out of Poland.

During the war, 6 million Poles were killed, and 2.5 million were deported to Germany for forced labor. More than 3 million Jews (all but about 100,000 of the Jewish population) were killed in death camps.

Under the Potsdam Agreement, the former German territories east of the Oder and Neisse Rivers came under Polish sovereignty. Poland's border with then-U.S.S.R. also shifted westward. Following the Yalta Conference in 1945, the Polish Provisional Government of National Unity was formed. Although the Yalta agreement called for free elections, those held in January 1947 were controlled by the Communist Party.

In October 1956, while retaining most traditional communist economic and social aims, the regime of First Secretary Wladyslaw Gomulka liberalized Polish internal life.

In 1968, the trend reversed when student demonstrations were suppressed and an anti-Zionist campaign directed against Gomulka supporters within the party led to the emigration of much of Poland's remaining Jewish population. In December 1970, price increases for essential consumer goods triggered disturbances and strikes in Gdansk, Gdynia, and Szczecin that reflected deep dissatisfaction with living and working conditions. Edward Gierek replaced Gomulka as first secretary.

Funded by Western credit, Poland's economic growth rate was one of the world's highest during the early to mid-1970s. But much of the borrowed capital was misspent, and the planned economy was unable to use the new resources effectively. The growing debt burden became unsupportable in the late 1970s, and economic growth had become negative by 1979. In July 1980, with the Polish foreign debt at more than US\$20 billion, the government made another attempt to increase meat prices. A chain reaction of strikes paralyzed activity along the Baltic coast by the end of August and, for the first time, closed most coalmines in Silesia.

The Solidarity Movement

In August 1980, workers at the Lenin Shipyard in Gdansk, led by electrician, Lech Walesa, signed a 21-point agreement with the government that ended their strike. Similar agreements were signed at Szczecin and Silesia. The key provision was the guarantee of workers' rights to form independent trade unions and to strike. After the Gdansk agreement was signed, a national union movement called Solidarity swept Poland.

The discontent underlying the strikes was intensified by revelations of widespread corruption and mismanagement within the Polish state and party leadership. At the first Solidarity National Congress in 1981, Walesa was elected the union's national chairman.

In December 1981, the Polish government declared martial law to crush the union. Virtually all Solidarity leaders and many affiliated intellectuals were arrested or detained. The Polish regime rescinded martial law in 1983.

The government's inability to end Poland's economic decline led to waves of strikes in 1988. In an attempt to control the situation, the government gave de facto recognition to Solidarity, and Interior Minister Kiszcak began talks with Lech Walesa in February 1989, resulting in partly open national assembly elections in June. The June election produced a *sejm* (lower house), in which one-third of the seats went to communists and one-third went to the two parties that had formerly been their coalition partners. The remaining third of the seats in the *sejm* and all those in the senate were freely contested; most seats were won by Solidarity-supported candidates.

The roundtable agreement called for a communist president, and the national assembly elected General Jaruzelski to that office. Two attempts by the communists to form governments failed. In August, President Jaruzelski asked journalist/Solidarity activist Tadeusz Mazowiecki to form a government; in September, the *sejm* voted approval of Prime Minister Mazowiecki and his cabinet.

In December 1989, the *sejm* approved the government's reform program to transform the Polish economy rapidly from centrally planned to free market, amended the constitution to eliminate references to the Commu-



Solidarity Monument in Gdansk

nist Party's leading role, and renamed the country the Republic of Poland. The Polish United Workers' Party was dissolved in January 1990 and was replaced by the Social Democracy of the Republic of Poland. During the May 1990 local elections, candidates supported by Solidarity's Citizens' Committees won a majority of the races. In October 1990, the constitution was amended to curtail the term of President Jaruzelski. In December, Lech Walesa became the first popularly elected president of Poland.

Poland in the 1990s

Poland progressed toward a democratic government and a market economy during Walesa's 5-year term. Jan Krzysztof Bielecki, at Walesa's request, formed a government and served as prime minister until October 1991, introducing world prices and greatly expanding the scope of private enterprise.

Poland's first free parliamentary elections were held in 1991. More than 100 parties participated, representing a full spectrum of political views. No single party received more than 13 percent of the vote. After a rough start, in 1993 a second group of elections were held and parliament served its first full term. The Democratic Left Alliance (SLD) received the largest percentage of votes.

After the election, the SLD and the Polish People's Party (PSL) formed a governing coalition. Waldemar Pawlak, leader of the junior partner PSL, became prime minister. Relations between President Walesa and the prime minister remained poor, with Walesa charging Pawlak with furthering personal and party interests at the expense of state matters. President Walesa demanded Pawlak's resignation in January 1995. The SLD's Jozef Oleksy was selected as the new prime minister.

In November 1995, Poland held its second free presidential elections. SLD leader Aleksander Kwasniewski defeated Walesa by a narrow margin – 51.7 percent to 48.3 percent. In 1999, Poland entrenched itself in the Western security sphere by joining NATO. Poland's most recent par-

liamentary elections were held in October 2000, when Kwasniewski was reelected with 54 percent of the vote.

Chronology of Key Events

- 1918 Nation becomes independent republic.
- 1939 World War II begins with September invasions of Poland by Nazi Germany and Soviet Union.
- 1945 Soviet Army occupies Polish territories and establishes Communist-dominated coalition government.
- 1979 Bishop of Krakow, Cardinal Karol Wojtyla, becomes Pope John Paul II, head of the Roman Catholic Church.
- 1980 Emergence of Solidarity trade union, led by Lech Walesa. Nationwide worker strikes culminate in occupation of Lenin Shipyard in Gdansk; signing of Gdansk Accords.
- 1989 *Sejm* votes to establish a market economy.
- 1990 Lech Walesa sworn in as the country's president.
- 1999 Poland, Czech Republic and Hungary join NATO.

GOVERNMENT AND POLITICS

Government

Poland is a bicameral parliamentary democracy. Poland's parliamentary-presidential system, introduced in the 1992 Interim Constitution, divides executive powers between the president, cabinet, and the *sejm*. The 1997 constitution retains that system.

The constitution codifies Poland's democratic norms and establishes checks and balances among the president, prime minister, and *sejm*. It also enhances many key elements of democracy, including judicial review and the legislative process, while guaranteeing the wide range of civil rights, such as the right to free speech, press, and assembly.

Key Government Officials

President	Alexander Kwasniewski
Prime Minister	Leszek Miller
Minister of Foreign Affairs	Wladyslaw Bartoszewski
Minister of Internal Affairs	Marek Biernacki
Minister of National Defense	Bronislaw Komorowski

Executive Branch

The government structure is a council of ministers led by a prime minister, chosen from a majority coalition in the bicameral legislature's lower house. The president, elected for a term of 5 years, is head of state. The judicial branch plays a minor role in decision making.

The Polish president is the commander-in-chief of the armed forces and may veto legislation passed by parliament. The new constitution allows presidential vetoes to be overturned by a three-fifths vote in the *sejm*.

President Kwasniewski is an ex-communist turned social democrat and SLD leader, who defeated former Solidarity union leader Lech Walesa in November 1995. He became deputy to the *sejm* in 1991 and constitutional committee chairman 1993 through 2000. President Kwasniewski supports Polish membership in NATO and the EU.

Legislative Branch

Poland has a bicameral parliament, with a 460-member lower house (*sejm*) and a 100-member upper house (Senate). Members of both bodies are elected to 4-year terms. Within the legislative branch, the *sejm* has most of the power, but the Senate may either amend legislation passed by the *sejm* or delay it. A 1993 electoral law stipulated that with the exception of guaranteed seats for small German and Ukrainian ethnic parties, only parties receiving at least 5 percent of the vote could enter parliament. As of June 2001, nine parties are represented in the *sejm*.

As of 2002, Poland is led by the Democratic Left Alliance (SLD), under the leadership of Prime Minister Leszek Miller. The coalition has maintained pro-market economic policies and made clear its commitment to a democratic political system. The Freedom Union (UW) and SLD dominate the Warsaw municipal council, which has led to some clashes between the dominant political parties.

Judicial Branch

Poland has a non-discriminatory legal system that protects and facilitates acquisition and disposition of all property rights, such as land, buildings, and mortgages.

Suffrage

Anyone who is at least 18 years-old can vote.

Local Government

Poland has 16 provinces, each with its own parliament and governor, as well as a chief administrator, appointed by the central government to manage central programs in the province.

Politics

Poland's political party system is highly factionalized. To create an effective legislative body, the plurality party in the *sejm* must forge coalitions with one or more of the minority parties to gain a parliamentary majority. Solidarity, the Catholic Church, former communists, and labor all exert a powerful influence on shaping coalition politics in Poland.

Government policy is focused on attaining EU accession requirements, leaving little room for discretionary spending. While inflation is being controlled, powerful trade unions can influence government policy.



Administrative Provinces

Political Parties

More than 200 parties exist in Poland. Even the smallest is fully recognized. The following are some of the more influential parties.

Solidarity Electoral Action (AWS). The center-right AWS is a coalition of more than 30 political groupings allied with the Solidarity trade

union. The party promotes moral and social issues and is populist in terms of economics. Its platform supports privatization and welcomes foreign investment. The largest political party representing the Catholic nationalist view is the ZChN, an AWS member organization.

Alliance of the Democratic Left (SLD). The left-of-center SLD is a coalition of successor parties to the communist-era Polish United Workers Party (PZPR) and is headed by Prime Minister Leszek Miller. Its program includes a commitment to democratic pluralism and parliamentary government, separation of church and state, and support for women's rights. The party's leadership supports free market economic policies and the accession of Poland to the EU, but stresses the importance of cushioning the harsher effects of economic reform with a social safety net. The SLD has expanded its constituency from its original base of urban workers, pensioners, and left-leaning intellectuals, to include some professionals and businessmen.

Freedom Union (UW). UW has its origins in the Solidarity movement. The UW is the leading force for uncompromising implementation of free-market principles and fiscal discipline. UW pursues a liberal course. Its membership is a diverse mix of liberal free-market thinkers, intellectuals, entrepreneurs, physicians, and social activists. The party supports a social market economy, privatization, public investment in infrastructure and housing, modernization of agriculture, decentralization and European integration. The party is led by Leszek Balcerowicz, the former deputy prime minister and minister of finance, who authored Poland's program of economic recovery in the early 1990s.

Polish People's Party (PSL). PSL is one of Poland's oldest parties, founded at the end of the 19th century. The party consists of a conservative anti-reform wing and a reform-minded wing with a social democratic inclination. The PSL has grown from a communist-subordinated party to a classic European agrarian party. It supports privatization, diffusion of agricultural ownership, and centralization to local administrations. PSL attacks the effects of the EU and globalization on employment.

Movement for Poland's Reconstruction (ROP). A nationalist, anti-Communist party headed by former Prime Minister Jan Olszewski, ROP supports lower taxes, higher pensions, and advocates patriotic policies, but the party's strong populist wing criticizes privatization and foreign investment. ROP has only a few deputies in parliament.

Union of Labor (UP). UP is ideologically a social-democratic party that advocates a broad social safety net. It is the smallest major party in Poland and has no representation in parliament.

Civic Platform (PO). The PO initiative of *sejm* speaker Maciej Plazynski (former AWS), senate deputy speaker Donald Tusk (former UW), and independent politician Andrzej Olechowski was set up after the November 2000 presidential elections as an alternative to the AWS and UW. It has drawn defectors from both parties.

Fatherland, the Polish Family, and other far-right parties. These parties are splinters from the larger parties and are nationalist, anti-EU, and, in some cases, anti-NATO. They have won few seats in parliament.

Foreign Relations

Poland's goal is to achieve international acceptance of its borders, a peaceful solution to all disputes, and full integration into European security. The Poles have forged special relationships with Lithuania and Ukraine to firmly anchor these states to the West.

Poland became a full member of NATO in March 1999. Poland promoted its NATO candidacy through energetic participation in the Partnership for Peace program and was invited in the first wave of NATO enlargement at the July 1997 NATO summit. Poland continues its strong support for UN peacekeeping operations by maintaining a unit in southern Lebanon, a battalion in NATO's Kosovo Force (KFOR), and by providing and actually deploying the KFOR strategic reserve to Kosovo.

European Union

Poland's goals are to join the EU in 2003 and to continue economic integration with the West. Poland became an EU associate member and a member of its defensive arm, the Western European Union (WEU), in 1994. In 1996, it achieved full membership in the Organization for Economic Cooperation and Development (OECD) and submitted preliminary documentation for full EU membership.

Poland's negotiations with the EU have grown more difficult with EU demands for reforms in Poland's agricultural sector, including changes in Polish law to allow foreign ownership of Polish land. The environmental legacy of communist rule has also caused problems. Poland and other former Warsaw Pact nations are the most polluted areas in Europe. The EU's environmental standards have compelled Poland to allocate substantial resources toward improving Poland's environment. The equivocation of the EU on a possible accession date for Poland and other central and eastern European countries has made the politically sensitive tasks of reform even more difficult for the Polish government.

The United States

The United States established diplomatic relations with the Polish Republic in 1919. After Gomulka came to power in 1956, relations with the United States began to intensify. However, during the 1960s, Poland's unquestioning support for Soviet foreign policy objectives and anti-Semitic sentiments caused friction. U.S.-Polish relations improved significantly after Gierek succeeded Gomulka.

During the early 1980s, the United States provided \$765 million in agricultural assistance. Human rights and individual freedom issues, however, did not improve, and the United States revoked Poland's Most-Favored-Nation status in response to the Polish government's decision to ban Solidarity. Favored-Nation status was reinstated in 1987, and diplomatic relations were upgraded.

The United States and Poland have enjoyed bilateral relations since 1989. Post-1989 Polish governments have been strong supporters of continued American military and economic presence in Europe. Poland served successfully as the Chairman of the Office of the Organization for Security and Cooperation in Europe (OSCE) in 1998. It has also served as the formal protector of American interests in Iraq since the Gulf War and cooperates closely with American diplomacy on such issues as nuclear proliferation, human rights, regional cooperation in central and eastern Europe, and United Nations reform.

Most Poles see U.S. military presence in Europe as necessary for regional security and do not object to temporary visits of U.S. and other NATO troops for training exercises. The Polish military has embraced all opportunities for closer relations with U.S. counterparts. One significant cultural hurdle is the Poles' difficulty in accepting women in the military. Polish officers often insist on chivalrous treatment of female U.S. officers that Americans may perceive as condescending.

Germany

Germany invests more than \$5 million in Poland annually. The Polish economy is closely tied to Germany, due to trade relationships and geographic proximity. However, tension exists over private land ownership. Attempts by German-owned companies to buy land in Poland are often opposed, especially by Polish nationalists.

Lithuania

Poland and Lithuania have had warm relations since 1995. They participate in a joint battalion under NATO command, and Poland advocates Lithuanian membership in NATO.

Russia

Oil imports from Russia through the Druzhba pipeline have been the main source for Polish oil. Russian oil is relatively inexpensive, and Poland is increasing its imports of Russian oil and natural gas. Poland and the Russian company Gazprom agreed in 2001 to build a US\$2 bil-

lion gas pipeline running south across Poland, Belarus, and Slovakia, bypassing existing routes through Ukraine.

Belarus

Poland supports Belarus' independence. The level of bilateral political dialog is restricted, although the two cooperate in some areas.

Ukraine

Poland supports a politically independent Ukraine. Some in Warsaw are concerned with the increased leverage of Moscow over Ukrainian affairs of state. Poland and Ukraine reached an agreement in February 1999 to complete a pipeline for Caspian Sea oil through Ukraine to Poland. Caspian crude could be transported to eastern Europe via a 667-kilometer (414-mile) pipeline, which is more than two-thirds complete and links Ukraine's Black Sea port of Odessa with the Druzhba pipeline.

Border Disputes

Poland and Denmark have not determined a maritime boundary with respect to the Danish island of Bornholm. This populated island encompasses 588 square kilometers (227 square miles) and is located in the central southern Baltic between the Polish and Swedish mainland coasts.

ECONOMY

Statistics

All statistics are 2000 unless otherwise noted.

Gross Domestic Product	\$327.5 billion
Real Growth Rate	4.8 percent
Per Capita Income	\$8,500
Inflation Rate	10.2 percent
Labor Force	17.2 million (1999)
Unemployment Rate	12 percent (1999)

Exports	\$28.4 billion
Commodities	Machinery and transport equipment, intermediate and miscellaneous manufactured goods, food and live animals (1999)
Partners	Germany, Italy, Netherlands, France, United Kingdom, Czech Republic (1999)
Imports	\$42.7 billion
Commodities	Machinery and transport equipment, intermediate and miscellaneous manufactured goods, chemicals (1999)
Partners	Germany, Italy, France, Russia, United Kingdom, Netherlands (1999)
Industry	Machine building, iron and steel, coal mining, chemicals, shipbuilding, food processing, glass, beverages, textiles
Agriculture	Potatoes, fruits, vegetables, wheat, poultry, eggs, pork
Electricity (voltage)	
Production	134.351 billion kWh (1999)
Consumption	120.007 billion kWh (1999)

Poland has been steadily raising its living standards. Per capita income in Poland has risen from 31 percent of the average level in the EU in 1993 to 40 percent in 1999. A large, dynamic private sector and sound fiscal and monetary policies have made Poland one of the fastest-growing economies in Europe since 1994. However, its inefficient agricultural sector (which employs a quarter of the work force while contributing only 5 percent to the GDP) and numerous profitless state-owned enterprises lag behind the rapidly developing private sector.

Natural Resources

Poland's soil quality varies from one region to another. Many northern and central areas have a sandy soil and clay mix. Former marsh-



Polish Farmer

land and areas along rivers are more fertile. The most fertile soil is in the south.

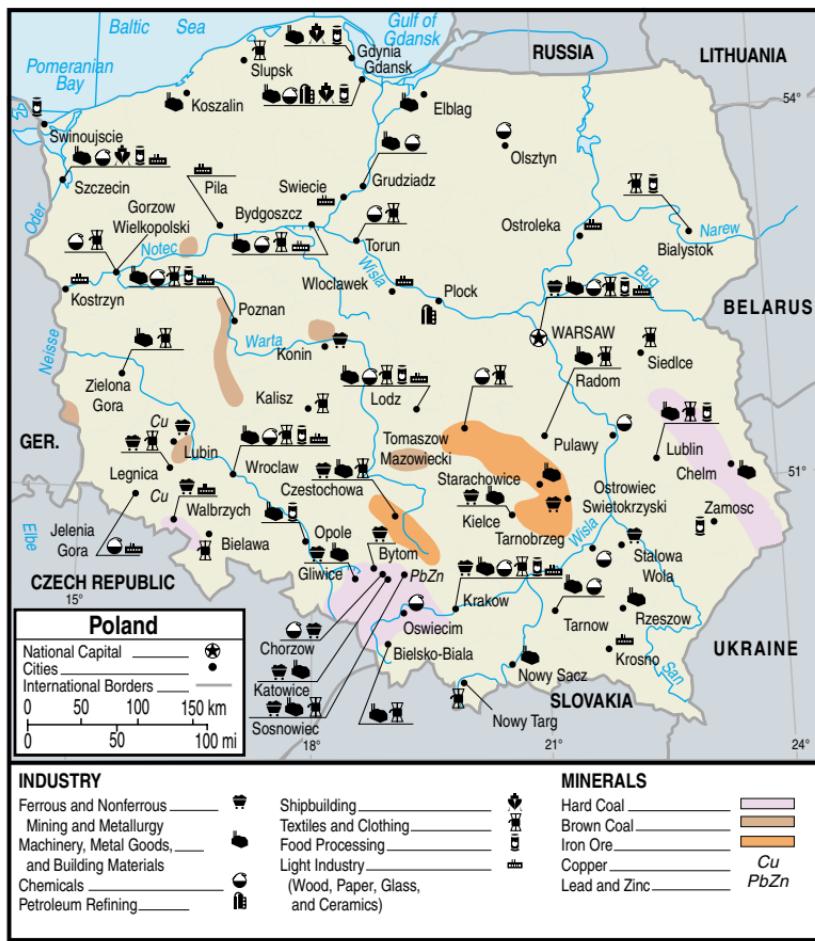
Industry

Poland has a solid industrial base that meets much of its needs. The iron and steel industry is the largest in central Europe and Poland ranks among top producers of nonferrous metals such as copper, lead, zinc, and silver. Before WWII, Poland's industrial base was concentrated in the coal, textile, chemical, machinery, iron, and steel sectors. Today, the base extends to fertilizers, petrochemicals, machine tools, electrical machinery, electronics, and shipbuilding.

Raw Materials

Poland has a variety of mineral resources, but only a few are present in sufficient quantities to meet national requirements. Most raw materials needed

to produce crude steel must be imported. Iron ore is no longer mined and alloy metals like chromium, cobalt, and molybdenum must be imported. Deposits of sulfur, copper, zinc, lead, and aluminum are significant. Small reserves of petroleum and natural gas are located in the southeast.



Polish Industry

Reform

In 1989, the Mazowiecki government began a comprehensive reform program to replace the centralized command economy with a market-oriented system. Plans to restructure and streamline heavy industries have been hampered by resistance from the politically active unions. Additionally, the majority of coal and steel production is concentrated near Katowice (where 10 percent of Poland's population lives), creating a regional employment challenge for the government.

Energy

Poland, with oil reserves of 115 million barrels, relied on imports for 99 percent of its oil consumption. Polish oil fields will most likely be depleted in the next 30 to 40 years. Southwestern Poland is being explored in anticipation of new reserves and production.

Following the break up of the Warsaw Pact, Poland attempted to diversify its oil sources and reduce its dependence on Russian oil. Imports from Russia through the Druzhba pipeline traditionally have been the main source of oil.

Poland and Ukraine reached an agreement in February 1999 to complete a pipeline for Caspian Sea oil through Ukraine to Poland. Caspian crude could be transported to eastern Europe via a 667-kilometer (414-mile) pipeline, which is more than two-thirds complete and links Ukraine's Black Sea port of Odessa with the Druzhba pipeline. This connection will enable Poland and its neighbors to import Caspian crude, making it easier to meet the EU new motor fuel specifications. Further expansion of this network is planned to provide Caspian crude to northwestern Europe via export terminals at Gdansk, Poland, and Rostock, Germany.

Natural Gas

Poland has an estimated 5 trillion cubic feet of natural gas reserves but imported more than 60 percent of its 465 billion cubic feet consumption in 1998. More than half of all imported gas comes from Russia, with smaller

amounts coming from Germany. Also in June 2000, Gaz de France announced intentions to work with the Polish Oil and Gas Company to develop gas in Poland.

The Yamal pipeline connecting Poland to Siberian gas sources began operations in September 1999. The \$35-billion pipeline carries natural gas from the Yamal (West Siberia) field in Russia to Germany and other Western European countries through Belarus and Poland. Russia is seeking to link this new pipeline with the southern pipeline, which would allow Russian gas to reach western European markets while bypassing Ukraine and Slovakia.

In July 2000, the prime ministers of Poland and Norway signed a declaration to begin Norwegian gas exports to Poland. A new pipeline will be built connecting Scandinavia to Poland under the Baltic Sea, and construction should be complete within the next 4 years. Until the pipeline is complete, the Norwegian gas will be transported through German pipelines into Poland.

Coal

Coal is the primary fuel in Poland, accounting for 94 percent of its energy production and more than 65 percent of total consumption in 1998. Coal exports to customers in Europe and former Soviet states have been a major source of foreign exchange. Weglokoks is the country's largest coal exporter. The company was created in 1993 as the successor to the state-owned coal monopoly.

Poland has begun a restructuring program for the coal industry aimed at maximizing efficiency and paying off a portion of its \$4.5-billion debt. Poland will close 30 of 53 mines. Domestic demand is expected to decrease substantially through 2007. Coal miners have held protests and strikes in opposition.

Electricity

With installed electric capacity of 30 million kilowatts, the Polish power generation sector is the largest in central and eastern Europe. Electricity demand is expected to double by 2020.

The Polish electrical grid is part of the CENTREL system, which links the Czech Republic, Slovakia, and Hungary. In 1995, the CENTREL system was connected with western Europe's system. Poland also has connections with Ukraine and Belarus. Both north-south and east-west connections are being expanded, as part of the EU's Trans-European Energy Network project. Lithuania could be linked to Poland via a new transmission line in the next 2 years. Poland produces more electricity than it consumes and exports the excess to neighboring countries. Polenergia was established by Polish grid operator PSE, a German distributor, and a private Polish company to sell privatized electricity, including electricity from Russia, to Western European markets.

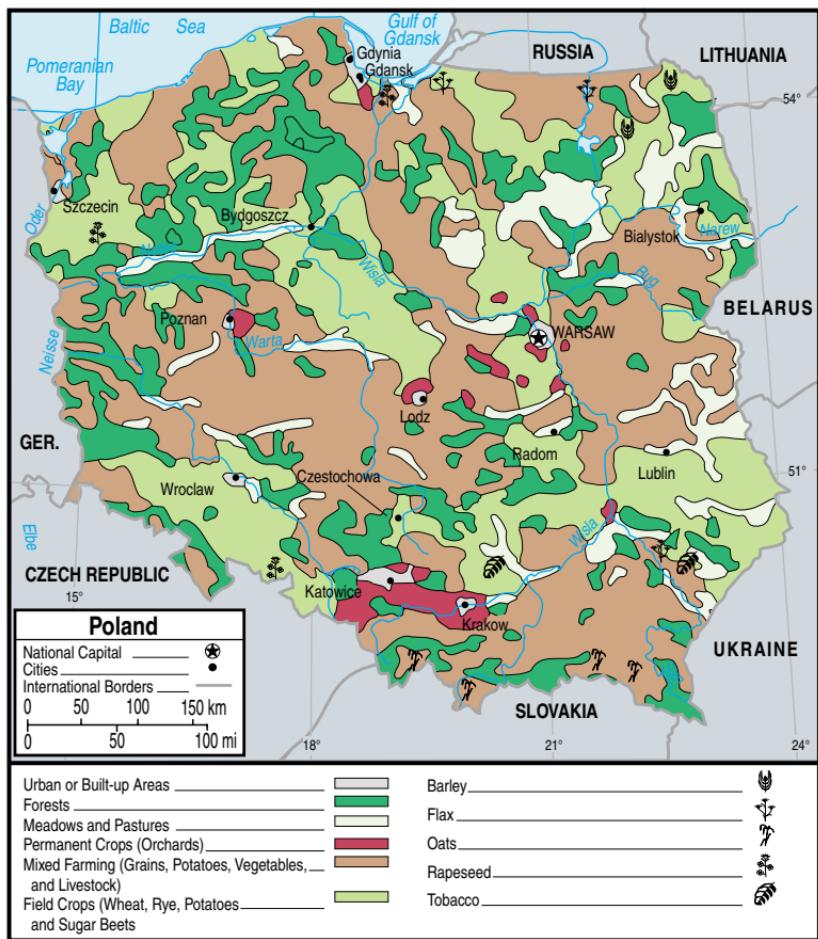
Agriculture

Agriculture employs 27 percent of the work force but contributes 5 percent to the GDP, reflecting a low level of productivity compared to



Subsistence Farming Techniques

other economic sectors. Unlike the industrial sector, Poland's agricultural sector remained largely in private hands during Communist rule. Many former state farms are now being leased to farmer tenants. Lack of credit is hampering efforts to sell former state farmland. Poland's 2 million pri-



Land Use

vate farms occupy 90 percent of all farmland and account for 90 percent of agricultural production. These farms are small — 8 hectares on average — and often fragmented. Farms with an area exceeding 15 hectares account for 9 percent of farms but cover 45 percent of the total agricultural area. More than half of all farming households in Poland produce for their own needs with little commercial production.

Poland exports confectionery, processed fruit and vegetables, meat, and dairy products. However, processors often rely on imports to supplement domestic supplies of wheat, feed grains, vegetable oil, and protein meals. Poland is the leading European producer of potatoes and rye and is one of the largest producers of sugar beets. Poland also is a significant producer of rapeseed, grains, hogs, and cattle. Attempts to increase domestic feed grain production are hampered by the short growing season, poor soil, and the small size of farms.

Pressure to restructure the agriculture sector is intensifying as Poland prepares to accede to the EU, which is unwilling to subsidize the vast number of subsistence farms.

Reforms and Outlook

Since 1992, Poland has experienced an accelerated economic recovery since the deep recession in the late 1980s and early 1990s. The private sector accounts for two-thirds of the GDP and employs 60 percent of the work force. The sweeping economic reforms introduced in 1989 removed price controls, eliminated most subsidies to industry, opened markets to international competition, and imposed strict budgetary and monetary discipline.

However, industry restructuring has proceeded more slowly than expected. Certain sectors, such as coal, steel, and state-owned enterprises, continue to operate at a loss. Efforts to privatize them have been unsuccessful because of worker apprehensions about large job losses and management fears of bankruptcy. Government budget deficits have been brought under control, but spending cuts in education, health care,

infrastructure, and public safety were necessary. Meanwhile, the budget burden for social subsidies has increased due to the large number of workers retiring early since 1989. Unemployment is high in regions where agricultural and industrial restructuring is incomplete.

Poland is planning to enter the EU in 2003 and the country is trying to meet membership criteria. The Polish economy continues to grow, and new investment continues to be strong. A growing middle class and developing distribution networks are turning Poland into a more attractive market for small and medium exporters. EU membership will eliminate trade barriers with key trade partners such as Germany and encourage political stability. In turn, Poland will be key in EU expansion plans, as Poland is the largest country, in terms of both population and gross domestic product, among the 12 states that have begun accession discussions to the EU.

THREAT

Crime

Warsaw, Krakow, and other major cities have high crime rates. Gdynia, Sopot, and Gdansk have frequent muggings. Organized groups of thieves operate at tourist destinations, train stations, on trains, trams, and buses in major cities. Thefts have occurred on overnight trains. Most pocket picking on trains occurs during boarding. A common practice is for groups of well-dressed young men to surround a passenger in a narrow train aisle and jostle or pick his pocket as they supposedly attempt to get around the passenger. This often occurs in first-class cars.

Vehicle-related crimes are commonplace. Drivers should be cautious of persons indicating they should pull over or that something is wrong with their car. Often, a second car or person is following, and, when the targeted car's driver gets out to see if there is a problem, the person who has been following will get in and drive off with the car. Drivers should

never get out of their car to check for damage without first turning off the ignition and taking the keys. There has been an increasing incidence of thieves opening or breaking passenger-side doors and windows in slow or stopped traffic to take purses or briefcases from the passenger seat. Traveling in groups of at least three people is recommended.

Terrorism/Insurgency

There has been no indication of a specific terrorist threat against U.S. personnel or interests in Poland. Anarchist and right-wing groups in Poland have engaged in violent demonstrations and clashes but not in acts of terrorism.

Drug Trafficking

Poland is on a transit route for drug traffickers and organized crime bringing narcotics from the Golden Triangle, Latin America, and elsewhere. Although it is not a large market, Poland is experiencing local narcotics production, drug-related violence, money laundering, and other criminal activity. While most narcotics traffic is westbound, Poland is also a transit point for shipments of ecstasy smuggled to Estonia and opium poppy straw and amphetamine transported to Lithuania.

Kompot (a crude opium derivative) is the most common drug in Poland, used by 75 percent of Polish addicts. Another 10 percent use inhalants, and amphetamine abuse is rising rapidly.

ARMED FORCES

Poland's military is organized into army, navy, air force and air defense forces. The Polish defense ministry general staff and the land forces staff have reorganized into a NATO-compatible J/G-1 through J/G-6 structure.

The president is the supreme commander in peacetime and works through the minister of defense. In war, the president names a supreme

commander. The president has the constitutional right to name all the top military leaders. These nominations require the prime minister's signature. The president can impose martial law and declare a state of emergency if the *sejm* is not in session.

The *sejm* can declare a state of war. It participates in the defense minister's nomination and oversees the military budget and regulations. Although the finance ministry determines the defense budget's size, the *sejm* can affect resource allocation within the budget.

Doctrine and Tactics

From the end of WWII until the Warsaw Pact breakup, Poland's military doctrine was based on Soviet military concepts. Strategically, Poland's forces were oriented to counter NATO forces. Forces structured on the division/regiment/battalion model planned to fight with echeloned forces in a highly centralized, command and control fashion, characteristic of Warsaw Pact armies. In an offensive operation, Polish forces were to attack westward, followed by Soviet forces. The Polish army would then be in a situation where it would be pushed westward leaving Polish territory open to the advancing Soviet army.

As the Soviet Union and the Warsaw Pact collapsed, Poland reassessed its strategic situation, and now perceives Russia and other former Soviet states, such as Belarus, as primary threats. Acceptance into NATO's first round of expansion requires a fundamental shift in doctrine and tactics. The transition to a Western orientation will continue for several years.

Defense Treaties

Poland joined NATO in 1999. Poland wants a third of its armed forces to meet NATO standards by 2006. These units will form the core of the armed forces, maintain the highest level of readiness, and be assigned to UN and NATO joint forces. Polish units serve in several multinational units:

NORPOL. The Nordic-Polish Brigade consists of a headquarters with 69 officers and 127 soldiers as well as 2 Polish infantry companies, a

Danish tank squadron with 63 servicemen, and a reconnaissance squadron. A multinational company consists of 214 soldiers and 24 military police, a CIMIC company of 48 soldiers, and a logistic coordination group of 75 people.

ARRC. The Allied Rapid Reaction Corps headquartered in Guetersloh, Germany includes two Polish divisions (one armored and one mechanized), one parachute brigade, and two interoperable infantry brigades. In addition, the ARRC includes a search and rescue unit with two rescue launches, two helicopters, and one air combat squadron. ARRC provides part of the NATO force in Kosovo (KFOR).

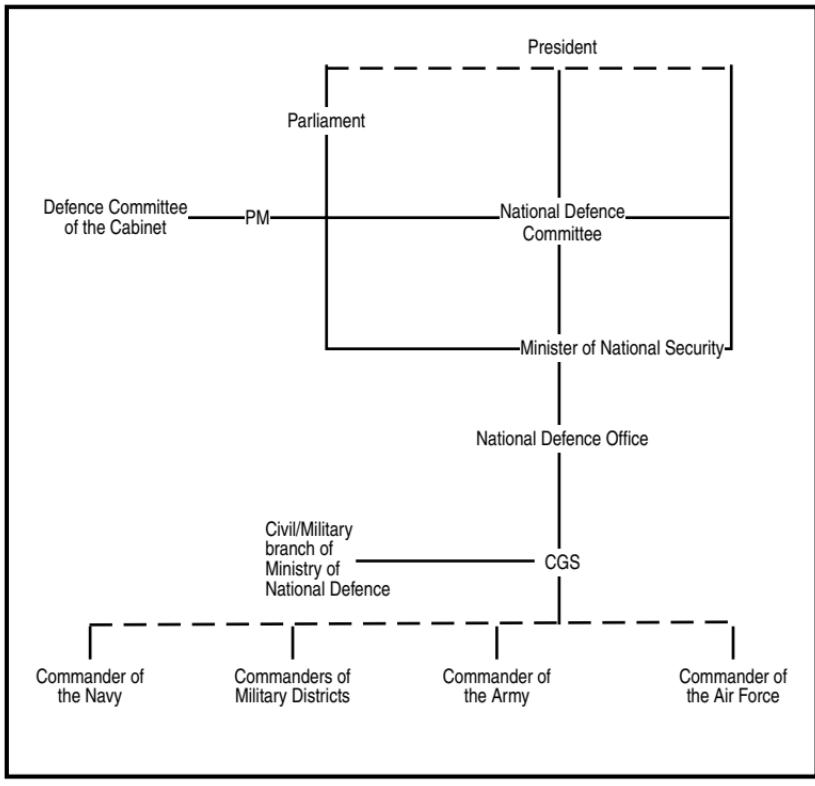
Multinational Corps Northeast (MNC-NE). Poland provides one division. The other two divisions are provided by Denmark and Germany. Formed in September 1999, the corps, headquartered in Szczecin, performs peacekeeping duties.

PolUkrBat. The Polish-Ukrainian Peacekeeping Battalion has two Ukrainian companies of 260 soldiers and two Polish companies of 530 soldiers. The battalion is deployed with the NATO-led force monitoring the Kosovo-Macedonian border. The commander is Polish and his deputy Ukrainian. A Lithuanian platoon rounds out the contingent. The PolUkrBat is subordinate to Poland's 21st Mountain Brigade, which will form the heart of Poland's EU contribution. Ukraine has pledged a 750-strong mechanized battalion to the 21st Mountain Brigade.

LitPolBat. The combined Lithuanian-Polish battalion participates in NATO-led peacekeeping deployments.

Defense Reform Law

To perform to NATO standards, the Polish armed forces are to be reconstructed in stages. By 2006, the intent is to have a third of the Polish armed forces (reaction force and strategic defense units) at full NATO interoperability and average member army standards in terms of armament, equipment, mobility, and ability to conduct operations under



Chain of Command

inclement weather conditions, at any time, anywhere. Priority will be placed on modernizing reconnaissance, command, and air defense systems. The remainder of the Polish armed forces is responsible for stopping the degradation of armament and infrastructure. Plans include the following initiatives:

- Dividing the armed forces into operational and support forces. The majority of operational corps and forces makes up the reaction and the primary defense forces. Support corps and forces are composed of

logistical units, military information services, military police, territorial defense units, military administration, and other units.

- Structuring full-time military billets for professional soldiers.
- Adapting the logistics system to implement allied solutions, increasing the level of its information and ability to cooperate with NATO structures, and increasing the mobility of executive logistics units to supply forces located outside Poland.
- Making support and service institutions civilian-run by placing such institutions outside the defense ministry on the basis of fees paid for services rendered.
- Improving defense ministry budget spending, by increasing spending from below 10 percent in 2000 to 23.2 percent in 2006, and increasing the level of spending on a per-soldier basis. Defense spending is set at 1.95 percent annually through 2006. The defense budget was US\$3.6 billion in 2000. One fundamental assumption for budgetary spending was that GDP growth would be 5 to 5.5 percent. However, the IMF estimates that real GDP growth was 3 percent in 2001. Thus, a sluggish economy may derail the reform package.

Military infrastructure is to be reduced 40 percent. Redundant military facilities will be transferred to civilian governmental agencies and garrisons will be closed. Many towns are lobbying in support of the garrisons located near them.

Personnel

Poland has 240,000 active duty army personnel and a reserve force of 406,000. The nation's available manpower is 8 million. The conscription term is 12 months, and conscripts number 141,600 (59 percent of the total available).

The military plans to increase the percentage of professional soldiers by replacing conscripts. Half the officers, warrant officers, and noncommissioned officers (NCOs) are professional soldiers. By 2003, the goal is to have one officer for every two warrant officers/NCOs. As a result, 6,600

senior and 3,840 junior officers will be dismissed and 2,020 warrant officers and NCOs inducted. There are also plans to eliminate the warrant officer rank through attrition.

Morale in the Polish military is suffering. Sixty percent of servicemen believe their situation has deteriorated since NATO accession due to the reduction of units, personnel cuts, increasing duties, and the poor condition of arms and equipment.

Training

With the exception of peacekeeping missions undertaken by a few officers and men, combat experience is lacking. Battalion-level training is conducted only in crisis reaction units for direct cooperation with NATO. Live-fire training is rare.

Officers attend military academies for 4 to 6 years. Mid-level and senior officers attend higher officer schools. Enlisted personnel train in regular and senior NCO schools. Promotion is based on professional military education rather than time in rank.

Polish commanders are well educated and respected. They are professional and possess the prerequisites for combat effectiveness. The lack of a true NCO corps creates discontinuities in command, although this situation will improve. Command functions appear to be well organized along traditional lines.

Key Defense Personnel

Commander in Chief	President Aleksander Kwasniewski
Minister of Defense	Bronislaw Komorowski
Chairman, JCS	Lt Gen Czeslaw Piatas
Land Force Commander	Lt Gen Edward Pietrzek
Chief of Staff of the Air Force	Lt Gen Andrzej Duleba
Chief of Naval Operations	V Adm Ryszard Lukasik



Minister of Defense Komorowski

Serviceability of Polish arms and military equipment is 40 to 75 percent of the total capacity.

Short-term plans are to modernize the air defense system, including the command system, and to begin acquiring multipurpose aircraft (with financing under a separate multi-year program). There are also plans to modernize T-72 tanks up to NATO standards and to obtain improved tanks, implement various versions of armored personnel transporters and new antitank guided missile assemblies, equip ships with modern missile systems, and modernize combat helicopters.

Most old armament and military equipment were withdrawn in 2001. MiG-21 aircraft (all versions) will be successively withdrawn from use through 2006. Twenty naval vessels, including the ORP *Warszawa* destroyer, Project 641 submarines, and Project 205 missile patrol craft will be successively withdrawn through 2003.

Some equipment, primarily antitank and antiaircraft, discarded by the operational forces will be turned over to the territorial defense force units.

Equipment

The Polish armed forces have equipment shortages in aircraft, telecommunication systems, ground attack helicopters, modern antitank systems, armored personnel carriers, and even composite helmets. More than half the aircraft need to be replaced or modernized, and ships lack surface-to-surface missiles. Poland spends US\$25,000 per soldier each year, the lowest figure of any NATO country. According to the ministry of defense, the ser-

Despite the shortages, Polish maintenance continues to be good. While the frequency of maintenance and repair has been reduced, Polish troops continue regular maintenance. Training weapons are worn; however, armored vehicles are stored in environmental shelters, and artillery appears to be freshly painted and bare metal parts oiled or greased. Weapons taken out of storage are mechanically sound and work properly. The number of civilian contractors involved in maintenance procedures has increased. Plans through 2006 include equipping the armed forces with global positioning systems and acquiring equipment and materials for map production.

Army

Mission

Ground forces constitute the Polish armed forces' core, dedicated to repelling ground or air strikes by an aggressor through active defense in close cooperation with the air force and navy. Should the ability to conduct conventional combat operations be lost, they will undertake other forms of combat, including guerrilla warfare. The ground forces must also participate in Poland's international obligations in connection with security, peacekeeping, and humanitarian missions.

Organization

The ground forces are organized into the Pomeranian and the Silesian districts. Military districts are responsible for operational logistical support and command territorial structures (such as *voivodship* military staffs) and national forces responsible for domestic security. Directly subordinate to ground forces are four branch forces: missile and artillery, antiaircraft, engineering, and chemical defense.

Force structure, now based on heavy armor offensive divisions, is switching to a flexible mix of light, rapid reaction forces and brigade-size armored defense units. Pontoon bridge units will be dropped and large, mobile logistics units will be replaced with stationary bases.



Soldiers at Work

The army is reducing its six divisions to four. One will be assigned to MNC-NE. Of its six independent brigades, two will be airmobile. There will be two corps headquarters, and command and logistic support units. The maneuver unit will still be the brigade in regular units and territorial defense. Brigades will serve as part of a NATO corps structure.

Plans include combining the 4th Mechanized and 11th Armored Cavalry Division into one division, combining and reorganizing the 1st Mechanized Division's regiments and the 3d Mechanized Brigade, and replacing the 8th Coastal Defense Division with an independent coastal defense brigade and mechanized brigade.

The battalion is becoming the basic combat unit. Once its command structure is fortified and it is equipped, the battalion will become the equivalent of similar units in NATO armies.

The colors and official names of major units bear battle honors, titles, decorations, and historical personality affiliations linking them to pre-

decessor units. For example, the 11th Armored Cavalry Division's official name is the 11th King Jan III Sobieski Armored Cavalry Division, the 6th Artillery Brigade is the 6th Torun General Josef Bem Artillery Brigade.

25th Air Cavalry Brigade

The 25th Air Cavalry Brigade is one of the best equipped and most capable units. Designed for rapid reaction, it can respond within 5 hours anywhere in Poland from its headquarters in Tomaszow Mazowiecki. The unit maintains an air assault capacity similar to that of the U.S. 101st Airborne Division's brigade. It uses NATO staff organization (S-1 through S-4). Division subunits are adopting Western tactics and planning procedures. Officers and NCOs at the platoon level are expected to speak English. Some personnel have deployed to SFOR, IFOR (in Bosnia), and KFOR (in Kosovo). Although the brigade is lightly armed, its personnel are well-led and trained to conduct force operations to seize objectives. The brigade has the following battalions:

- Three air cavalry battalions.
- Two helicopter transport battalions.
- A logistic battalion.
- A support battalion.



Army Communications

6th Air Assault Brigade (Airborne)

This is Poland's elite airborne unit; it maintains a high state of readiness and has seen duty in SFOR and KFOR. Popularly known as the Red Berets, its personnel are extensively trained and highly motivated. More than 40 percent of the officers speak English and are trained in NATO doctrine and tactics. Their mission includes seizing and holding positions, reinforcing friendly forces, isolating combat operation areas, and conducting delaying actions in friendly and enemy operation zones. The brigade's zone of operations is to a depth of 150 kilometers (93 miles) for airborne operations and 60 kilometers (37 miles) for air assault operations. The brigade can operate beyond its own forward line of troops for 72 hours without resupply or reinforcement.

The brigade has the following battalions:

- One airborne battalion, 700 paratroopers.
- Three air assault battalions, 830 paratroopers each.
- A command battalion.
 - Command and traffic control company.
 - Reconnaissance company.
 - Signal company.
 - Logistics company.
 - Antitank battery.
 - Antiaircraft battery.
- Field support battalion.
 - Maintenance company.
 - Supply company.
 - Medical company.
 - Transportation company.

Weapons include light infantry weapons, FAGOT antitank missiles, SPG-9 antitank guns, 82-mm and 120-mm mortars, GROM antiaircraft missiles, ZU-23-2 antiaircraft guns, and LPO-50 flamethrowers.

12th Mechanized Brigade

This brigade is the 12th Mechanized Division's main force and has priority for personnel and equipment. It maintains extensive contacts with the land forces of other NATO countries. The 12th Mechanized Brigade can be attached to the German 14th Mechanized Division or the Danish division of the Multinational Corps Northeast. A mechanized battalion is attached to the UN high readiness standby brigade.

Personnel

The army's goal is to maintain a force ratio of 45 percent (39,875) professional soldier and 55 percent (49,170) conscript for a peacetime strength of 89,045.

Training

NATO countries host Polish officers in their schools. Lack of funding prevents more simulator and trainer use in basic and officer training.

Disposition

Unit	Personnel	Location
HQ, Garrison Warsaw	2,300	Warsaw
General Staff	3,700	
HQ, Army	120,000	
HQ, Pomeranian Military District	55,700	Bydgoszcz
HQ, 1st Warszawska Mechanized Division	9,400	Legionowo
2nd Pomorska Mechanized Division		Szczecin
HQ, 8th Coastal Defense Division (Marines)	5,900	Koszalin
HQ, 12th Szczecinska Mechanized Division	9,290	Szczecin
HQ, 15th Warmińsko-Mazurska Mechanized Division	750	Olsztyn
HQ, 16th Pomorska Mechanized Division	6,800	Elblag
HQ, Silesian Military District	34,700	Wroclaw
HQ, 4th Mechanized Division	6,900	Krosno Odrzanskie

Unit	Personnel	Location
HQ, 11th Armored Cavalry Division	10,000	Zagan
HQ, Air Mechanized Corps	18,000	Krakow
HQ, High Military School of Air Force	2,300	Deblin
HQ, 1st Air Tactical Brigade	1,100	Swidwin
2nd Air Tactical Brigade	800	Poznan
4th Kresowa Mechanized Division		Gubin
10th Sudecka Mechanized Division		Opole

Equipment

Air Assault (Infantry) Battalion Equipment

Type	Role	Quantity
60-mm mortar	Indirect fire	36
RPG-7	Antitank rocket	39
<i>Grom</i>	Antiaircraft missile	20
23-mm ZSU-23-2	Low-Altitude Air Defense Gun	6
FAGOT	Antitank missile	12
Helicopters	Utility	36

Armor/Armored Personnel Carriers

Poland will modernize 27 of its 125-mm T-72M tanks to meet the standards of the PT-91 Twardy tanks and 51 to meet NATO standards. Poland may begin a project to integrate the Leopard 2's 120-mm smoothbore gun and fire control system into the T-72. If the proposal is approved the first upgraded T-72 battalion should be ready in 2005.

In the interim, Poland is leasing 110 Leopard 2A5s to equip the 10th Armored Cavalry Brigade, which is assigned to the force pool for NATO's Allied Command Europe Rapid Reaction Corps (ARRC). The brigade would come under the command of Germany's 7th Armored Division. Thus, interoperability with the German division, which operates the 120-mm Leopard 2, would be improved.

Poland plans to field 6 ZWR-10 LOWCZA automated command vehicles. The army will buy several dozen Jelcz-22 all-terrain trucks and smaller Star-1466 vehicles by 2002. The military will receive 58 Honker-2324 jeeps.

Type	Role	Quantity
T-55	Main Battle Tank	786
T-72M1	Main Battle Tank	676
PT-91	Main Battle Tank	206
Leopard 2A5	Main Battle Tank	106
BMP-1	Infantry Fighting Vehicle	1,367
BRM-1	Infantry Fighting Vehicle	38
OT-64 (SKOT)	Armored Personnel Carrier	700
BLG-67M2	Armored Vehicle Launched Bridges	163
BRDM-2/FUG	Amphibious Scout Car	510

Artillery

The 2S7, which entered service in the mid-1980s, is Poland's most modern artillery system. Poland has a large amount of ammunition and will retain the 2S7 until 2015.

The M77 Dana comes closest to matching the 155-mm caliber of NATO artillery systems. The Dana has a 19-kilometer (12-mile) range, a sufficient weapon with enough ammunition to satisfy Poland's needs.

The 2S1 entered service in the 1970s and remains a formidable battlefield weapon; however, it is beset with ammunition shortages. Poland manufactures the 2S1 and so does not experience spare parts shortages.

Poland is researching RM70/BM21 multiple rocket launcher (MRL) improvements. Eventually, each warhead will contain a cluster of 42 shaped-fragmentation bomblets capable of penetrating 100-mm armor, with a lethal radius of 7 meters (23 feet) after impact.



Army Bases

Although the army will retain and modernize its SP artillery and MRL systems, the older, towed weapons such as the ML-20, M-30, and D-44 anti-tank guns will stay in service for several more years before being retired. The use of guided and cluster munitions, which can increase system effectiveness without changes to the weapon system, is a cost-effective means of modernization.

Poland also plans to co-produce 94 new, 155-mm NATO-standard artillery systems, complete with fire control equipment. The prototype is equipped with the BAE RO Defense AS90 Braveheart turret system. Poland hopes to deploy the first full 18-gun battalion by 2007.

The army will acquire 48 98-mm mortars for the 6th Air Assault Brigade and 25th Air Cavalry Brigade. The Polish system can fire 15 to 20 rounds per minute at ranges from 100 to 6,000 meters (109 to 6,500 yards). The 98-mm mortar will be capable of firing dual-purpose, improved, conventional submunitions and smart rounds.

Type	Role	Quantity
203-mm 2S7 SP Gun	SP Gun	8
152-mm Dana SP GH M77	SP Howitzer	111
152-mm ML20 Howitzer-Gun	Towed Gun-Howitzer	135
122-mm 2S1 SP How	SP Howitzer	533
122-mm M30 How	Towed Howitzer	280
122-mm BM-21	MRL	227
122-mm RM-70	MRL	30
120-mm 2B11/2S12	Mortar	16
120-mm M 120 mod38/43	Mortar	214
SS-C-2B	Coastal Antiship Missile	
FROG-7	Tactical Ballistic Missile	

Air Defense

Poland wants to acquire 9 *Loara* antiaircraft, 311 *Grom* mobile, and 44 ZUR-23-2-TG assemblies. The army can continue using its S-60 guns if they are modernized and ammunition is purchased.

Type	Role	Quantity
<i>Strela-2M</i> (SA-7)	Man portable SAM	350
<i>Strela-3</i> (SA-14)	Man portable SAM	350
<i>Grom</i>	Man portable SAM	100
<i>Antey</i> 9K33 (SA-8)	Low-Altitude SAM	60
<i>Strela-10</i> (SA-13)	Low-Altitude SAM	60

Type	Role	Quantity
Strela-1 (SA-9)	Low-Altitude SAM	370
2K12 (SA-6)	Low-Medium Altitude SAM	100
57-mm S-60	Medium-Altitude Air Defense Gun	144
23-mm ZU-23-2	Low-Altitude Air Defense Gun	885
23-mm ZU-23	Antiaircraft Gun (Twin)	1,242
23-mm ZSU-23-4	Low-Altitude Air Defense SP Gun	87

Radar

Poland deploys several types of surveillance radars in support of its ground forces. These include the GS-13, L219/200 PARK-1, LONG TROUGH (SNAR-1), PORK TROUGH, (SNAR-2, SNAR-6), SMALL FRED/MALL YAWN, and Big FRED (SNAR-10).

Antitank Weapons

Poland plans to purchase antitank guided-missile (ATGM) launchers and missiles by 2006. Seven hundred A-44 antitank guns are in storage.

Type	Role	Quantity
AT-3/SAGGER	ATGM (on scout cars)	263
AT-4/SPIGOT	ATGM	108
AT-5/SPANDREL	ATGM (on scout cars)	18
AT-6/SPIRAL	ATGM	6
85-mm D-44	Antitank Gun	711
RPG-7V	Rocket-Propelled Grenade	

Aircraft

Poland will modernize 40 Mi-24s and some W3 *Sokols* by upgrading the avionics. Poland will continue to operate Mi-8/17s for several more years.

Type	Role	Quantity
PZL-W3 <i>Huzar/Sokol</i>	Attack Helicopter	44
Mi-24D and Mi-24W	Attack Helicopter	43
Mi-2URP	Attack Helicopter	34
Mi-2URN	Support Helicopter	18

Type	Role	Quantity
Mi-8/Mi-17	Transport Helicopter	33
Mi-2	Utility Helicopter	31

Small Arms

Type	Role
9-mm P-64	Pistol
9-mm Makarov	Pistol
9-mm PM-63	Submachinegun
5.45-mm AK-74	Assault Rifle
7.62-mm PMK	Assault Rifle
7.62-mm PMK-DGN	Assault Rifle
7.62-mm Dragunov SVD	Sniper Rifle
5.45-mm RPK-74	Light Machinegun
7.62-mm RPD	Light Machinegun
7.62-mm RPK	Light Machinegun
7.62-mm PK, PKS	General Purpose Machinegun
30-mm AGS-17	Automatic Grenade Launcher

Navy

Mission

The navy defends Poland's coast and maritime zone and participates in NATO exercises.

Organization

Navy headquarters is located in Kosciuszko Square in Gdynia. Forces are divided into three flotillas, one brigade, three regiments, and two training centers. The 3rd Warships Flotilla functions as the main strike force. Two other flotillas are tactical units; the 8th Coastal Defense Flotilla protects the border coastline with Germany to Jaroslawiec, the 9th Coastal Defense Flotilla protects the border coastline from the Hel peninsula to the Vistula Spit.

The 8th and 9th flotillas also have coastal subunits: battalions of sappers, antiaircraft divisions, anti-chemical companies, and observation posts. The observation posts are located every 12 kilometers (7 miles).

Naval aviators are organized into the Gdansk Naval Aviation Brigade. Three air divisions are stationed close to the coast at Babie Doly, Siemirowice, and Darlowek. Each division has two squadrons, two support battalions, and one technical division. Assets include combat, reconnaissance, sea rescue, special-purpose, and transport aircraft. Plans include ship-based aircraft.

Three regiments are among the independent coastal units. The main task of the 1st Naval Riflemen Regiment from Gdynia is to provide logistical support. Its best-known unit is the Navy Representative Company. The 11th Communications Regiment from Wejherowo is responsible for communications. The 6th Radio-Electronic Center is similar to ground force counterparts. There are also two training centers: the Naval Academy in Gdynia and a center in Ustka.

Future plans include disbanding the Naval Aviation Brigade and creating an aviation regiment with patrol aircraft and antisubmarine and search and rescue (SAR) helicopters. MiG-21 and TS-11/*Iskra* aircraft would be withdrawn and units disbanded.

3d Warships Flotilla

The 3d Warships Flotilla includes all of the Polish Navy's major surface combatants and submarines. The flotilla has rescue ships, hydrographic vessels (the Hydrographic Service Support Squadron) subordinated to the Naval Hydrographic Bureau, and reconnaissance vessels. The commander is Rear Admiral Maciej Waglewski.

8th Coastal Defense Flotilla

The flotilla's main tasks are antisubmarine warfare and countermine warfare. Flotilla units are based in Swinoujscie and Kolobrzeg (16th Antisubmarine Warfare Cutter Squadron). The flotilla is com-

posed of the 2d Transport-Mine-Laying Ship Squadron and the 12th Minesweeper Squadron. The commander of the Flotilla is Rear Admiral Michal Michalski.

9th Coastal Defense Flotilla

Based in the Hel peninsula, this flotilla's main mission is antisubmarine warfare (ASW) and mine countermeasures. The commander Rear Admiral Andrzej Rosinski.

Personnel

The navy has 15,000 sailors; 5,500 are conscripts. By 2006, the navy will be smaller with 13,500 full-time sailors and 1,000 civilians.

The navy is the smallest service and receives 8 percent of the defense budget. Naval restructuring means downsizing. There are plans for a marine battalion.

Training

Restructuring will eliminate many training positions. The navy has increased its presence in routine NATO activities, especially exercises. In 2000, Polish representatives participated in Operations SAFE-GUARD and KEFTACEX.

Disposition

Unit	Location
3rd Warships Flotilla	Gdynia
1st Naval Riflemen Regiment	
Naval Academy	
8th Coastal Defense Flotilla	Swinoujscie
9th Coastal Defense Flotilla	Hel
Naval Aviation Brigade	Gdansk
Naval Aviation Division	Siemiowice
Naval Aviation Division	Darlowek
Naval Aviation Division	Babie Doly

Unit	Location
11th Communications Regiment	Wejherowo
6th Radio-Electronic Center	
Naval Training Center	Ustka

Equipment

The navy wants to implement the coastal underwater monitoring and imaging system, a quiet naval radar, and the battery fire control system for the S-60 artillery assembly. In addition, it will upgrade its command systems by adapting the LEBA-2 system to cooperate with the LINK-11 and LINK-16.

Ships

The *Warszawa* missile destroyer will soon be retired because the FFG-7 Class provides more capability at lower cost and better interoperability with NATO forces. With the two U.S. OLIVER HAZARD PERRY-Class frigates, the navy has a blue water capability to operate with NATO's Standing Naval Forces Atlantic (STANAVFORLANT). Multipurpose 621 GAWRON corvettes will partially take over the ASW role.

Three ORKAN-Class Type 660 guided missile corvettes will be modernized by adding RBS 15 Mk3 SSM missile systems, Sting and Sea Giraffe AMB 3-D radars, and Link 11 communication and Focon command. In addition, construction of multipurpose corvettes (Type 621) is to begin. The first two ships, similar to the German 130-Class, should join the navy in 2006.

A decision will be made soon concerning the final version of mine hunters, whose design project was called 257 KORMORAN. Poland's experience with plastics in ship construction and with modernized 206M minesweepers will be applied in the design of its new mine hunters. A prototype mine destroyer will be introduced into service in 2006. Eventually, five mine destroyers will be built.



Naval Bases

The FOXTROT submarines are being replaced by five TYPE 207 submarines from Norway. Four of these will be operational, with the fifth kept for spares and training. The KILO submarine will remain in the navy. Poland also wants to undertake the 924 RAK antisubmarine ship's development.

Class/Ship	Role	Qty	Delivery
ORP <i>Warszawa</i> (271)	DDG	1	
ORP <i>General Kazimierz Pulaski</i> (272) ex-USS <i>Clark</i>	FFG	1	2000
ORP <i>Naczelnik Tadeusz Kosciuszko</i> (273) ex-USS <i>Wadsworth</i>	FFG	1	2002
Kontadmiral Czernicki	Logistic support ship	1	2001
<i>Kaszub</i> ex-KASHIN-Class	Frigate	1	1987
GORNIK (Tarantul I)-Class	Corvette	4	1983/9
PUCK (Osa I)-Class	Fast Attack Craft - Missile (PFM)	5	1967/75
SASSNITZ-Class	Coastal Patrol Craft (PCC)	3	1977/83
Modified OBLUZE-Class	Large Patrol Craft Inshore - ASW	8	1970/2
PILICA-Class	Large Patrol Craft Inshore	11	
KROGULEC-Class	Minesweeper - Ocean	5	1965/7
GOPLO-Class	Minesweeper - Coastal	13	1982/91
MAMRY-Class	Minesweeper - Coastal	4	1992/4
LENIWKA-Class	Minesweeper - Coastal	2	1985
LUBLIN-Class	Minelayer/Landing Craft	5	1989/91
DEBA-Class	Landing Craft Utility	3	1988/91
POLNOCHNY-Class	LST/Amphibious Command	2	1972/3
Modified MOMA-Class	Intelligence Vessel	2	1975
WODNIK-Class	Training	1	1975/6
Various	Training	5	
Various	Tanker	4	
Various	Tug	12	
KILO-Class	Conventional Submarine (SS)	1	1986
Type 207-Class	Submarine (SS)	5	2002/4

Fixed-Wing Aircraft

The MiG-21s are outdated, have no ASW capability, and will be withdrawn from service. The navy would like to replace them with the multirole aircraft to be selected by the ground forces. Determining which aircraft will replace the MiG-21s by 2003 depends on results of the tender for 60 fighters. The air force's *Iryda* aircraft could also be modified for naval use if funding becomes available.

The navy uses five old *Iskra* (outfitted for over-sea reconnaissance tasks) and eight *Bryza* aircraft (equipped with sea/surface radar), which are based on the An-28 transport aircraft. These aircraft are continuously modernized. There are plans to outfit them with modern antisubmarine torpedoes. Two PZL An-28/M-28M aircraft are equipped with Swedish Space Corporation maritime surveillance systems.

Type	Role	Qty
PZL M-28B-1R <i>Bryza</i>	Maritime Reconnaissance	8
PZL An-28/M-28M	ELINT/ Environmental Monitoring	2
PZL An-28	Passenger Transport	1
MiG-21bis	Fighter	25
MiG-21UM	Fighter/ Trainer	5
TS-11R/ <i>Iskra</i>	Reconnaissance/ Trainer	17
An-2	Transport	5

Rotary-Wing Aircraft

The SH-2G helicopters from the United States should remain in service until 2015. There are no plans to upgrade the helicopters. The Mi-14PL helicopters are being modernized by replacing their submarine detection equipment and arming them with antisubmarine torpedoes from Italy.

Type	Role	Qty
SH-2G Super Seasprite	Antisubmarine warfare	4
LAMPS Mk 1		
Mi-2Rm	Maritime Reconnaissance, Search and Rescue	3

Type	Role	Qty
Mi-2	Transport	1
Mi-14PS	Search and rescue	3
Mi-14PL/HAZE-A	Antisubmarine Warfare	10
W-3RM/ <i>Huzar Anakonda</i>	Search and Rescue	6
W-3T/ <i>Sokol</i>	Transport	2

Antiship Missiles

Poland has Russian AS-1/KENNEL, AS-9/KYLE, and Swedish RBS 15 Mk 2 antiship missiles.

Air Force

Mission

The Air and Air Defense Forces (Wojska Lotnicze i Obrony Powietrznej) are responsible for warning and notification, reporting air threats, strikes, reconnaissance, and rescue operations. They also supervise Polish air space outside the normal air corridors pending the creation of an integrated air traffic control system.

Organization

The air and air defense forces, which control Poland air space, are composed of the air force, the air defense force, the radio-engineering service, and a fledgling search and rescue unit.

The air force has the following three components:

Tactical Aviation Force. This strike force, which is equipped with MiG-21, MiG-29, and Su-22 aircraft, has seven fighter, three fighter-bomber, and one bomber-reconnaissance regiment. Its mission is to protect Polish air space, conduct reconnaissance, and destroy enemy air and surface targets. These regiments will be reorganized in the future. Out of the 11 regiments, 8 to 10 squadrons capable of acting independently will be created with fewer personnel.



Poland's Premier Fighter, the MiG-29

Transport Service. The transport service has two regiments, one conducts tactical transport, airdrop, supply transport, and similar missions, the other conducts passenger and VIP transport. There are also several squadrons that fly liaison flights. The service has PZL An-2, An-26, PZL An-28TD, Yak-40, and Tu-154 aircraft and Mi-2, Mi-8, Bell 412HP, and PZL/Sokol helicopters. Joining NATO has placed greater demands on airlift because peacekeeping missions require transporting soldiers, equipment, and supplies. The Polish military contingent for Kosovo traveled by train because there were not enough transport aircraft.

Air Training Service. It consists of four Air Force Academy training regiments. They are stationed in Radom, Dęblin, Biala Podlaska and Nowe Miasto on the Pilica River. The units are equipped with the PZL TS-11/Iskra aircraft and the basic trainer aircraft PZL 130TC/Orlik. Helicopter pilots are trained on PZL Mi-2 and PZL/Sokol helicopters.

Air Defense Force

The air defense force is responsible for counterair operations as well as land and naval forces protection. It is organized in five brigades and an

independent regiment, and is equipped with long range SAM (Wega) and point defense systems (Wolchow, Newa, Krug). It also has light portable missile systems (Strela-2M) and antiaircraft cannon. The air defense force plans to increase maneuverability and missile system resistance to electronic warfare. Additionally, it hopes to decrease manpower by increasing automation. By 2005, Poland hopes to augment its air defense with long-range theater missile defense systems, such as the Patriot or the Russian S-300.

Poland's air defense system is coordinated in Warsaw by two corps headquartered in Bydgoszcz and Wroclaw. Nine radar posts relay data to the national combined air operations center (CAOC) and 10 fighters to provide air cover.

Radio-Engineering Service

Two radio-electronic brigades stationed in Bydgoszcz and Wroclaw form Poland's command, control, communication, and intelligence system. They conduct radar reconnaissance, supplying radio-electronic intelligence and directing flights over Polish territory. A network of stationary posts is strengthened by mobile posts. The command posts are equipped with automated command systems and are on duty 24 hours. A new identification friend or foe (IFF) system is being integrated into the system. The new system is installed on most modern combat aircraft (MiG-29 and Su-22) and some helicopters. Two-thirds of the Polish military aircraft have been equipped with IFF systems required by NATO standard regulations.

Poland is scheduled to integrate its ground-based air defense radar system into the NATO integrated air defense system by 2004. The upgrade will allow Poland to share data with Czech and German systems, naval vessels, and E-3 AWACS platforms. The new system will be based on Polish-made, mobile 3D NUR-12 radar stations. Poland has installed five N-12M long-range air radars and is planning to buy three more. This will reduce the number of forward radio-engineering posts and radar stations. The radio-engineering services has 360 sta-

tions; in the future 120 will suffice. The system will be fully interoperable with civilian aircraft.

Search and Rescue

This new unit is intended to operate as a combat search and rescue unit to search for and evacuate pilots downed over enemy territory. This group has two task oriented *Sokol* helicopters and one An-28 transport aircraft. There are proposals to adapt several Mi-24 helicopters to this mission. The unit's equipment is relatively new, but limited and it cannot yet perform to NATO standards.

Personnel

The goal is to have 54 percent of the forces be professional soldiers (16,600) while maintaining a peacetime strength of 30,950 soldiers. The remaining (14,350) are conscripts. The air and air defense services require highly educated conscripts, especially graduates of mechanical, electrical, and electronic secondary technical schools. The conscript retention rate is 10 percent. Frequent reorganizations, low pay, and safety concerns have undermined morale.

Training

Air force flight school trains pilots for the navy and ground forces, aviation units, and paramilitary and police forces. Training lasts 4 years, including technical training; graduates earn the title, pilot-engineer.

Inadequate pilot training and poor maintenance cause high accident rates. Polish combat pilots average 40 hours of flight time a year, while most NATO pilots average 180. Retention is a problem because pilots and technicians can earn higher salaries working for private airlines.

Helicopter training is poor, conducted with outdated Mi-2 and *Sokol* helicopters. Replacement trainers are unlikely. The pilot shortage is worsened by the expansion of the air cavalry, increasing pilot demand.

Disposition

Unit	Location
Air and Air Defense Forces Command	Warsaw
1st Air Defense Corps Command	
3rd Air Defense Rocket Brigade	
1st Radio-Technical Brigade	
36th Special Transport Regiment	
Rocket Artillery Training Center	Bemowo
2nd Air Defense Corps Command	Bydgoszcz
2nd Radio-Technical Brigade	
56th Combat Helicopter Regiment	Inowroclaw
41st Fighter Regiment	Malbork
47th Helicopter Training Regiment	Nowe Miasto
1st Fighter Regiment	Minsk Mazowiecki
Signals Training Center	Mragowo
32nd Tactical Reconnaissance Regiment	Sochaczew
7th Reconnaissance-Bomber Regiment	Powidz
2nd Fighter-Bomber Division	Pila
6th Fighter-Bomber Regiment	
8th Fighter-Bomber Regiment	Miroslawiec
3rd Fighter-Bomber Division	Swidwin
40th Fighter-Bomber Regiment	
26th Air Defense Rocket Brigade	Gryfice
9th Fighter Regiment	Zegrze
28th Fighter Regiment	Slupsk
4th Air Defense Rocket Brigade	Gdynia
49th Combat Helicopter Regiment	Pruszcz
3rd Air Defense Corps Command	Wroclaw
3rd Radio-Technical Brigade	
11th Fighter Regiment	
Radio-Electronics Training Center	Jelenia Gora
Aircraft Engineering Training Center	Olesnica

Unit	Location
4th Air Force Corps Command	Poznan
62nd Fighter Regiment	
79th Independent Air Defense Rocket Regiment	
10th Fighter Regiment	Lask
1st Air Defense Rocket Brigade	Bytom
13th Transport Regiment	Krakow
Air Force Academy; 58th Training Regiment	Deblin
23rd Air School Squadron	
60th Training Regiment	Radom
61st Training/Combat Regiment	Biala Podlaska

Equipment

Fixed-Wing Aircraft

The aircraft inventory is mostly Warsaw Pact equipment and nearing the end of its service life. Most air force fighter units are equipped with the MiG-21. With the exception of the newest versions, most of the aircraft were withdrawn from service in 1999. The MiG-29 is Poland's most advanced fighter. By outfitting them with modern navigation, communications, object recognition, and fire control systems, they will remain in service through 2010. The MiG-29UB is a twin-seat trainer version without the radar tracking system mounted on the combat versions. Poland's Su-22s are being refurbished and will serve until 2015.

Poland is considering the F/A-18, F-16, JAS 39 Gripen, Mirage 2000-5 and, in the longer term, Eurofighter Typhoon. Sixty aircraft will likely be delivered by 2012.

Polish airlift is deficient but slowly improving. The airlift fleet is mostly old An-2s. Ten Soviet-produced An-26 aircraft will be removed from active duty in several years. They have insufficient lift capacity and cargo bay dimensions to transport heavier military equipment.



Air Force Bases

These are being replaced by PZL An-28TD/M-28B/*Bryza* 1D produced in Mielec. The PZL An-28TD is a modern transport and passenger aircraft. The TD version is equipped with an airborne drop ramp, which makes cargo loading and airborne troop dropping much easier. These aircraft can be used for special transport, medical, and evacuation mis-

sions. It can also become a command center or an electronic warfare aircraft. A new, larger version powered by U.S.-made engines to carry standard cargo containers has been created. Two of these aircraft were placed into service in 2001.

Poland will purchase larger transport aircraft, probably Lockheed Martin C-130 Hercules, after 2006.

Type	Role	Quantity
MiG-21M/MF	Fighter/Air Intercept/ Ground Attack	130 (50 in storage)
MiG-29/U	Fighter/Air Intercept (continuation training)	22
Su-22M-4K	Fighter/Ground Attack/ Reconnaissance	95
An-26	Transport	10
An-28	Transport	4
Il-14/CRATE	Transport	2
An-2/COLT	Utility	23
Yak-4/CODLING	Communications	14
Tu-154	Communications	2
Ts-11/ <i>Iskra</i>	Jet Trainer	80
PZL I-22 (M-93)/ <i>Irydرا</i>	Jet Trainer/Combat (being upgraded)	15
PZL-130TM/TB/TC/ <i>Orlik</i>	Turbo-Prop Trainer	32 (48 required)

Rotary-Wing Aircraft

Type	Role	Quantity
PZL-W3/W3W <i>Sozol/Huzar</i>	Attack	17
Mi-8/Mi-17	Transport	8
Mi-2 Hoplite	Transport	35
Bell 412HP	Utility	1

Air-Launched Missiles

Air-to-Air

AA-1 ALKALI
AA-2 ATOLL
AA-8 APHID

Air-to-Surface

Malyutka
Shturm

Surface-to-Air Missiles

As a result of the Cold War, most Polish radar coverage looks westward from fixed sites. Eight of the short-range *Newa* systems are being modernized. The *Wega* systems remain useful; two are being modernized.

Poland plans to acquire four NUR-12M long-range, and six BRDA and three ODRA medium-range three-coordinate radar stations.

Type	Quantity	Type	Quantity
SA-2	10	SA-4	70
SA-3	60	SA-5	60

Territorial Defense Force

Mission

The Territorial Defense Force (TDF) will not be fully functional until 2010. Among its missions are facilitation of friendly operations, defense of rough and wooded terrain, cooperation with regular forces against airborne and amphibious landings, border guard reinforcement, defense of vital communications and economic nodes, and guerilla warfare behind enemy lines. These missions will demand knowledge of local terrain and conditions, best provided by forces recruited locally and not intended to be at a high level of readiness for long periods.

Personnel

The TDF cadre is being formed with prior military service personnel, who will train new soldiers. TDF personnel will be stationed where they live to defend and protect home territory. By 2003, the military plans to

have a peacetime TDF personnel strength of 10,000, which could be increased to 12,000 after mobilization.

Organization

The TDF is organized into brigades, regiments, and battalions. A brigade has five battalions and is subordinate to the military district commander; the regiment has three battalions and is responsible to the regional military staff. Independent battalions are at the disposal of the regional territorial defense command, which is responsible for two or three districts. There are also company-sized combat units and a variety of support units.

The mobile TDF brigade is the basic unit. A typical brigade has five motorized infantry battalions; each has one headquarters unit, one logistics company, three motorized rifle companies, one fire-support battery, and one engineer platoon. The TDF will also incorporate stationary battalions that will defend specific areas or objectives. A TDF battalion will have 540 soldiers equipped with older light weapons, such as antitank missiles, shoulder-fired SAMs, antitank guns, and light mortars.

Deployment

Three TDF brigades have been formed, with another four in formative stages. Poland will first concentrate on what it calls the eastern wall. This wall begins at Gdansk, extends along the border with Russia, Lithuania, Belarus, Ukraine, and Slovakia, and ends at Wroclaw. Units in these areas will be the best prepared of the TDF. The military will then create territorial units in central Poland to protect military installations and support operational forces. Finally, western TDF units will be established to support allied troops during a crisis.

Equipment

TDFs are equipped with light firearms and mobile antitank and antiaircraft defense equipment. They will not operate tanks, IFVs, or heavy artillery. Training is based on the principle of regional operation, strictly adapted to

the geographic military conditions. Heavy Star 266 trucks will be used for transport. In the event of a war, vehicles will be requisitioned from civilians.

Type	Role	Quantity
Antitank Gun	Antitank	18
82-mm mortar	Indirect Fire	9
SA-7	SAM	4
ZU-23-2	AAA	2
RPG-7	Antitank	54
Truck	Utility	66

Paramilitary and Police Forces

Four organizations, border guards, marine border guards, security forces, and special forces, constitute the paramilitary and police forces. The paramilitary forces draw conscripts from the army. Should these forces be mobilized, the army would absorb the border guards and the navy would absorb the marine border guards. Paramilitary forces are lightly armed and rely on the three armed services for transport.

Border Guards

The 13,500 border guards make up 58 percent of the paramilitary forces. Among other duties, they serve as customs officers. There are 12 district units of border guards and 2 training schools.

Additionally, there are 2,900 marine border guards. The patrol craft operate inshore except for the *Kaper*, which has a coastal role.

Patrol Craft	Quantity	Patrol Craft	Quantity
<i>Obluze</i>	2	Various	12
<i>Kaper</i>	2	<i>Pilica</i>	2
<i>Wisloka</i>	6	B 306	3

Security Forces

The Prevention Units of Police (OPP) include 1,000 conscripts and can call on the air force for helicopter transport. They assist in major disas-

ters like the 1998 floods. They are armed, wear blue uniforms, and have the authority to stop anyone behaving suspiciously. Large cities such as Warsaw and Krakow also have black uniformed, municipal police.

Location	Personnel	Location	Personnel
Bialystok	3,200	Olsztyn	3,600
Bydgoszcz	5,100	Opole	2,400
Gdansk	5,700	Poznan	7,600
Katowice	12,000	Radom	7,300
Kielce	3,000	Rzeszow	4,500
Krakow	7,400	Szczecin	4,900
Lodz	6,600	Warsaw	7,000
Lublin	2,600	Wroclaw	7,700

Special Forces

GROM

The Operational Maneuver Reconnaissance Group (GROM) is also referred to as Thunderbolt. Created in 1990 to combat terrorism, it is Poland's equivalent to the U.S. Delta Force. Personnel undergo rigorous training and have gained international recognition through participation in several multinational operations. The ministry of interior affairs controls the unit, and its missions are not subject to public debate.

Specific information about its size and organization is not publicly available. It may have 300 personnel, including women who gather intelligence. The unit operates in four-member teams. GROM soldiers are prepared to perform tasks ranging from hostage rescue to dignitary protection worldwide. GROM is also responsible for protecting strategic state reserves, such as oil drilling platforms in the Baltic Sea. Members take part in open-sea rescue operations and use closed-loop breathing systems when diving.

GROM soldiers choose their own combat weapons; favorites include the HK 9-mm MP-5 machine pistol, the 7.62-mm AK, the Glock 19, SIG-



Border Guard

Sauer P228, CZ-85, and Browning HP. Snipers use the PSG-1 7.62-mm caliber rifle.

GROM personnel are extensively trained. Candidates are approximately 30 years old, have families, must be intelligent, well rounded, and know at least two foreign languages. Candidates undergo complicated psychological testing. Training is conducted with live ammunition. Due to the length and expense of training, personnel serve in the unit as long as possible.

1st Special Regiment

The 1st Special Regiment, based in Lubliniec, is better classified as a good infantry force rather than a special operations unit. It relies on some conscripts to fill its ranks, so it cannot build on prior training. Additionally, it has transportation and coordination problems. The unit does not receive the same quality of men or funding as the GROM.

A Special Operations High Command incorporating Poland's various special services is also being created within the Polish army.

Weapons of Mass Destruction

Poland does not field biological or chemical weapons.

APPENDIX A: **Equipment Recognition**

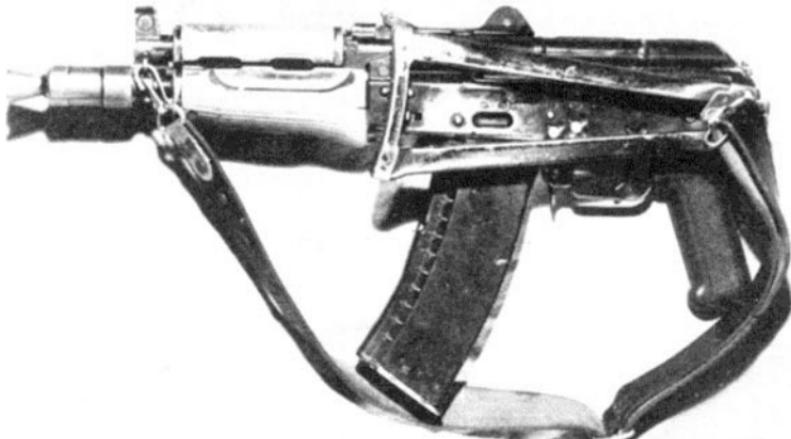
INFANTRY WEAPONS

5.45-mm AK-74/AKS-74

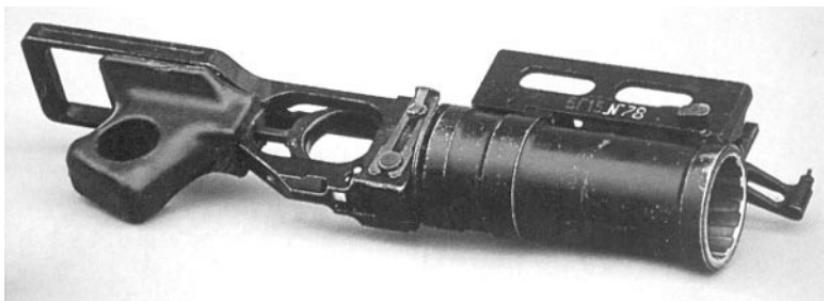


Maximum Effective Range	600 m
Caliber	5.45 x 39-mm
System of Operation	Gas, selective-fire
Overall Length	34.25 in.
Magazine Capacity	30-rd, staggered row plastic detachable box magazine
Weight (Loaded)	3.6 kg

AKSU-74



40-mm GP-25/30 Grenade Launcher



Maximum Effective Range

400 m

Caliber

40-mm

System of Operation

Muzzle-loading, single-shot

Overall Length

323-mm

Weight (Loaded)

1.5 kg

GP-30 mounted underneath AK-74 barrel



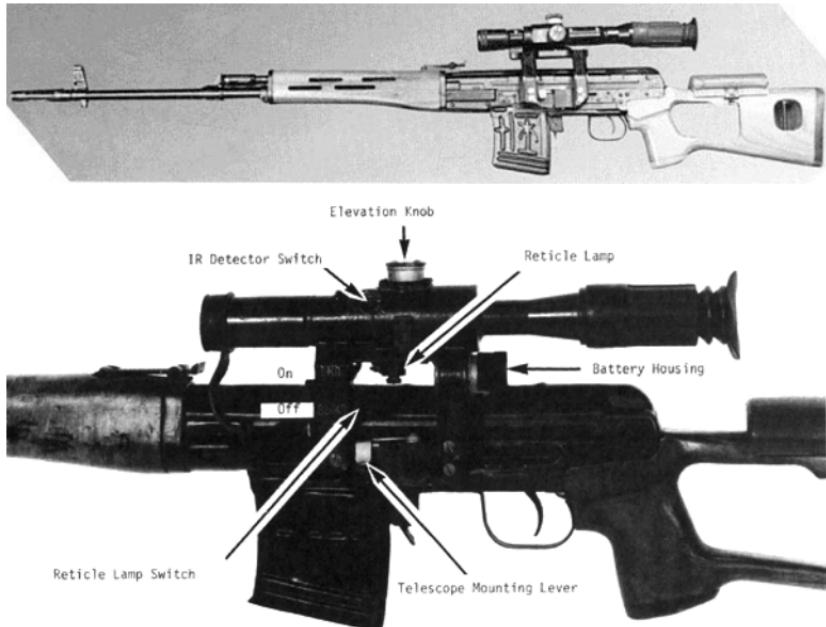
VOG-25 Round (Anti-personnel)



VOG-25P Round (HE air-burst)



7.62-mm Dragunov SVD



Maximum Effective Range

800 m

Caliber

7.62 x 54-mm

System of Operation

Gas, semiautomatic

Overall Length

48.2 in.

Magazine Capacity

10-rd, staggered row detachable box magazine

Weight (Loaded)

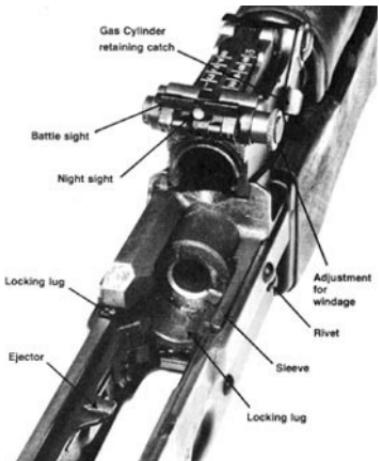
9.5 lbs

5.45-mm RPK-74



Maximum Effective Range	800 m
Caliber	5.45-mm
System of Operation	Gas, selective fire
Overall Length	48.2 in.
Magazine Capacity	40-rd, staggered row detachable box magazine. Can also use 30-rd AK magazine
Weight (Loaded)	1.13 kg (40-rd box)

RPK Receiver



7.62-mm PK



Maximum Effective Range

800 m

Caliber

7.62 x 54-mm

System of Operation

Gas, automatic

Overall Length

47.2 in.

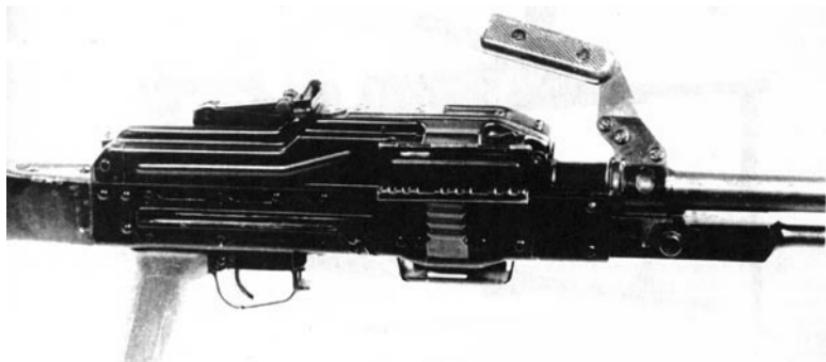
Magazine Capacity

100, 200, or 250-rd metallic link belt

Weight

19.8 lbs

PK Receiver



12.7-mm NSV



Maximum Effective Range

2,000 m

Caliber

12.7 x 107-mm

System of Operation

gas, automatic only

Overall Length

1.56 m

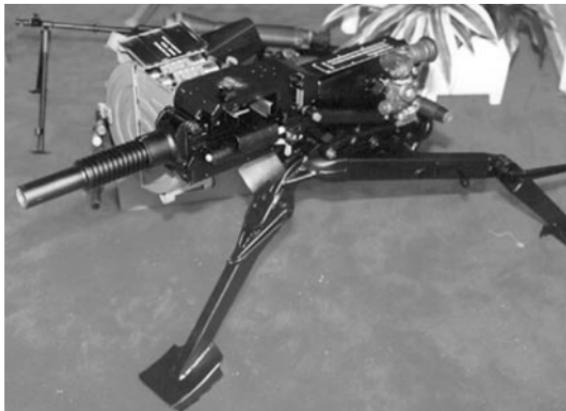
Feed

50-rd linked belt

Weight

57.9 kg

30-mm AGS-17 Auto Grenade Launcher



Maximum Effective Range

800 m (iron sight) 1,700 m (optical sight)

Caliber

30-mm

Operation

blowback, selective fire

Feed

29-rd belt

30-mm AGS-30 Auto Grenade Launcher



Maximum Effective Range

1,700 m

Caliber

30-mm

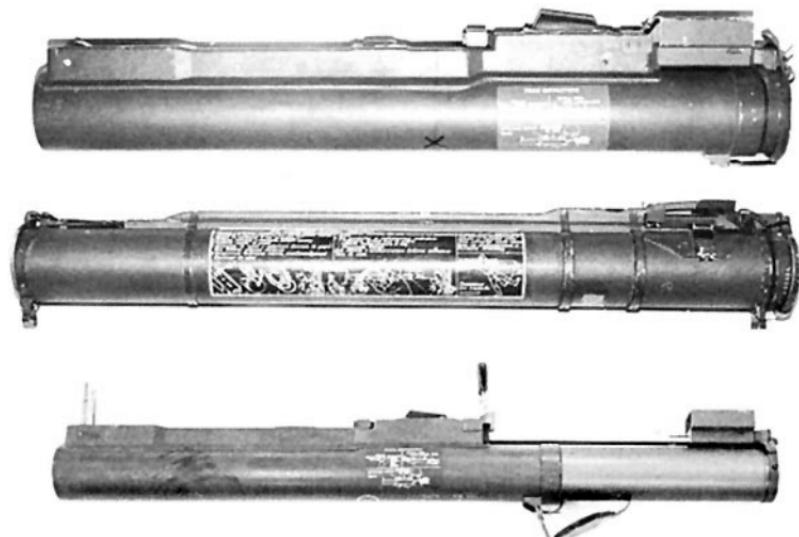
System of Operation

blowback, selective fire

Feed

30-rd belt

RPG-18 *Mukha*



Maximum Effective Range

200 m (combat)

Caliber

64-mm

Overall Length

705 mm (folded)

Armor Penetration

375 mm

RPG-22 *Neto*



Maximum Effective Range

150 - 200 m (combat)

Caliber

72.5-mm

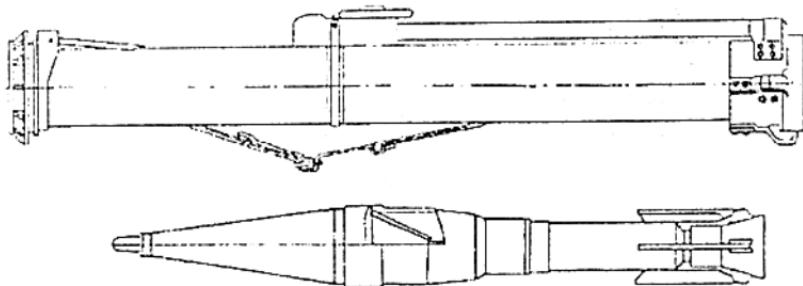
Overall Length

685 mm (folded) 850 mm (extended)

Armor Penetration

400 mm

RPG-26 *Arlen*



Maximum Effective Range

200 m (combat)

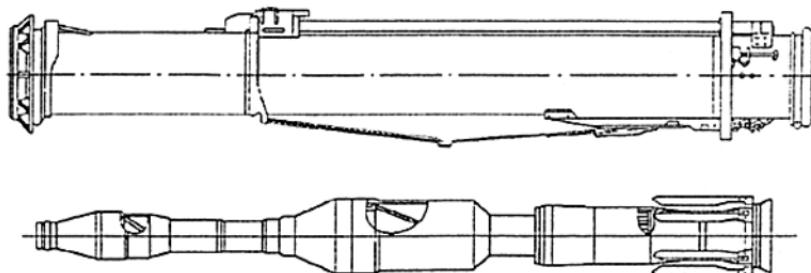
Caliber

72.5-mm

Armor Penetration

440 mm

RPG-27 *Tavolga*



Maximum Effective Range

200 m (combat)

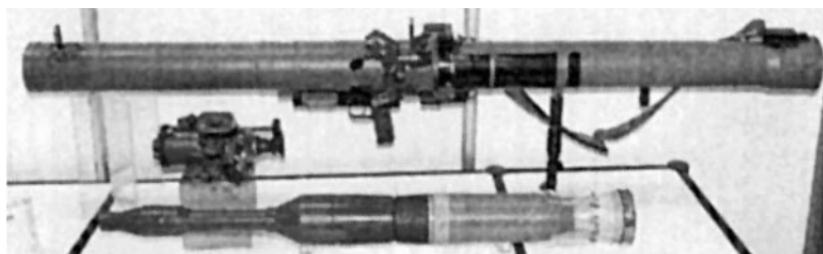
Caliber

105-mm

Armor Penetration

650 mm (after ERA)

RPG-29 *Vampir*



Maximum Effective Range

450 - 500 m (combat)

Caliber

105.2-mm

Length

1 m

Armor Penetration

750 mm (after ERA)

RShG-1 Multipurpose Assault Weapon



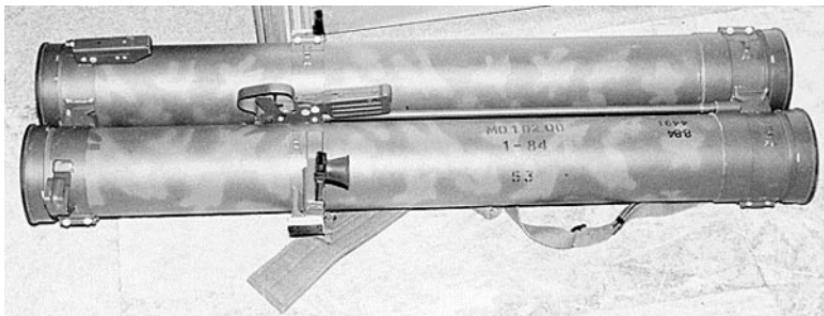
Maximum Effective Range 200 m (combat)

Caliber 105-mm

Length 1.155 m

Note: The RShG-1 unitary warhead is thermobaric and used to defeat light armored vehicles, field fortifications, and reinforced concrete structures.

RPO-A *Shmel* Rocket Flamethrower

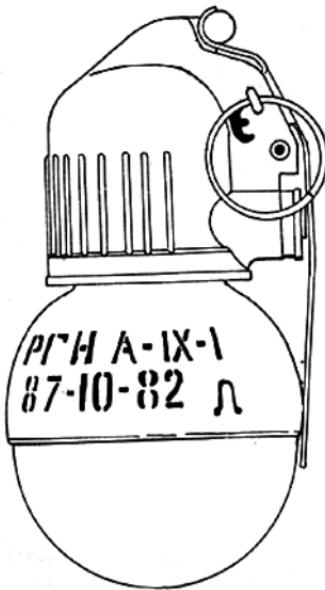


Effective Range 600 m

Caliber 93-mm

Length 1.1 m

RGN Offensive/Defensive Hand Grenade



Weight
Fuze Delay
Lethal Radius

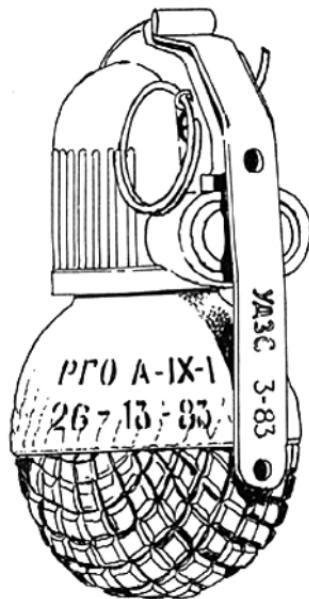
290 g
Impact: 1 - 1.8 sec
Time: 3.2 - 4.2 sec
8 - 10 m

RGO-78 Defensive Hand Grenade



Weight	450 g
Fuze Delay	3.2 - 4 sec
Effective Fragment Radius	20 m

RGO Fragmentation Hand Grenade



Weight

520 - 530 g

Fuze Delay

Impact: 1 - 1.8 sec

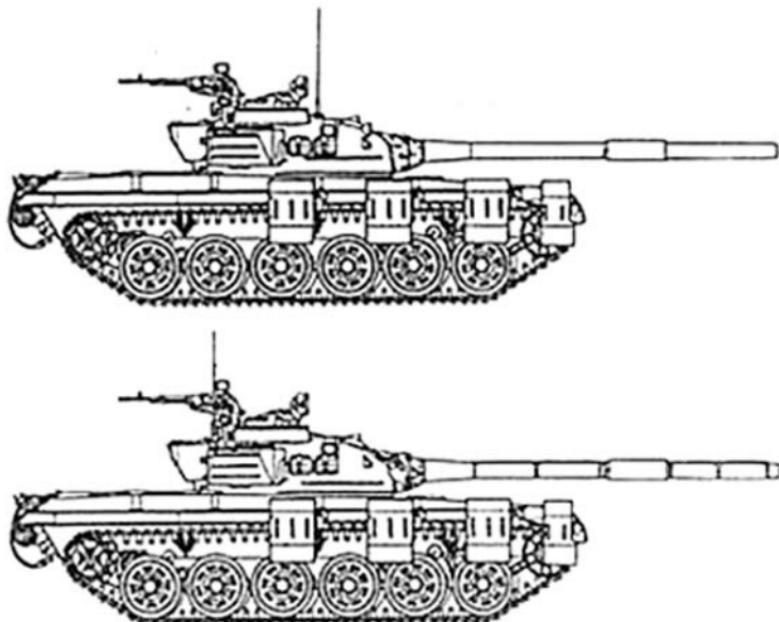
Time: 3.2 - 4.2 sec

Effective Fragment Radius

20 m

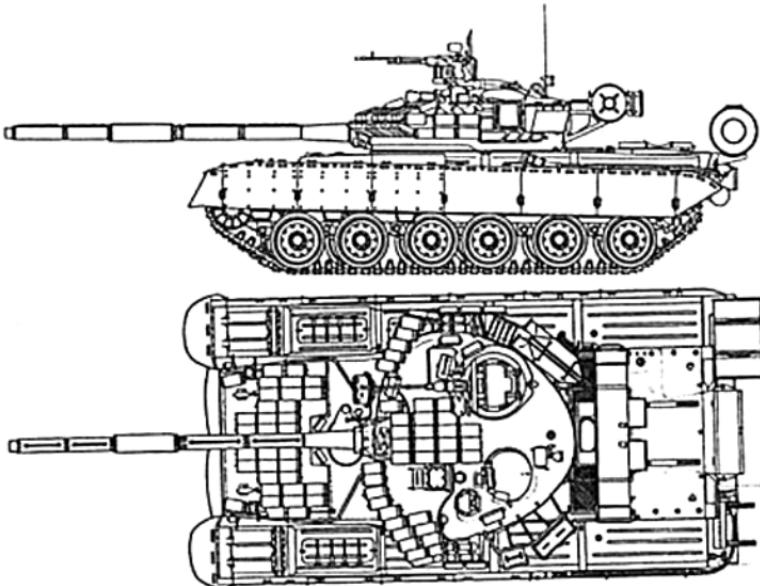
ARMOR

T-72



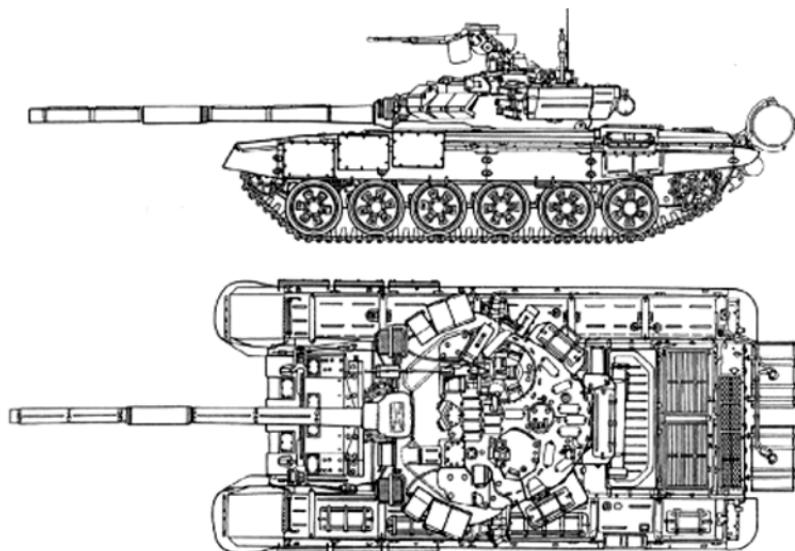
Crew	3
Armament	1 x 125-mm 2A46 smoothbore gun w/45 rds (incl. 6 x ATGW) 1 x 7.62-mm PKT MG (coaxial) w/2,000 rds 1 x 12.7-mm NSVT MG (antiaircraft) w/300 rds
Maximum Speed	60 km/h
Maximum Range	480 km
Fuel Capacity	1,000 liters
Combat Weight	46,500 kg
Length	9.533 m (gun forward)
Width	3.59 m (over track skirts)
Height	2.228 m (turret top)
Fording	1.8 m
Gradient	60%
Vertical Obstacle	0.85 m
NBC	yes
Night Vision	yes

T-80



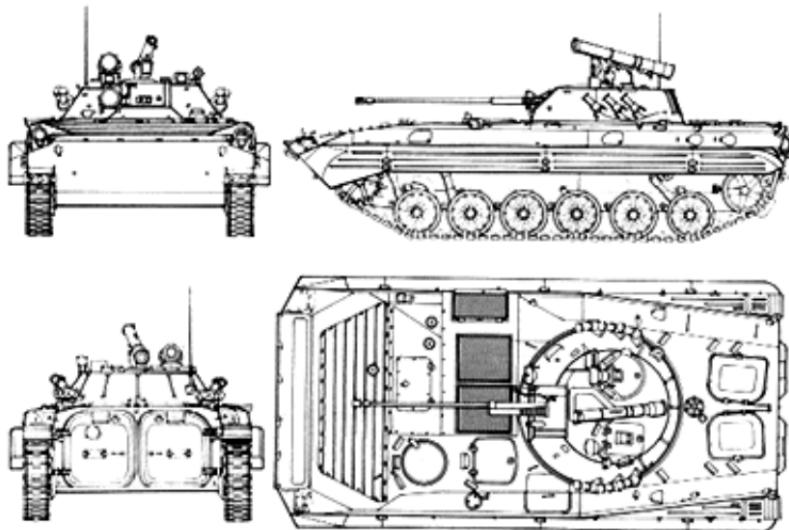
Crew	3
Armament	1 x 125-mm 2A46M-1 gun/missile launcher w/45 rds (25 in loader) 1 x 7.62-mm PKT MG (coaxial) w/1,250 rds 1 x 12.7-mm NSVT MG (antiaircraft)
Maximum Speed	70 km/h
Maximum Range	335 km
Fuel Capacity	1,090 liters
Combat Weight	46,000 kg
Length	9.656 m (gun forward)
Width	3.589 m
Height	2.202 m (turret top)
Night Vision	yes
NBC	yes
Fording	1.8 m
Gradient	63%
Vertical Obstacle	1.0 m
Trench	2.85 m

T-90



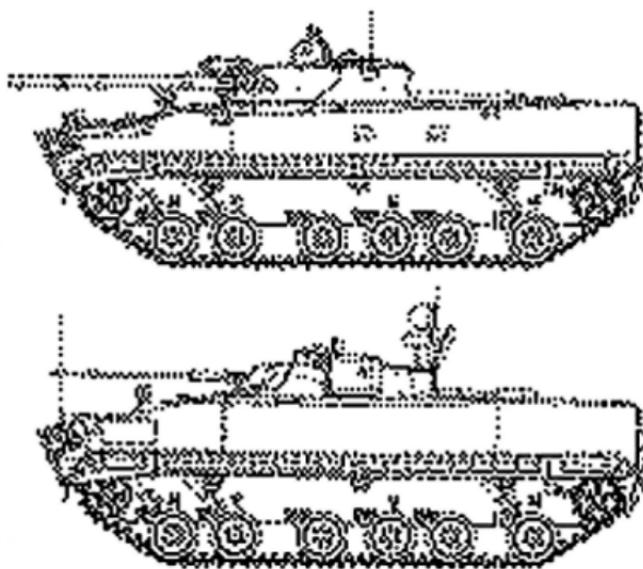
Crew	3
Armament	1 x 125-mm smoothbore 2A46M gun w/43 rds 22 (ready to use) 21 (reserve) 1 x 7.62-mm PKT MG (coaxial) w/2,000 rds 1 x 12.7-mm NSVT MG (antiaircraft) w/300 rds
Maximum Speed	60 km/h
Maximum Range	550 km (road) 450 km (dirt road)
Fuel Capacity	1,200 liters
Combat Weight	46,500 kg
Length	9.53 m (gun forward)
Width	3.78 m (over track skirts)
Height	2.226 m (turret top)
Night Vision	yes
NBC	yes
Fording	1.8 m
Gradient	60%
Vertical Obstacle	0.85 m
Trench	2.8 m

BMP-2



Crew/Passengers	3 + 7
Type	tracked
Armament	1 x 30-mm 2A42 gun w/500 rds 1 x 7.62-mm PKT MG w/2,000 rds 1 x 30-mm AG-17 grenade launcher w/350 rds 1 x AT-5 launcher w/4 rds
Maximum Speed	65 km/h
Maximum Range	600 km
Fuel Capacity	462 liter
Combat Weight	14,300 kg
Length	6.73 m
Width	3.15 m
Height	2.45 m
Night Vision	yes
NBC	yes
Fording	amphibious
Gradient	60%
Vertical Obstacle	0.7 m
Trench	2.5 m

BMP-3



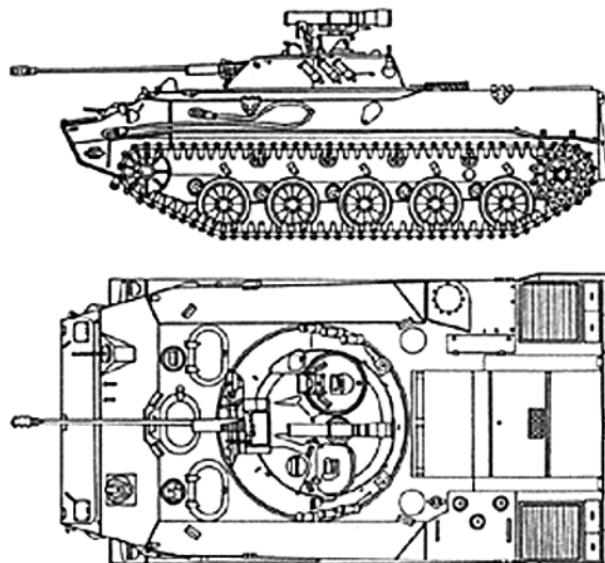
Crew/Passengers	3 + 7
Type	Tracked
Armament	1 x 100-mm 2A70 gun w/40 rds (22 in automatic loader) 5 x 9m117 ATGW missiles 1 x 30-mm 2A72 cannon (coaxial) w/500 rds 1 x 7.62-mm PKT MG (Coaxial) 2 x 7.62-mm PKT MG (Bow) Note: 1 x bow MG is sometimes replaced with 1 x 30-mm AGS-17 grenade launcher w/500 rds
Maximum Speed	70 km/h
Maximum Range	600 km
Combat Weight	18,700 kg
Length	7.14 m
Width	3.23 m
Height	2.65 m (overall)
Night Vision	yes
NBC	yes
Fording	amphibious
Gradient	60%
Vertical Obstacle	0.8 m

BMD-2



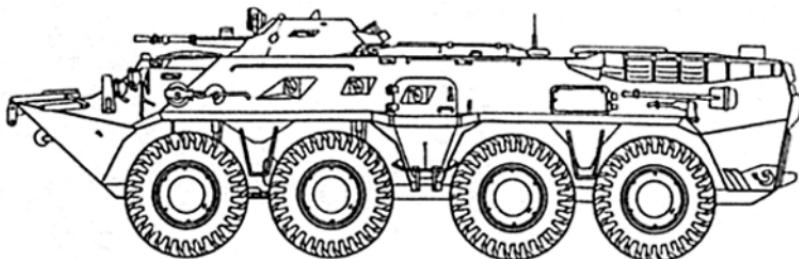
Crew/Passengers	3 + 4
Type	Tracked
Armament	1 x 30-mm 2A42 gun w/300 rds 1 x 7.62-mm PKT MG (coaxial) w/2,540 rds 1 x 7.62-mm PKT MG (bow) w/400 rds
Maximum Speed	60 km/h
Maximum Range	450 - 500 km
Combat Weight	8,225 kg
Length	5.91 m
Width	2.63 m
Height	1.97 m
Fording	amphibious
Gradient	60%
Vertical Obstacle	0.6 m
Trench	1.2 m
NBC	yes
Night Vision	yes

BMD-3



Crew/Passengers	3 + 4 (10 maximum)
Type	Tracked
Armament	1 x 30-mm 2A42 gun w/500 rds(ready) 360 rds (reserve) 1 x ATGW launcher (either AT-4 or AT-5)w/6 missiles 1 x 7.62-mm PKT coaxial MG w/2,000 rds 1 x 5.45-mm RPKS MG (bow) w/2,160 rds 1 x 30-mm AGS-17 gren. launcher w/290 rds; 261 (reserve)
Maximum Speed	70 km/h
Maximum Range	500 km (road) 350 km (cross-country)
Combat Weight	13,200 kg
Length	6.36 m
Width	3.134 m
Height	2.170 m
Fording	Amphibious
Gradient	60%
NBC	yes
Night Vision	yes

BTR-80



Crew/Passengers	3 + 7
Type	8 x 8
Armament	1 x 14.5-mm KPVT w/500 rds 1 x 7.62-mm PKVT w/2,000 rds
Maximum Speed	90 km/h
Maximum Range	600 km
Fuel Capacity	300 liters
Combat Weight	13,600 kg
Length	7.65 m
Width	2.9 m
Height	2.46 m
Night Vision	yes
NBC	yes
Fording	amphibious
Gradient	60%
Vertical Obstacle	0.5 m
Trench	2 m

ARTILLERY

2B16 120-mmH



Crew	5
Maximum Range	8,700 m (HE-FRAG projectile) 7,100 m (HE-FRAG mortar bomb)
Rate of Fire	8 - 10 rds/min
Combat Weight	1,200 kg
Length	5.9 m
Width	1.79 m

2A65 152-mm



Crew	8
Maximum Range	24,000 m (standard ammunition)
Rate of Fire	7 rds/min
Combat Weight	7,000 kg
Prime Mover	6 x 6

2A36 152-mm



Crew	8
Maximum Range	27,000 m (standard) 40,000 m (RAP)
Rate of Fire	5 - 6 rds/min
Combat Weight	9,760 kg (firing) 9,800 kg (travelling)
Length	12.3 m (firng) 12.92 m (travelling)
Width	2.788 m
Height	2.76 m
Prime Mover	6 x 6

2S9 Anona-S 120-mm SP Combination Gun



Crew	4
Armament	1 x 120-mm gun
Maximum Range:	8,855 (standard) 13,000 m (RAP)
Rate of Fire:	6 - 8 rds/min
Maximum Speed	60 km/h
Maximum Range	500 km
Combat Weight	8,700 kg
Length	6.02 m
Width	2.63 m
Height	2.3 m (max ground clearance) 1.9 m (firing configuration)
Fording	amphibious
Gradient	60%
NBC	yes
Night Vision	yes

2S19 Msta-S 152-mm SPH



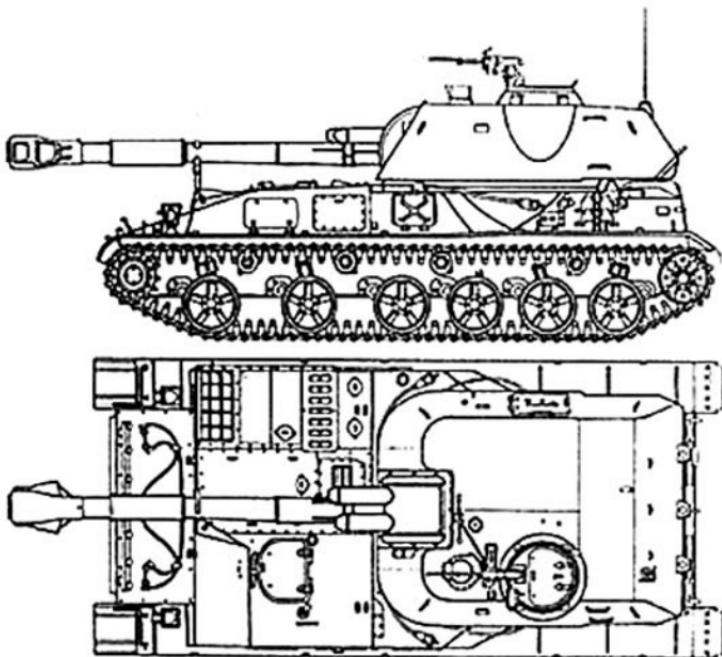
Crew	5
Armament	1 x 152-mm 2A64 gun
Maximum Range:	24,700 m (OF-45, HE) 28,900 m (HE-RAP)
Rate of Fire:	7 - 8 rds/min (using onboard ammunition)
Maximum Speed	60 km/h
Maximum Range	500 km
Combat Weight	42,000 kg
Length	11.917 m
Width	3.38 m
Height	2.985 m
Fording	1.2 m
Gradient	47%
Vertical Obstacle	0.5 m
Trench	2.8 m
NBC	yes
Night Vision	yes

2S5 *Giatsint* 152-mm SPH



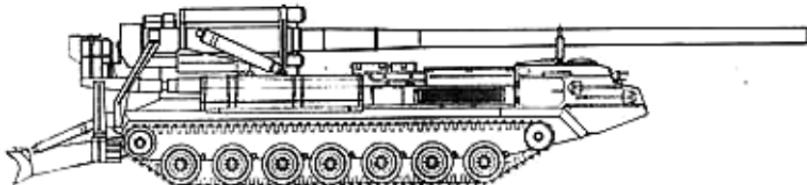
Crew	5
Armament	1 x 152-mm 2A37 gun w/30 rds
Maximum Range:	28,400 m (conventional); 37,000 m (HE w/advanced aerodynamic form)
Rate of Fire:	5 - 6 rds/min
Maximum Speed	63 km/h
Maximum Range	500 km
Combat Weight	28,500 kg
Length	8.33 m
Width	3.25 m
Height	2.76 m
Fording	1.05 m
Gradient	58%
Vertical Obstacle	0.7 m
Trench	2.5 m
NBC	yes
Night Vision	yes

2S3 *Akatsiya* 152-mm SPH



Crew	4 (+2 in ammunition carrier)
Armament	1 x 152-mm 2A33 gun w/46 rds (42 HE and 4 HEAT)
Range:	18,500 m (HE-FRAG) 24,000 m (HE-RAP)
Maximum Speed	60 km/h
Maximum Range	500 km (road) 270 km (cross-country)
Combat Weight	27,500 kg
Length	8.4 m (gun forward)
Width	3.250 m
Height	3.05 m
Fording	1.0 m
Gradient	60%
Vertical Obstacle	0.7 m
NBC	yes
Night Vision	yes

2S7 Pion 203-mm SPH



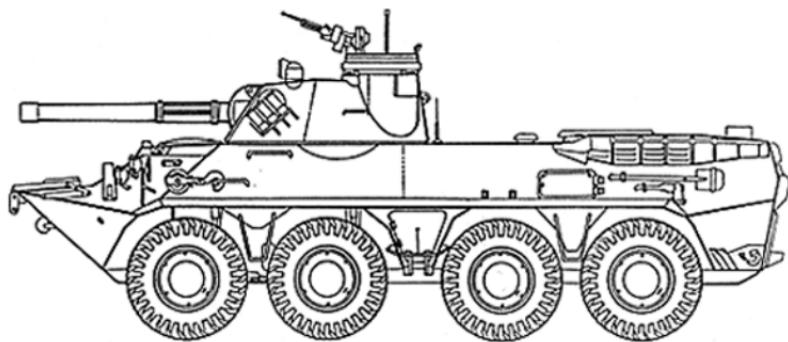
Crew	7
Armament	1 x 203-mm 2A44 gun w/rds
Maximum Range:	37,500 m (HE-FRAG) 47,500 m (RAP)
Rate of Fire:	8 rds/5 min
Maximum Speed	50 km/h
Maximum Range	650 km
Combat Weight	46,500 kg
Length	13.12 m
Width	3.38 m
Height	3.0 m
Fording	1.2 m
Gradient	40 %
Vertical Obstacle	0.7 m
Trench	2.5 m
NBC	yes
Night Vision	yes

2S4 Tyulpan 240-mm SPM



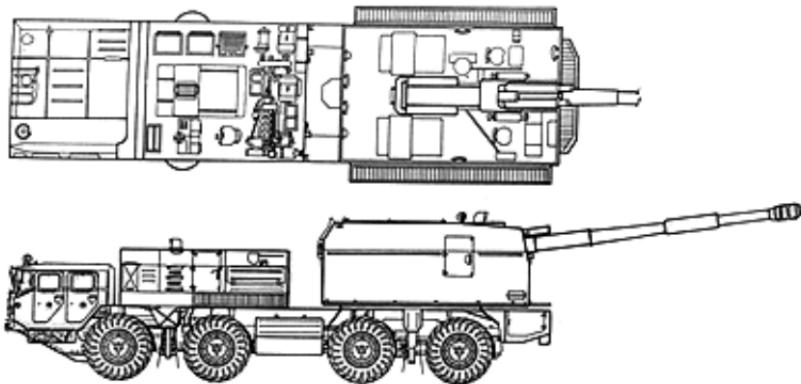
Crew	4 + 5
Armament	1 x 240-mm 2B8 mortar w/40 rds
Maximum Range:	9,650 m (conventional HE bomb); 18,000 m (HE-RAP) 9.2 km (<i>Smel'chak</i> laser-guided mortar projectile)
Maximum Speed	60 km/h
Maximum Range	500 km
Combat Weight	27,500 kg
Length	7.94 m (travelling)
Width	3.25 m (travelling)
Height	3.225 m (travelling)
Fording	1 m
Gradient	60%
Trench	2.79 m
NBC	yes
Night Vision	yes

2S23 NONA-SVK 120-mm SPM



Crew	4
Configuration	8 x 8
Armament	1 x 120-mm gun-mortar 2A60 w/30 rds
Maximum Range:	800 m (HEAT) 8,850 m (HE-FRAG); 12,850 m (RAP) 7.5 km (<i>Gran</i> laser-guided mortar projectile) 1 x 7.62-mm PKT coaxial w/500 rds
Maximum Speed	80 km/h
Maximum Range	500 km
Combat Weight	14,500 kg
Length	7.40 m
Width	2.90 m
Height	2.495 m
Fording	Amphibious
Gradient	60%
Vertical Obstacle	0.5 m
Trench	2 m
NBC	yes
Night Vision	yes

Bereg 130-mm Coastal Defense Artillery System



Crew	8
Configuration	8 x 8
Armament	1 x 130-mm gun w/48 rds
Maximum Range:	20 km
Rate of Fire:	10 rds/min
Maximum Speed	60 km/h
Maximum Range	650 km
Combat Weight	43,700 kg
Length	12.95 m
Width	3.2 m
Height	3.925 m

2B9 *Vasilyek* 82-mm Automatic Mortar



Maximum Range

4,270 m

Rate of Fire

170 rds/min (maximum) up to 120 rds/min (practical)

Combat Weight

6,060 kg (system)

Length

4.115 m (travelling)

Width

1.576 m

Prime Mover: Normally transported under canvas on the bed of a modified GAZ-66 (4 x 4) truck.

9P140 *Uragan* 220-mm MRL



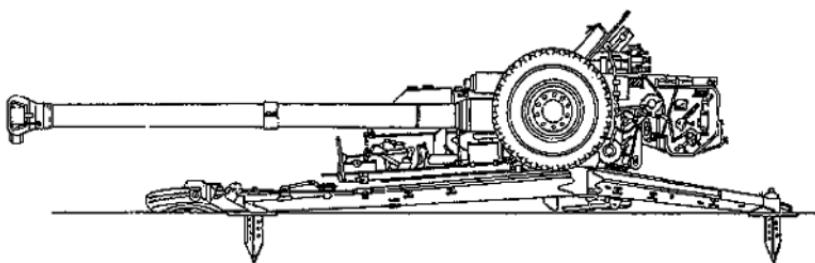
Crew	4
Armament	16 x 220-mm rockets
Maximum Range:	35,000 m
Rate of Fire:	8.8 sec per rocket (constant); 16 rds/20 sec (salvo)
Maximum Speed	65 km/h
Maximum Range	570 km
Combat Weight	20,000 kg
Length	9.63 m (travelling) 10.83 m (firing)
Width	2.8 m (travelling) 5.34 m (firing)
Height	3.225 m (travelling) 5.24 m (max elevation)
Fording	1.2 m
Gradient	57%
Vertical Obstacle	0.6 m
Trench	2 m

9A52 *Smerch* 300-mm MRL



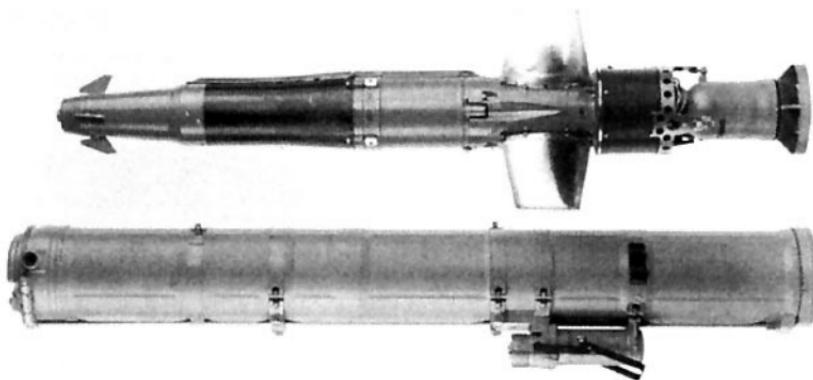
Crew	3
Armament	12 x 300-mm rockets
Maximum Range:	90 km
Rate of Fire:	12 rds/38 - 40 sec
Maximum Speed	60 km/h
Maximum Range	850 km
Combat Weight	43,700 kg
Length	12.1 m (travelling)
Width	3.05 m (travelling)
Height	3.05 m (travelling)
Fording	1.1 m
Vertical Obstacle	0.78 m
Trench	2.50 m

2A45 125-mm Antitank Gun



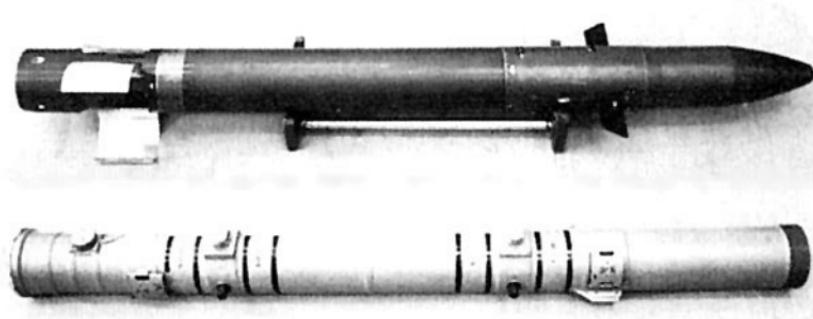
Crew	7
Maximum Range	12,200 m (HE) 5,000 m (missile) 2,000 m (APFSDS)
Rate of Fire	6 - 8 rds/min
Combat Weight	6,500 kg (towed) 6,800 kg (self-propelled) 6,575 kg (firing)
Length	7.120 m (towed) 6.790 m (self-propelled)
Note:	The gun can be brought into action manually or with an add-on auxiliary power unit which will propel it at 10 - 14 km/h

AT-4 Spigot



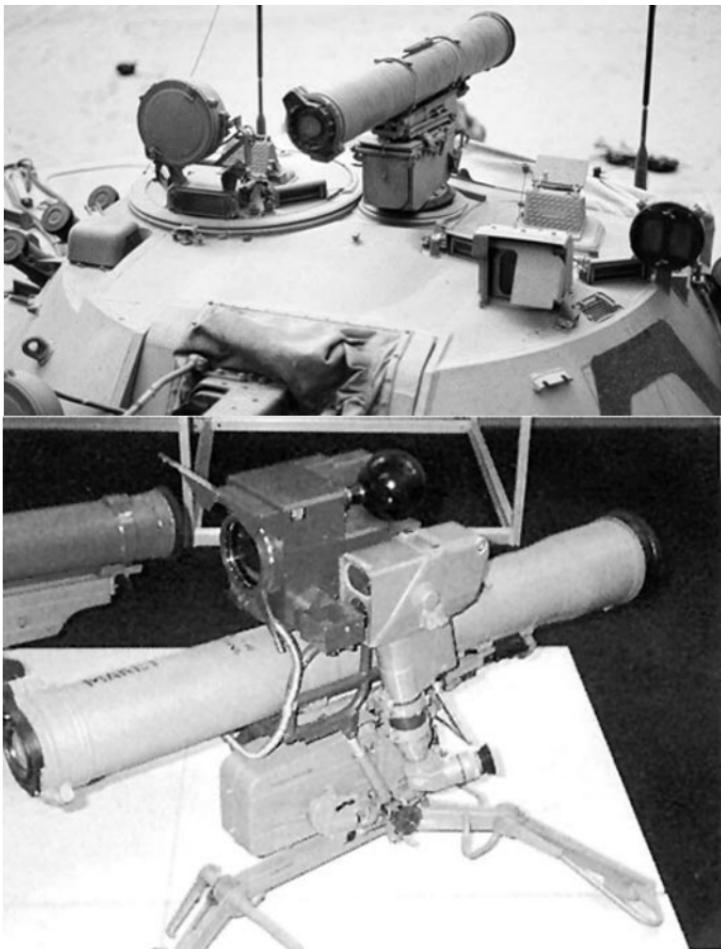
Type	Wire-guided SACLOS
Maximum Range	70 - 2,000 m (9M111) 70 - 2,500 m (9M111-2)
Launch Weight	12.5 kg
Armor Penetration	400 mm (9M111) 460 mm (9M111-2)

AT-6



Type	radio-controlled SACLOS
Maximum Range	400 - 5,000 m
Launch Weight	31.4 kg
Armor Penetration	600 mm

AT-5 Spandrel

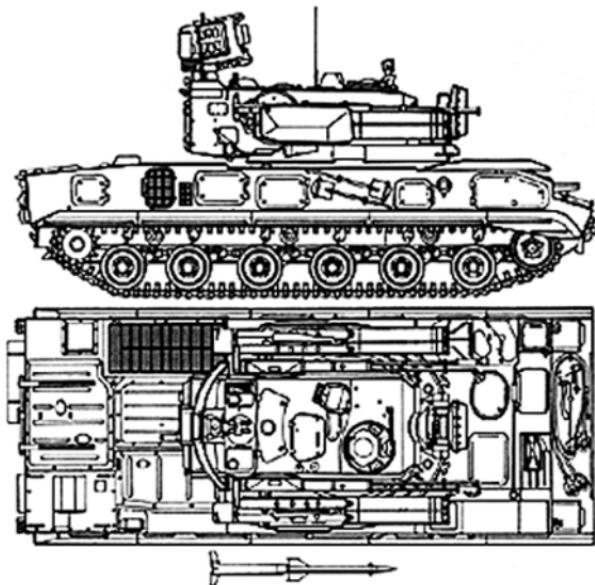


Type
Maximum Range
Launch Weight
Armor Penetration

Wire-guided SACLOS
75 - 4,000 m
14.6 kg
600 mm

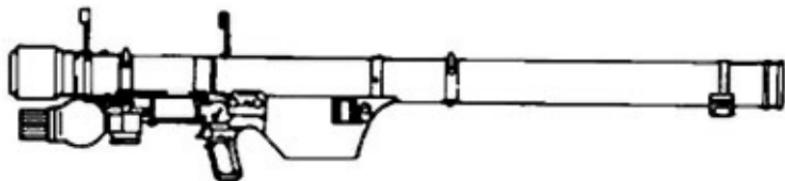
AIR DEFENSE

2S6M *Tunguska* 30-mm/SA-19



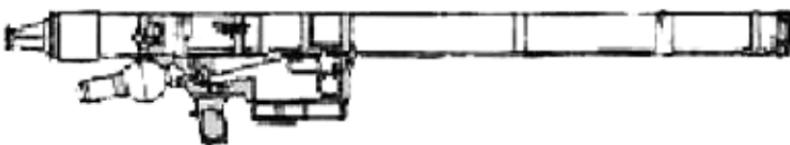
Crew	4
Armament	2 x 30-mm 2A38M cannon w/1,904 rds; 8 x SA-19
SAM missiles (range)	[guns] 4,000 m (slant range) [SA-19] 2,400 - 8,000 m (slant range)
Maximum Speed	65 km/h
Maximum Range	500 km
Combat Weight	34,000 kg
Length	7.93 m
Width	3.236 m
Height	4.021 m (radar up) 3.356 m (radar down)
Fording	0.8 m
Gradient	60%
Vertical Obstacle	1 m
Trench	2 m
NBC	yes
Night Vision	yes

SA-14



Guidance	Passive IR homing FM tracking logic seeker
Maximum Range	2,000 m (approaching jet) 4,500 m (approaching prop A/C or Helicopter)
Combat Weight	16 kg
Length	1.5 m

SA-16



Guidance	Passive IR homing Fm tracking logic seeker
Maximum Range	4,500 m (approaching target) 5,200 m (receding target)
Combat Weight	16.65 kg
Length	1.7 m

SA-18



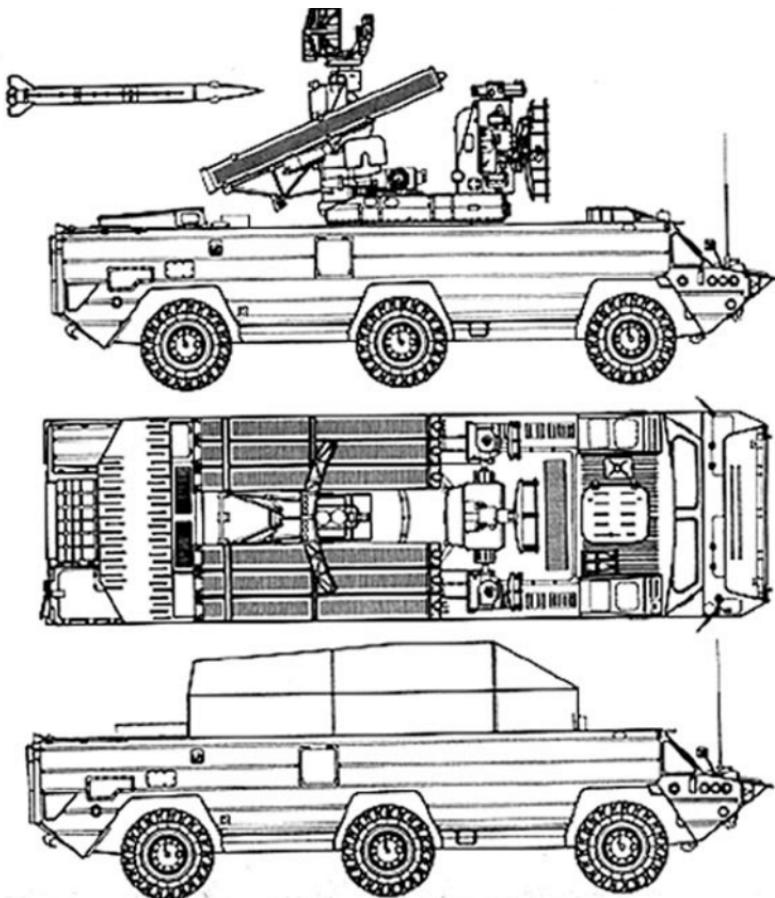
Guidance	Passive IR homing FM tracking logic seeker
Maximum Range	4,500 m (approaching target) 5,200 m (receding target)
Combat Weight	18 kg
Length	1.7 m

SA-6 Gainful



Type	Low to medium altitude surface to air missile
Guidance	Semi-active radar homing
Maximum Range	23,000 m
Maximum Altitude	4,000 m
Launch Weight	630 kg
Length	5.8 m

SA-8 Gecko



Type	Low altitude surface to air missile system
Guidance	Command
Maximum Range	10,000 m
Maximum Altitude	5,000 m
Launch Weight	126.3 kg
Length	3.186 m

SA-9 Gaskin



Type	Low altitude surface to air missile system
Guidance	Passive IR homing seeker
Maximum Range	4,200 m
Maximum Altitude	3,500 m
Launch Weight	30 - 30.5 kg
Length	1.803 m

SA-11 Gadfly



Type	Low to altitude surface to air missile system
Guidance	Semi-active radar homing
Maximum Range	35,000 m
Maximum Altitude	22,000 m
Launch Weight	685 kg
Length	5.55 m

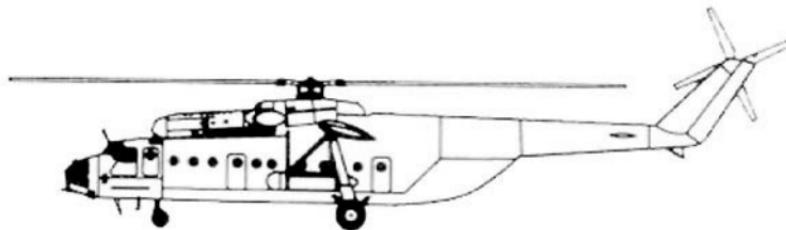
ROTARY WING AIRCRAFT

Mi-2 Hoplite



Type	Twin-turbine general purpose light helicopter
Crew	2 + 8
Armament	Assorted guns, rockets or ATGM, depending upon variant
Maximum Speed	102 kts
Maximum Range	91 nm
Rotar Diameter	14.5 m
Length	17.42 m
Height	3.75 m

Mi-6 Hook



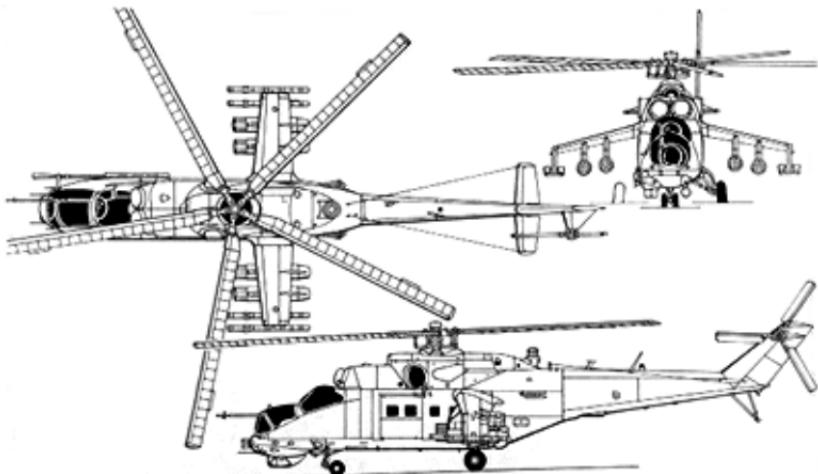
Type	Twin-turbine heavy transport helicopter
Crew	5
Armament	1 x 12.7-mm MG in nose
Payload	70 combat troops or 26,450 lb (internal) 17,637 lb (slung)
Maximum Speed	162 kts
Maximum Range	338 nm
Rotar Diameter	35 m
Length	41.74 m
Height	9.86 m

Mi-17 Hip



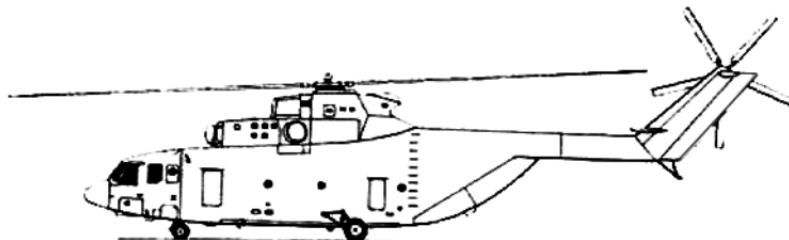
Type	Twin-turbine multipurpose helicopter
Crew	4
Armament	Assorted Rockets, Missiles, and Gun Pods
Payload	24 combat troops or 8,820 lb (internal) 6,614 lb (external)
Maximum Speed	135 kts
Maximum Range	307 nm
Rotar Diameter	21.29 m m
Length	25.33 m
Height	5.54 m

Mi-24 Hind



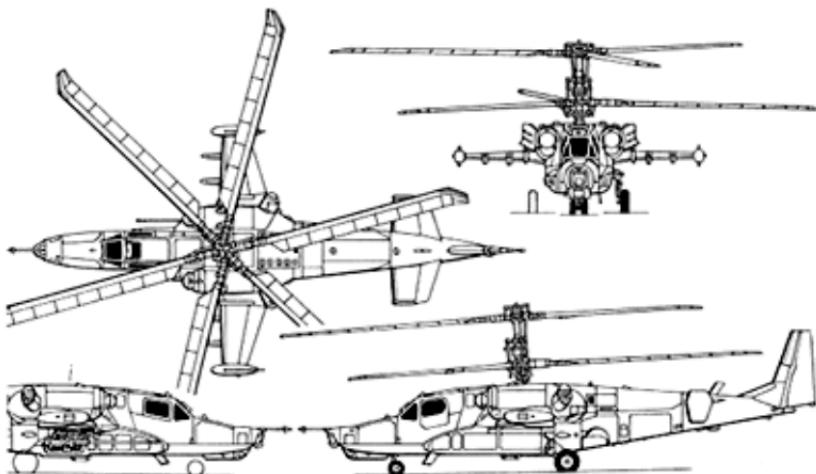
Type	Twin-turbine gunship/transport helicopter
Crew	4
Armament	1 x 4-barrel 12.7-mm MG mounted in chin turret Assorted rockets, missiles, gun pods
Payload	8 combat troops
Maximum Speed	172 kts
Maximum Range	243 nm
Rotar Diameter	17.30 m
Length	17.51 m
Height	3.97 m

Mi-26



Type	Twin-turbine heavy transport compound helicopter
Crew	5
Armament	some may have 1 x 12.7-mm MG in nose mounting
Payload	80 combat troops or 44,090 lb
Maximum Speed	164 kts
Maximum Range	620 km
Rotar Diameter	35.0 m
Length	41.74 m
Height	9.86 m

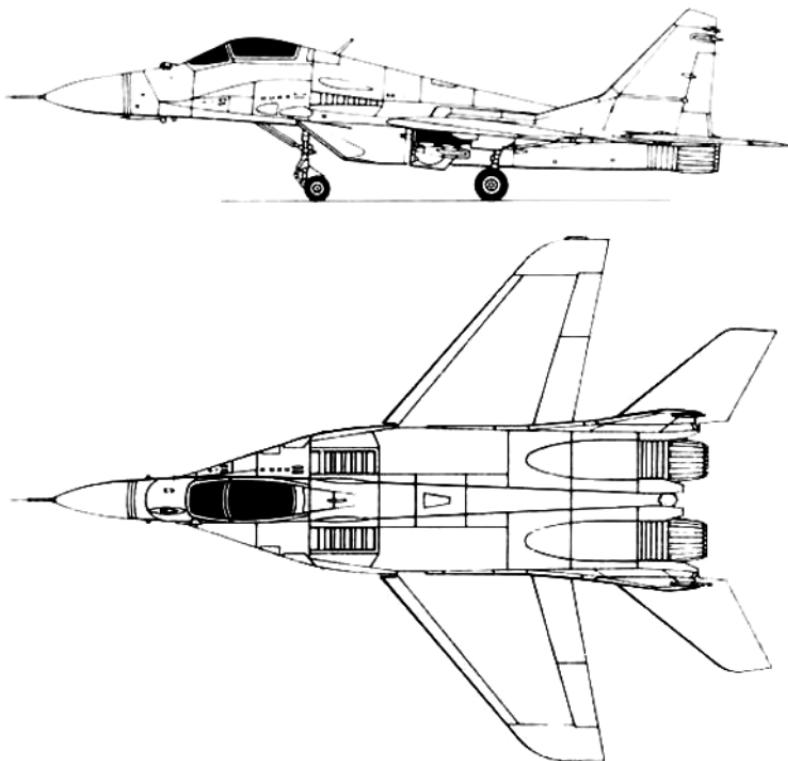
Ka-50 Hokum



Type	Attack helicopter
Crew	1
Armament	1 x single-barrel 30-mm 2A42 gun on starboard side of fuselgae w/470 rds Up to 80 x S-8 80-mm rockets, 20 x S-13 122-mm rockets, or 12 9A4172 Vikhr-M tube launched laser-guided ASM.
Maximum Speed	210 ktd
Maximum Range	243 nm
Rotar Diameter	7.34 m
Length	16 m
Height	4.93 m

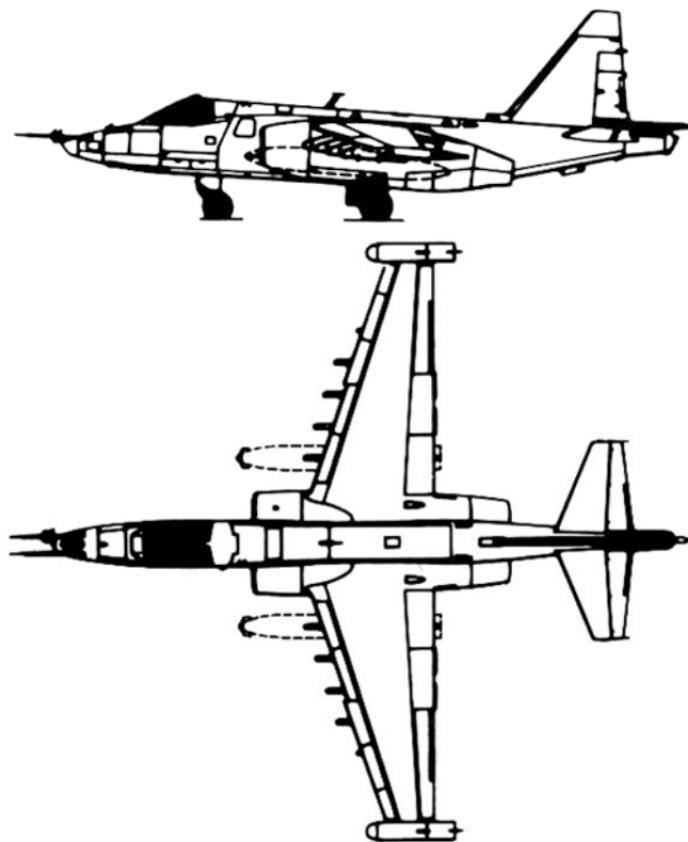
FIXED WING AIRCRAFT

MIG-29



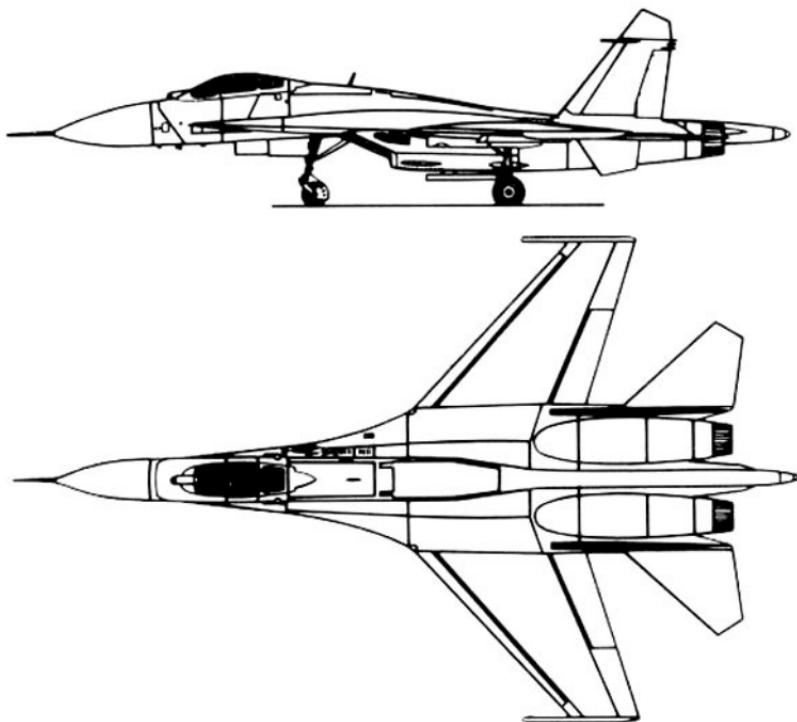
Type	All-weather single-seat counter-air fighter, with attack capability
Armament	1 x 30-mm GSh-301 single-barrel gun in port wing root w/150 AO-18 rds; up to 3,000 kg external ordinance
Maximum Speed	M2.3
Maximum Range	1,500 km (internal fuel); 2,100 km (1 x belly tank); 2,900 km (3 x external tanks)
Wingspan	11.36 m
Length	17.32 m
Height	4.73 m

SU-25 Frogfoot



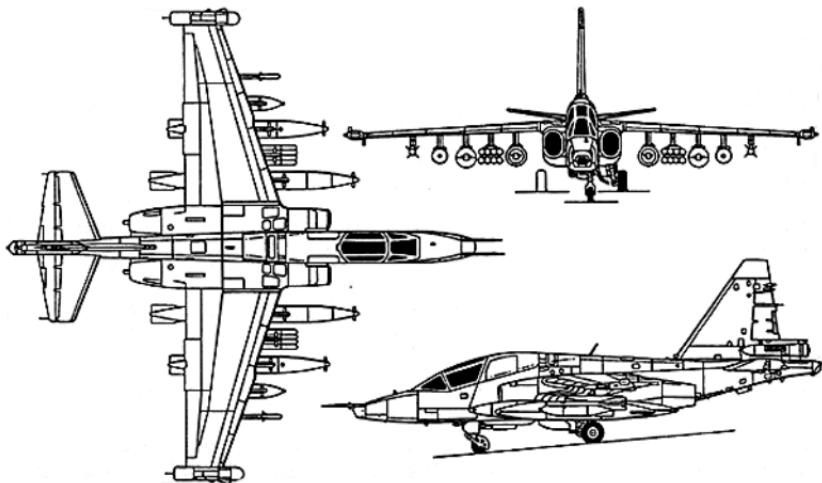
Type	Ground attack aircraft
Armament	1 x 30-mm AO-17A twin-barrel gun on port side w/250 rds; up to 4,400 kg external ordnance
Maximum Speed	526 kts
Maximum Range	750 km
Wingspan	14.36 m
Length	15.53 m
Height	4.80 m

SU-27 Flanker



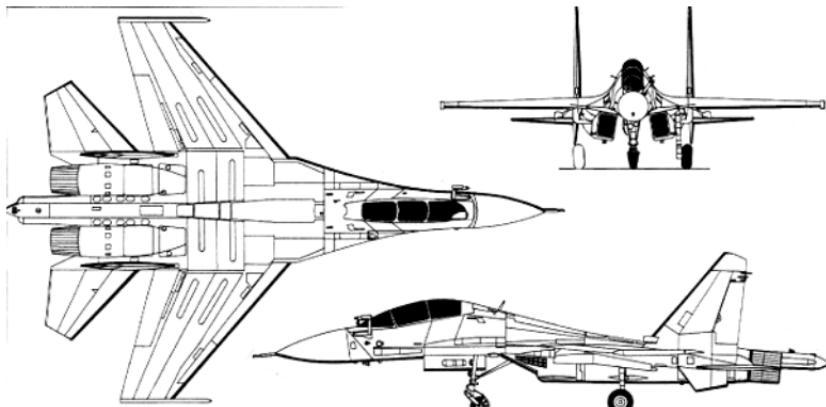
Type	Air superiority fighter
Armament	1 x 30-mm GSh-301 gun w/150 rds 12 x pylons for 8,000 kg external stores
Maximum Speed	M2.35
Maximum Range	3,000 km (internal fuel) 5,200 km (1 x inflight refueling)
Wingspan	14.7 m
Length	23.335 m
Height	6.50 m

SU-39



Type	Ground attack aircraft
Armament	1 x 30-mm NNPU-8M twin-barrel gun w/200 rds 5,000 kg external stores
Maximum Speed	512 kts
Maximum Range	2,250 km (ferry range)
Wingspan	14.52 m
Length	15.35 m
Height	5.2 m

SU-30



Type

Two-seat multirole fighter

Armament

1 x 30-mm GSh-301 gun w/150 rds
12 x pylons for 8,000 kg external stores

Maximum Speed

M2.35

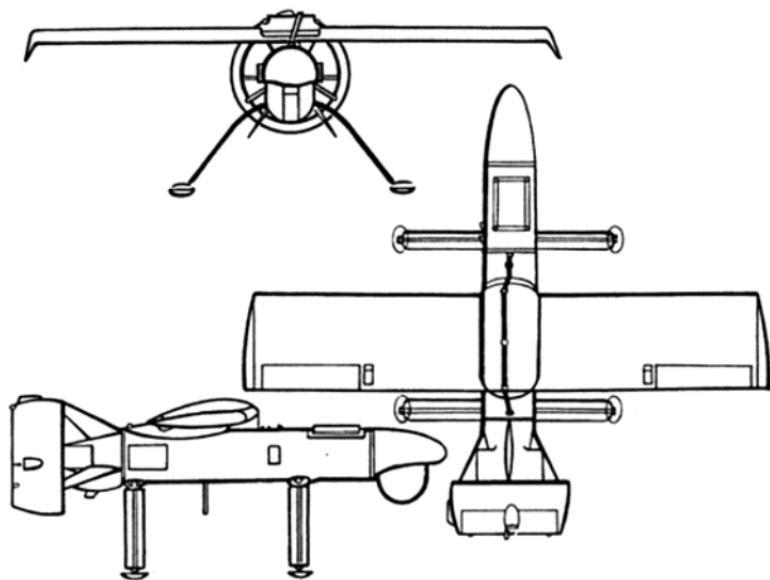
Maximum Range

3,000 km (internal fuel) 5,200 km (1 x inflight refueling)

Height

6.355 m

PCHELA-1 T



Type	RPV
Maximum Payload	30 kg
Maximum Endurance	3.5 hours
Wingspan	3.25 m
Length	2.78 m

SUBMARINE

KILO-Class



Type	Diesel-electric
Armament	Six tubes (some wire-guided) w/Type E53-65 torpedoes; Set-53M torpedoes (has mine laying capability)
Maximum Diving Depth	350 m (normal depth is 240 m)
Displacement	2,356 t (surface); 3,076 t (submerged)
LOA/Beam/Draft	72.6 m x 9.9 m x 6.6m

SURFACE SHIPS

Warszawa Class



Type	Destroyer
Complement	280 (25 officers)
Armament	SS missiles; SAM, 76-mm guns, 6 AK 630 barrels; 5 533-mm torpedo tubes; assorted mortars and rockets (Decoys: 4 PK 16 Chaff launchers and 2 towed torpedoes)
Military Lift	Helicopter platform for 1 medium
Maximum Speed	32 knots
Maximum Range	4,000 miles at 18 kt
Displacement	4,974 t (full)
LOA/Beam/Draft	479.7 m x 51.8 m x 15.7 m

NOTE: Flagship of Polish Navy

Perry Class



Type	Guided-missile frigate
Complement	200 (15 officers)
Armament	SAMs, SSMs, assorted guns and torpedoes; (Decoys: 2 fixed MK 36; 1 torpedo)
Military Lift	Helicopter platform (2 medium)
Maximum Speed	29 knots
Maximum Range	4,500 nm
Displacement	3,696 t (full)
LOA/Beam/Draft	135.6 m x 13.7 m x 7.5 m

Gornik Class (Tarantul I)



Type	Corvette
Complement	46 (6 officers)
Armament	SAMs, SSMs, 1 76-mm/60 AK 176; 2 30-mm/65 AK 630 (Decoys: 2 PK 16 Chaff launchers)
Maximum Speed	39 knots
Maximum Range	2,300 miles at 18 kt
Displacement	455 t (full)
LOA/Beam/Draft	56.1 m x 11.5 m x 2.5 m

Puck (OSA 1) Class



Type	Fast Attack
Complement	30)
Armament	4 SS-N-2A Styx Missiles; SAM SA-N-5 quad launcher; 4 30-mm/65 (2 twin) AK 230 automatic
Maximum Speed	35 knots
Maximum Range	800 at 30 kt
Displacement	210 t (full)
LOA/Beam/Draft	38.6 m x7.6 m x 2.7 m

Lublin Class



Type	Mine layer and landing ship
Complement	37 (5 officers)
Armament	Wrobel II: combined twin ZU-23-2MR mm gun/SA-N-5 missiles, mines (50-134); (Decoys: 2 12-tube chaff launchers)
Military Lift	9 Type 2 tanks or 9 APC or 7 amphibious tanks; 135 troops plus equipment
Maximum Speed	16 knots
Maximum Range	1,400 miles
Displacement	1,350 t
LOA/Beam/Draft	95.8 m x 10.8 m x 2.38 m

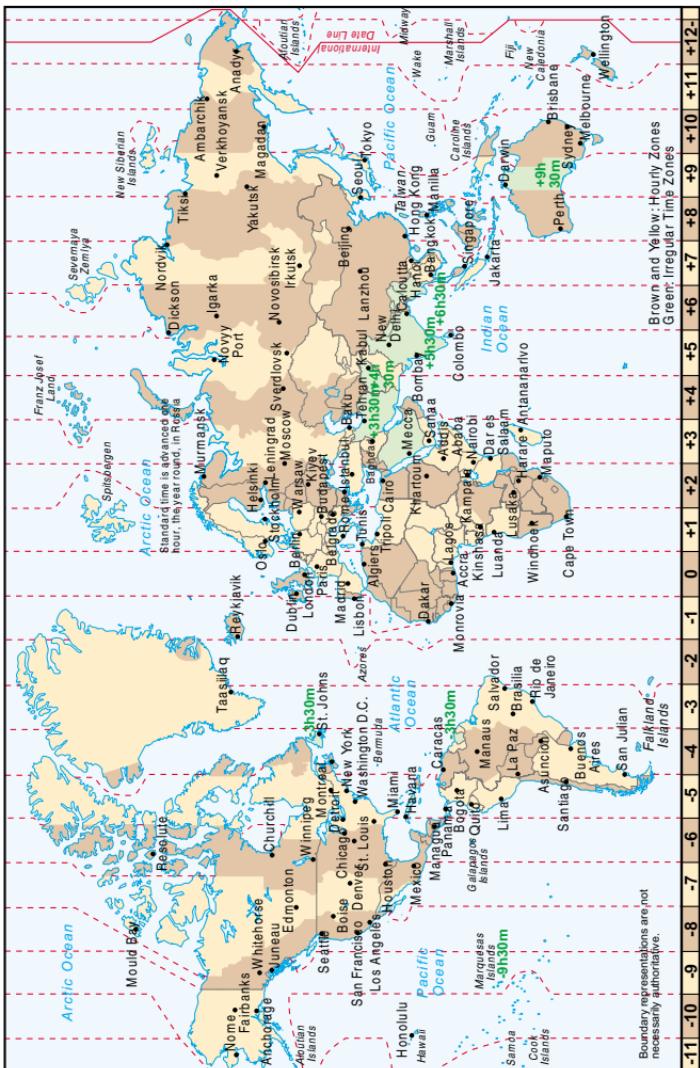
Deba Class



Type	Landing Craft Utility
Complement	12
Armament	2 ZU-23-2M Wrobel 23 mm (twin)
Military Lift	1 tank or 2 vehicles; up to 15 tons and 50 troops
Maximum Speed	20 knots
Maximum Range	430 miles
Displacement	176 t (full)
LOA/Beam/Draft	37.2 m x 7.1 m x 1.7 m

APPENDIX B:

International Time Zones



Greenwich Mean Time (GMT)

To use the table, go to the country you are interested in, and add the number of hours corresponding to the United States time zone to the current time. The GMT is also known as Coordinated Universal Time (UTC).

Country	GMT	Eastern	Central	Mountain	Pacific
Afghanistan	+4.5 H	+9.5 H	+10.5 H	+11.5 H	+12.5 H
Albania	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Algeria	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
American Samoa	-11.0 H	-6.0 H	-5.0 H	-4.0 H	-3.0 H
Andorra	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Angola	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Antartica	-2.0 H	+3.0 H	+4.0 H	+5.0 H	+6.0 H
Antigua and Barbuda	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Argentina	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
Armenia	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Aruba	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Ascension	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Australilia North	+9.5 H	+14.5 H	+15.5 H	+16.5 H	+17.5 H
Australilia South	+10.0 H	+15.0 H	+16.0 H	+17.0 H	+18.0 H
Australilia West	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Australilia East	+10.0 H	+15.0 H	+16.0 H	+17.0 H	+18.0 H
Austria	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Azerbaijan	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Bahamas	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Bahrain	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Bangladesh	+6.0 H	+11.0 H	+12.0 H	+13.0 H	+14.0 H
Barbados	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Belarus	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Belgium	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Belize	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Benin	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Bermuda	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Bhutan	+6.0 H	+11.0 H	+12.0 H	+13.0 H	+14.0 H
Bolivia	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Bosnia Herzegovina	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Botswana	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
Brazil East	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
Brazil West	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
British Virgin Islands	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Brunei	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Bulgaria	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Burkina Faso	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Burundi	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Cambodia	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Cameroon	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Canada East	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Canada Central	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Canada Mountain	-7.0 H	-2.0 H	-1.0 H	+0.0 H	+1.0 H
Canada West	-8.0 H	-3.0 H	-2.0 H	-1.0 H	+0.0 H
Cape Verde	-1.0 H	+4.0 H	+5.0 H	+6.0 H	+7.0 H
Cayman Islands	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Central African Rep.	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Chad Republic	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Chile	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
China	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Christmas Island	-10.0 H	-5.0 H	-4.0 H	-3.0 H	-2.0 H
Colombia	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Congo	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Cook Island	-10.0 H	-5.0 H	-4.0 H	-3.0 H	-2.0 H
Costa Rica	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Croatia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Cuba	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Cyprus	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Czech Republic	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Denmark	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Djibouti	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Dominica	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Dominican Republic	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Ecuador	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Egypt	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
El Salvador	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Equatorial Guinea	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
Eritrea	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Estonia	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Ethiopia	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Falkland Islands	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Fiji Islands	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Finland	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
France	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
French Antilles	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
French Guinea	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
French Polynesia	-10.0 H	-5.0 H	-4.0 H	-3.0 H	-2.0 H
Gabon Republic	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Gambia	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Georgia	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Germany	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Ghana	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Gibraltar	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Greece	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Greenland	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
Grenada	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Guadeloupe	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Guam	+10.0 H	+15.0 H	+16.0 H	+17.0 H	+18.0 H
Guatemala	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Guinea-Bissau	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Guinea	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Guyana	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
Haiti	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Honduras	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Hong Kong	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Hungary	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Iceland	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
India	+5.5 H	+10.5 H	+11.5 H	+12.5 H	+13.5 H
Indonesia East	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Indonesia Central	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Indonesia West	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Iran	+3.5 H	+8.5 H	+9.5 H	+10.5 H	+11.5 H
Iraq	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
Ireland	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Israel	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Italy	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Jamaica	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Japan	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Kazakhstan	+6.0 H	+11.0 H	+12.0 H	+13.0 H	+14.0 H
Kenya	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Kiribati	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Korea, North	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Korea, South	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Kuwait	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Kyrgyzstan	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Laos	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Latvia	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Lebanon	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Lesotho	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Liberia	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Libya	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Liechtenstein	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Lithuania	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Luxembourg	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Macedonia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Madagascar	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Malawi	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Malaysia	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Maldives	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Mali Republic	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Malta	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Marshall Islands	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Mauritania	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Mauritius	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Mayotte	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Mexico East	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Mexico Central	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Mexico West	-7.0 H	-2.0 H	-1.0 H	+0.0 H	+1.0 H
Moldova	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
Monaco	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Mongolia	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Morocco	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Mozambique	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Myanmar (Burma)	+6.5 H	+11.5 H	+12.5 H	+13.5 H	+14.5 H
Namibia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Nauru	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Nepal	+5.5 H	+10.5 H	+11.5 H	+12.5 H	+13.5 H
Netherlands	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Netherlands Antilles	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
New Caledonia	+11.0 H	+16.0 H	+17.0 H	+18.0 H	+19.0 H
New Zealand	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Newfoundland	-3.5 H	+1.5 H	+2.5 H	+3.5 H	+4.5 H
Nicaragua	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
Nigeria	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Niger Republic	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Norfolk Island	+11.5 H	+16.5 H	+17.5 H	+18.5 H	+19.5 H
Norway	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Oman	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Pakistan	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Palau	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Panama, Rep. of	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Papau New Guinea	+10.0 H	+15.0 H	+16.0 H	+17.0 H	+18.0 H
Paraguay	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Peru	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Philippines	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Poland	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Portugal	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Puerto Rico	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Qatar	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Reunion Island	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Romania	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Russia West	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Russia Central 1	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Russia Central 2	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Russia East	+11.0 H	+16.0 H	+17.0 H	+18.0 H	+19.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
Rwanda	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Niger Republic	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Norfolk Island	+11.5 H	+16.5 H	+17.5 H	+18.5 H	+19.5 H
Norway	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Oman	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Pakistan	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Palau	+9.0 H	+14.0 H	+15.0 H	+16.0 H	+17.0 H
Panama, Rep. of	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Papau New Guinea	+10.0 H	+15.0 H	+16.0 H	+17.0 H	+18.0 H
Paraguay	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Peru	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Philippines	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Poland	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Portugal	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Puerto Rico	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Qatar	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Reunion Island	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Romania	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Russia West	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Russia Central 1	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Russia Central 2	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Russia East	+11.0 H	+16.0 H	+17.0 H	+18.0 H	+19.0 H
Rwanda	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Saba	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Samoa	-11.0 H	-6.0 H	-5.0 H	-4.0 H	-3.0 H
San Marino	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Sao Tome	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Saudi Arabia	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Senegal	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Seychelles Islands	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
Sierra Leone	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Singapore	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Slovakia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Slovenia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Solomon Islands	+11.0 H	+16.0 H	+17.0 H	+18.0 H	+19.0 H
Somalia	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
South Africa	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Spain	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Sri Lanka	+5.5 H	+10.5 H	+11.5 H	+12.5 H	+13.5 H
St. Lucia	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
St. Maarten	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
St. Pierre & Miquelon	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
St. Thomas	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
St. Vincent	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Sudan	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Suriname	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
Swaziland	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Sweden	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Switzerland	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Syria	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Taiwan	+8.0 H	+13.0 H	+14.0 H	+15.0 H	+16.0 H
Tajikistan	+6.0 H	+11.0 H	+12.0 H	+13.0 H	+14.0 H
Tanzania	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Thailand	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Togo	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Tonga Islands	+13.0 H	+18.0 H	+19.0 H	+20.0 H	+21.0 H
Trinidad and Tobago	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Tunisia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Turkey	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Turkmenistan	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Turks and Caicos	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
Tuvalu	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Uganda	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Ukraine	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
United Arab Emirates	+4.0 H	+9.0 H	+10.0 H	+11.0 H	+12.0 H
United Kingdom	+0.0 H	+5.0 H	+6.0 H	+7.0 H	+8.0 H
Uruguay	-3.0 H	+2.0 H	+3.0 H	+4.0 H	+5.0 H
USA Eastern	-5.0 H	+0.0 H	+1.0 H	+2.0 H	+3.0 H
USA Central	-6.0 H	-1.0 H	+0.0 H	+1.0 H	+2.0 H
USA Mountain	-7.0 H	-2.0 H	-1.0 H	+0.0 H	+1.0 H
USA Western	-8.0 H	-3.0 H	-2.0 H	-1.0 H	+0.0 H
USA Alaska	-9.0 H	-4.0 H	-3.0 H	-2.0 H	-1.0 H

Country	GMT	Eastern	Central	Mountain	Pacific
USA Hawaii	-10.0 H	-5.0 H	-4.0 H	-3.0 H	-2.0 H
Uzbekistan	+5.0 H	+10.0 H	+11.0 H	+12.0 H	+13.0 H
Vanuatu	+11.0 H	+16.0 H	+17.0 H	+18.0 H	+19.0 H
Vatican City	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Venezuela	-4.0 H	+1.0 H	+2.0 H	+3.0 H	+4.0 H
Vietnam	+7.0 H	+12.0 H	+13.0 H	+14.0 H	+15.0 H
Wallis & Futuna Islands	+12.0 H	+17.0 H	+18.0 H	+19.0 H	+20.0 H
Yemen	+3.0 H	+8.0 H	+9.0 H	+10.0 H	+11.0 H
Yugoslavia	+1.0 H	+6.0 H	+7.0 H	+8.0 H	+9.0 H
Zaire	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Zambia	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H
Zimbabwe	+2.0 H	+7.0 H	+8.0 H	+9.0 H	+10.0 H

APPENDIX C: Conversion Charts

When You Know

Units of Length

Multiply by

To find

Millimeters	0.04	Inches
Centimeters	0.39	Inches
Meters	3.28	Feet
Meters	1.09	Yards
Kilometers	0.62	Miles
Inches	25.40	Millimeters
Inches	2.54	Centimeters
Feet	30.48	Centimeters
Yards	0.91	Meters
Miles	1.61	Kilometers

Units of Area

Sq. Centimeters	0.16	Sq. Inches
Sq. Meters	1.20	Sq. Yards
Sq. Kilometers	0.39	Sq. Miles
Hectares	2.47	Acres
Sq. Inches	6.45	Sq. Centimeters
Sq. Feet	0.09	Sq. Meters
Sq. Yards	0.84	Sq. Meters
Sq. Miles	2.60	Sq. Kilometers
Acres	0.40	Hectares

Units of Mass and Weight

Grams	0.035	Ounces
Kilograms	2.21	Pounds
Tons (100kg)	1.10	Short Tons
Ounces	28.35	Grams
Pounds	0.45	Kilograms
Short Tons	2.12	Tons

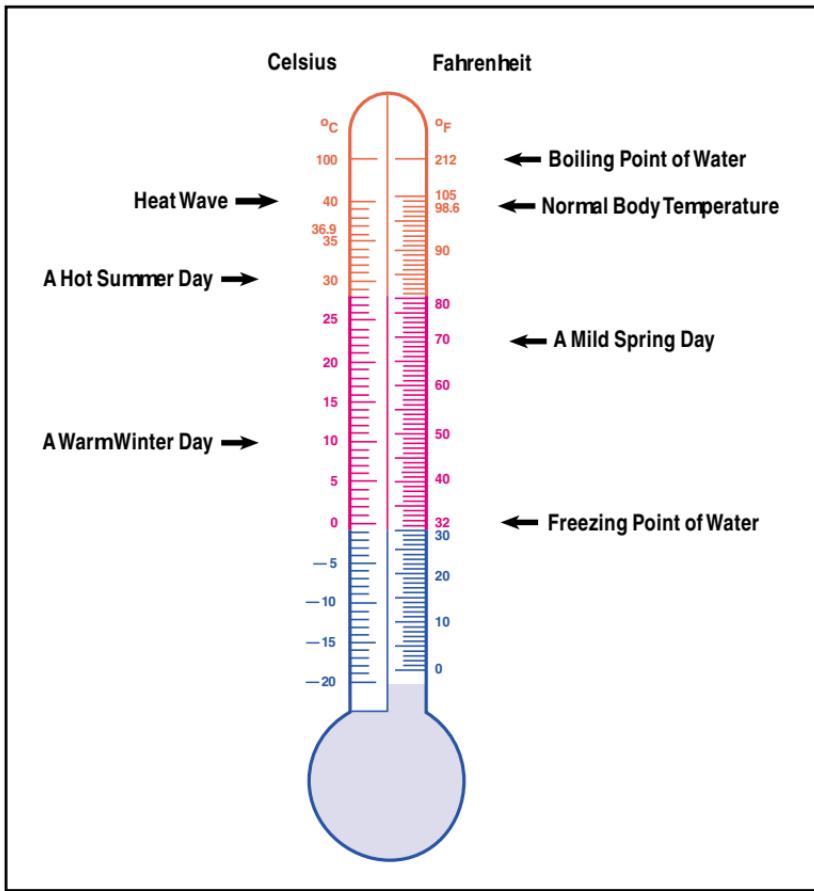
Units of Volume	Multiply by	To find
Milliliters	0.20	Teaspoons
Milliliters	0.06	Tablespoons
Milliliters	0.03	Fluid Ounces
Liters	4.23	Cups
Liters	2.12	Pints
Liters	1.06	Quarts
Liters	0.26	Gallons
Cubic Meters	35.32	Cubic Feet
Cubic Meters	1.35	Cubic Yards
Teaspoons	4.93	Milliliters
Tablespoons	14.78	Milliliters
Fluid Ounces	29.57	Milliliters
Cups	0.24	Liters
Pints	0.47	Liters
Quarts	0.95	Liters
Gallons	3.79	Liters
Cubic Feet	0.03	Cubic Meters
Cubic Yards	0.76	Cubic Meters

Units of Speed

Miles per Hour	1.61	Kilometers per Hour
Kilometers per Hour	0.62	Miles per Hour

Temperature

To convert Celsius into degrees Fahrenheit, multiply Celsius by 1.8 and add 32. To convert degrees Fahrenheit to Celsius, subtract 32 and divide by 1.8.



Temperature Chart

APPENDIX D: **Holidays and Calendars**

Holidays

1 January	New Year's Day
4 March	St. Casmir Day (Patron Saint of Poland)
March/April (varies)	Easter and Easter Monday
1 May	Labor Day
3 May	Constitution Day
June	Corpus Christi
15 August	Feast of the Assumption
1 November	All Saint's Day
11 November	National Independence Day
25 December	Christmas Day
26 December	St. Stephen's Day

APPENDIX E: Language

Pronunciation

Pronunciation of Polish vowel letters as compared with English

VOWEL LETTER	ENGLISH	VOWEL LETTER	ENGLISH
a	<u>fun</u>	ą	<u>long</u>
e	<u>bet</u>	ę	<u>length</u>
i	<u>sea</u>	ó	same as u
o	<u>law</u>		
u	<u>moon</u>		
y	<u>tin</u>		

Pronunciation of Polish consonant letters as compared with English

Letter	Sound	English equivalent	Letter	Sound	English equivalent
b	b	b in bed	s	s	s in star
c	ts	ts in cats	ś	sh	sh in she
ć	ch	ch in cheese	t	t	t in time
d	d	d in door	w	v	v in yan
g	g	g in give	z	z	z in maze
h	kh	ch in Loch Ness	ź	zy	z in zeal
j	y	y in yes	ż	zh	s in pleasure
k	k	k in kid			
l	l	l in lamp	Letter combination		
			ch	same as h	
ł	w	w in water	cz	ch	ch in check
m	m	m in moon	dz	dz	(voiced counterpart of c)
n	n	n in noon	dź	dzy	(voiced counterpart of ć)
ń	ny	ny in canyon	dż	dzh	j in jam
p	p	p in pan	sz	sh	sh in wash
r	r	r in room (but rolled)	rz	same as ż	

Notes:

Capital letters were used to show accented syllables in pronunciation guides; there can be more than one accented syllable per word.

Ś and ć are soft consonants articulated with the front part of the tongue close to the mid section of the palate.

Polish Phonetic Alphabet

A - ALPHA	A - ADAM	AHdahm
B - BRAVO	B - BARBARA	bahrBAHrah
C - CHARLIE	C - CELINA	tsehLEEnah
D - DELTA	D - DOROTA	dohROHTah
E - ECHO	E - EDWARD	EHDvahrt
F - FOXTROT	F - FRANCISZEK	frahnTSEEshehk
G - GOLF	G - GUSTAW	GUWStahf
H - HOTEL	H - HENRYK	kHEHNrik
I - INDIA	I - IGNACY	eegNAHtsi
J - JULIET	J - JÓZEF	YUWzehf
K - KILO	K - KAROL	KAHrohl
L - LIMA	L - LUDWIK	LUWDveek
	Ł - ŁUKASZ	WUWkahsh
M - MIKE	M - MARIA	MAHRyah
N - NOVEMBER	N - NATALIA	nahTAHLyah
O - OSCAR	O - OLGA	OHLgah
P - PAPA	P - PAWEŁ	PAHvehw
Q - QUEBEC	Q - KWANTUM	KFAHNTuwm
R - ROMEO	R - ROMAN	ROHmahn
S - SIERRA	S - STEFAN	STEHfahn
T - TANGO	T - TADEUSZ	tahDEHoosh
U - UNIFORM	U - URSZULA	wurSHUWlah
V - VICTOR	V - VIOLETTA	vyohLEHtah
W - WHISKEY	W - WIKTOR	VEEKtohr
X - XRAY	X - KSANTYPA	ksahnTIpah
Y - YANKEE	Y - IPSYLON	EEpsiloahn
Z - ZULU	Z - ZYGMUNT	ZIGmuwnt

Key Phrases

WHAT'S THIS ?	CO TO JEST ?	TSOhtohYEHST
WHAT HAPPENED ?	CO SIĘ STAŁO ?	TSOHshyenSTAHwoh
HOW COME ?	JAK TO ?	YAKtoh
I DIDN'T KNOW	NIE WIEDZIAŁEM	nyehvyehdzyAHwehm
PLEASE, SHOW ME	PROSZĘ MI	PROHsgehmeepohKAHz
	POKAZAĆ	ahch
I THINK SO	TAK SĄDZĘ	tahkSOHndzeh
REPEAT IT, PLEASE	PROSZĘ	PROHsheh
	POWTÓRZYĆ	pohfTOOzhich
WHAT DOES IT MEAN ?	CO TO ZNACZY ?	tsohtohZNAHchi
I UNDERSTAND NOW	TERAZ ROZUMIEM	tehrahsrohZOOmyehm
WHAT'S THE PROBLEM ?	O CO CHODZI ?	ohtsoHOHdzee
DON'T TOUCH IT	NIE DOTYKAĆ	nyehdohTlkahch
DID YOU DO IT ?	CZY TY TO ZROBIŁEŚ ?	chiTltohzrohBEEwehsh
I SPEAK A LITTLE POLISH	JA MÓWIĘ TROCHĘ	yahMUWVyetrohhe
ARE YOU POLISH ?	PO POLSKU	pohPOHlskuw
	CZY JESTEŚ POLAKIEM ?	chiYEHstehsh
CAN YOU SPEAK ENGLISH ?	CZY MÓWISZ PO ANGIELSKU ?	pohLAHKyehm
BE CAREFUL	BĄDŹ OSTROŻNY	chiMUWveeshpoh
ARE YOU ALONE ?	CZY JESTEŚ SAM ?	angYEHLskuw
ANSWER THE QUESTION	ODPOWIEDZ NA PYTANIA	bOHndzyohstROHzhn
DO YOU HAVE WEAPONS ?	CZY MASZ BROŃ ?	chiYEHstehshSAHM
DON'T BE FRIGHTENED	NIE BÓJ SIĘ	otPoVyehtsnahpiTAHnya
DO YOU UNDERSTAND ?	CZY ROZUMIESZ ?	h
BE QUIET	CICHO	chimahshBROHNY
COME HERE	CHODŹ TUTAJ	nYEHbuwyshye
COME WITH ME	CHODŹ ZE MNĄ	chirohZUWmyehsh
		TSEEhoh
		HOHCHtuwtahy
		hohchZEHmnong

DON'T MOVE	NIE RUSZAJ SIĘ	nyehRUWshayshyeh
DON'T SHOOT	NIE STRZELAJ	nyehstSHEHlahy
FOLLOW ME	IDŹ ZA MNĄ	eedzZAHmnony
HALT	STÓJ	stooy
HURRY UP !	POSPIESZ ŚIĘ	POHspyejhshhen
YOU MUST	MUSICIE	muwSEEtsyeh
PURPOSE	CEL	tsehl
MAKE A SKETCH	WYKONAJ SZKIC	viKOHnahy shKEEts
SWEAR	PRZYSIĘGNIJ	pshuSHYENGneey
KEEP QUIET	CISZA	TSEEshah
PROMISE	PRZYRZEKNIJ	pshuZHEHKneey
WITNESS	ŚWIADEK	shfYAHdehk
DO YOU NEED	CZY	chipohtshehBUWyelehsh
MEDICAL	POTRZEBUJESZ	pohMOHtsi
ATTENTION ?	POMOCY	lehKAHrskyehy
DO YOU NEED HELP?	LEKARSKIEJ?	chipohtshehBUWyelehsh pohMOHtsi
I AM NOT A DOCTOR	CZY	nyehYEHstehm
WHERE IS THE DOCTOR?	POTRZEBUJESZ	lehKAHzhehm
IS THE WATER SAFE	POMOCY?	gdzyehyehstLEHkahzh
TO DRINK?	NIE JESTEM	chiVOhdah
BOIL YOUR WATER	LEKARZEM	nahDAHyehshen
WHERE ARE YOU GOING?	GDZIE JEST	dohPEEchyah
WHERE IS THE LATRINE?	UBIKACJA?	pshehGOHtooy
IS THE FOOD FRESH?	CZY JEDZENIE	VOHdehg
YOU ARE NEXT	JEST ŚWIEŻE?	gdzyeh EEdzyehsh
GO TO YOUR FAMILY	NASTĘPNY	gdzyeh yehst
GO HOME !	IDŹ DO SWOJEJ	uwbeeKAHTsyah
	RODZINY	chiyehDZEHnyeh yehst
	IDŹ DO DOMU !	shFYEHzhuh
		nahSTEHmpni
		EEdzdohSFOHyehy
		rohDZEEni
		EEdzdohDOHmuw

Interrogation

SIT DOWN	USIĄDŹ	UWsyonch
RELAX	USPOKÓJ SIĘ	uwspOHKoooyshyeh
SMOKE IF YOU WISH	ZAPAL JAK	ZAHpahl yahkhtsEHSH
DO YOU WANT A DRINK ?	CHCESZ	
ARE YOU HUNGRY ?	CZY CHCESZ PIĆ ?	chihTSEHshPEECH
ARE YOU ALL RIGHT ?	CZY JESTEŚ GŁODNY ?	chiYEHstesh gWOHdnı
WHAT IS YOUR NAME ?	CZY DOBRZE SIĘ CZUJESZ ?	chi DOHbzheh shen
WHERE WERE YOU BORN ?	JAK SIĘ NAZYWASZ ?	CHUWychsh
HOW OLD ARE YOU ?	GDZIE SIĘ URODZIŁEŚ ?	yahk shen nahZlvash
WHERE ARE YOU FROM ?	ILE MASZ LAT ?	gdzyeh
WHAT DID YOU SAY ?	SKĄD	sheuwrohDZEEwesh
SPEAK SLOWLY, PLEASE	POCHODZISZ ?	eelehmashLAHT
WHERE ARE YOUR FRIENDS ?	CO	
WHERE DO YOU WORK ?	POWIEDZIALEŚ ?	skohntpoHOHDzeesh
COMMANDER'S NAME ?	PROSZĘ MÓWIĆ	tsoh
YOUR UNIT DESIGNATION ?	WOLNO	pohvyehDZYAHwehsh
WHERE IS IT LOCATED ?	GDZIE SA	prohshehMUWveech
SHOW ME ON THE MAP	KOLEDZY ?	VOHLnoh
REPEAT IT	GDZIE	gdzyehsongkohLEHdzi
	PRACUJESZ ?	gdzyeh prahTSUWyelehsh
	NAZWISKO	nahzVEESkoh
	DOWÓDCY ?	dohVUWttsı
	NAZWA WASZEJ	NAHzvahvashehyehdN
	JEDNOSTKI ?	OHstkee
	GDZIE SIĘ ONA	gdzyehshyenOHnah
	ZNAJDUJE ?	znahyDUWyelehsh
	POKAŻ NA MAPIE	POHkahsh
	POWTÓRZ	nahMAHpyeh
		POHftuwsh

Colors

BLACK	CZARNY	chahrn̄i
BLUE	NIEBIESKI	nyehBYEHskee
BROWN	BRĄZOWY	brohnZOHv̄i
GRAY	SZARY	SHAHri
GREEN	ZIELONY	zyehLOHni
ORANGE	POMARAŃCZOWY	pohmahrahnCHOHv̄i
RED	CZERWONY	chehrVOHni
WHITE	BIAŁY	BYAHwi
YELLOW	ZÓŁTY	ZHUW̄ti

Numbers

ZERO (0)	ZERO	ZEHroh
ONE (1)	JEDEN	YEHdehn̄
TWO (2)	DWA	dvhah
THREE (3)	TRZY	tshi
FOUR (4)	CZTERY	CHTEHri
FIVE (5)	PIĘĆ	pyehnch
SIX (6)	SZEŚĆ	shehshch
SEVEN (7)	SIEDEM	SYEHdehm
EIGHT (8)	OSIEM	OHsyehm
NINE (9)	DZIEWIĘĆ	DZYEHvyehnch
10	DZIESIĘĆ	DZYEHsyehnch
11	JEDENAŚCIE	yehdehNAHSHTsyeh
12	DWANAŚCIE	dvahNAHSHTsyeh
13	TRZYNAŚCIE	tshiNAHSHTsyeh
14	CZTERNAŚCIE	chtehrNAHSHTsyeh
15	PIĘTNAŚCIE	pyehntNAHSHTsyeh
16	SZESNAŚCIE	shehsNAHSHTsyeh
17	SIEDEMNAŚCIE	syehdehmNAHSHTsyeh
18	OSIEMNAŚCIE	osyehmNAHSHTsyeh
19	DZIEWIĘTNĄŚCIE	dzyehvyehntNAHSHTsyeh
20	DWADZIEŚCIA	dvahDZYEHSHtseyah
21	DWADZIEŚCIA	dvahDZYEHSHtseyah
	JEDEN	YEHdehn̄
30	TRZYDZIEŚCI	tshiDZYEHSHtsee
40	CZTERDZIEŚCI	chtehrDZYEHSHtsee
50	PIĘCDZIESIĄT	pyehnchDZYEHsyohnt
60	SZEŚCDZIESIĄT	shehshDZYEHsyohnt

60	SZEŚĆDZIESIĄT	shehshDZYEHsyohnt
70	SIEDEMDZIESIĄT	seyehdehmDZYEHsyohnt
80	OSIEMDZIESIĄT	ohsyehmDZYEHsyohnt
90	DZIEWIĘCDZIESIĄT	dzyehvyehnDZYEHsyohnt
100	STO	stoh
1,000	TYSIĄC	TIsyohnts
10,000	DZIESIĘĆ TYSIECY	DZYEHsyench
100,000	STO TYSIECY	tSYEHNtsi
1,000,000	MILION	MEELyohn

Key Vocabulary

BREAKFAST	ŚNIADANIE	shnyahDAHnye
CHURCH	KOŚCIOŁ	KOHSHchuyw
CLOSED	ZAMKNIĘTE	zahmKNYEHNteh
CITY	MASTO	MYAHStoh
DEGREES	STOPNIE	STOHPnyeh
EXIT	WYJŚCIE	VIYshchiyeh
ENTRANCE	WEJŚCIE	VEHYshchiyeh
EAST	WSCHÓD	fskuwt
FRAMEWORK	SZKIELET,	shKYEleht,
	STRUKTURA	struwkTUWrah
HEADLIGHT	REFLEKTOR	rehfLEHKtohr
HOUR	GODZINA	gohDZEEnah
HOW	JAK	yahk
HOW MUCH	ILE	EEleh
HOW FAR	JAK DALEKO	yahkdahLEHkoh
HOW OFTEN	JAK CZĘSTO	yahkCHENstoh
HOSPITAL	SZPITAL	shPEEtahl
LUNCH	OBIAD	OHbyaht
LEFT	W LEWO	vLEvoht
MONTH	MIESIĄC	MYEHsyonts
MINUTE	MINUTA	meeNUWtah
NORTH	PÓŁNOC	PUWnohts
OPEN	OTWARTE	ohtFAHRteh
PUSH	PCHNAĆ	pkhnohnch
PULL	CIĄGNĄĆ	TSYOHNGnohnch
PROFESSION	ZAWÓD	ZAHvuwt

QUICKLY	SZYJKO	SHIPkoh
REMEMBER	PAMIĘTAJ	pahMYEHNtahy
RIGHT	W PRAWO	FPRAHvoh
SYMBOLS	SYMBOLE	simBOHleh
SUPPER	KOLACJA	koLAHtsyah
SOUTH	POŁUDNIE	pohWUWDnyeh
VILLAGE	WIOSKA	VYOHskah
WEST	ZACHÓD	ZAHkhutw
WHY	DLACZEGO	dlahCHEHgoh
WHAT	CO	tsoh
WHO	KTO	ktoh
WHEN	KIEDY	KYEdi
WHERE	GDZIE	gdzyeh
WASH	UMYĆ	UWmich
YEAR	ROK	rohk

Key Military Terms

SQUAD	DRUŻYNA	druwZHlnah
SECTION	SEKCJA	SEHktsyah
PLATOON	PLUTON	PLUWtohn
COMPANY	KOMPANIA	kohmPAHnyah
BATTALION	BATALION	bahTAHLyohn
REGIMENT	PUŁK	puwk
BRIGADE	BRYGADA	briGAHdah
DIVISION	DYWIZJA	diWEEzyah
CORPS	KORPUS	KOHRpuws
ARMY	ARMIA	AHRmyah
AIR FORCE	LOTNICTWO	lohtNEETStfoh
ARMOR	BROŃ PANCERNA	brohpahnTSEHRnah
ARTILLERY	ARTYLERIA	artiLEHRyah
CAVALRY	KAWALERIA	kahvahLEHRyah
CHEMICAL	SŁUŻBA	SWOOzbah
ENGINEERS	CHEMICZNA	khehMEECHnah
MARINES	SAPERZY	sahPEHzhi
MEDICAL CORPS	PIECHOTA MORSKA	pyehKHOHTah
	SIUŻBA MEDYCZNA	MOHRskah
		SWOOZhbah
		mehDICnah

MECHANIZED NAVY	ZMECHANIZOWANY MARYNARKA WOJENNA	zmehkakneezohVAHni mahriNAHRKah vohYEHnnah
ORDNANCE	SIUŽBA UZBROJENIA	SWOOZhbah UWzbrohYEHnyah
QUARTERMASTER SIGNAL CORPS	KWATERMISTRZ SŁUŽBA ŁĄCZNOŚCI	kfahTEHRmeestsh SWOOZhbah wohnchNOSHchee
CLERK	PISARZ	PEEsahsh
COMMANDER	DOWÓDCA	dohVUVtsah
COOK	KUCHARZ	KUWhash
CRYPTOLOGIST	SZYFRANT	SHIFrahnt
DEMOLITION SPC	MINER	MEEnehr
DRIVER	KIEROWCA	kyehROHFtsah
ENGINEER	SAPER	SAHpehr
FIREMAN	STRAŽAK	stRAHzhahk
GUNNER	CELOWNICZY	tsehlohvNEEchi
LEADER	PRZYWÓDCA	pshiVUVtsah
MECHANIC	MECHANIK	mehKAHneek
MESSENGER	POŚLANIEC, GONIEC	pohsWAHnyehts, GOHnyehts
PARACHUTIST	SPADOCHRONIARZ	spahdohkhROHnyahsh
RIFLEMAN	STRZELEC	stSHEHLehts
SCOUT	ZWIADOWCA	zvyahDOHFtsah
SOLDIER	ŻOŁNIERZ	ZHOHWnyehsh
TANKMAN	CZOŁGISTA	chohwGEEstah

Military Ranks

PRIVATE	SZEREGOWY	shehrehGOHvi
CORPORAL	KAPRAL	KAHprahl
SERGEANT	SIERŻANT	SYEHRzhahnt
WARRANT	CHORĄŻY	khohROHNzhi
LIEUTENANT	PORUCZNIK	pohRUWCHeek
CAPTAIN	KAPITAN	kaahPEEtahn
MAJOR	MAJOR	MAHyohr
COLONEL	PUŁKOWNIK	puwKOHVneek
GENERAL	GENERAŁ	gehNEHrahw

APPENDIX F: International Road Signs



APPENDIX G:

Deployed Personnel's Guide to Health Maintenance

DoD-prescribed immunizations and medications, including birth control pills, should be brought in sufficient quantity for deployment's duration.

Only food, water, and ice from approved U.S. military sources should be consumed. Consuming food or water from unapproved sources may cause illness. Food should be thoroughly cooked and served hot.

Thorough hand-washing before eating and after using the latrine is highly recommended, as is regular bathing. Feet should be kept dry and treated with antifungal powder. Socks and underwear should be changed daily; underwear should fit loosely and be made of cotton fiber.

Excessive heat and sunlight exposure should be minimized. Maintaining hydration is important, as are following work-rest cycles and wearing uniforms properly. Sunglasses, sunscreen (SPF 15 or higher), and lip balm are recommended. Drinking alcohol should be avoided. Personnel with previous heat injuries should be closely monitored.

Uniforms should be worn properly (blouse boots). DEET should be applied to exposed skin and uniforms treated with permethrin; permethrin is not intended for use on skin. Proper treatment and wear of uniform, plus application of DEET to exposed skin, decreases the risk of diseases transmitted by biting insects.

Overcrowded living areas should be avoided. Ventilated living areas and avoiding coughing or sneezing toward others will reduce colds and other respiratory infections. Cots or sleeping bags should be arranged "head to toe" to avoid the face-to-face contact that spreads germs.

Contact with animals is not recommended. Animals should not be kept as mascots. Cats, dogs, and other animals can transmit disease. Food should not be kept in living areas as it attracts rodents and insects, and trash should be disposed of properly.

Hazardous snakes, plants, spiders, and other insects and arthropods such as scorpions, centipedes, ants, bees, wasps, and flies should be avoided. Those bitten or stung should contact U.S. medical personnel.

All sexual contact should be avoided. Properly used condoms offer some protection from sexually transmitted diseases but not full protection.

Stress and fatigue can be minimized by maintaining physical fitness, staying informed, and sleeping when the mission and safety permits. Alcohol should be avoided as it causes dehydration, contributes to jet lag, can lead to depression, and decreases physical and mental readiness. Separation anxiety, continuous operations, changing conditions, and the observation of human suffering will intensify stress. Assistance from medical personnel or chaplains is available.

Additional Information

Water

If unapproved water, as found in many lakes, rivers, streams, and city water supplies must be used in an emergency, the water may be disinfected by:

- Adding calcium hypochlorite at 5.0 ppm for 30 minutes;
- Adding Chlor-Floc or iodine tablets according to label instructions;
- Heating water to a rolling boil for 5 to 10 minutes; or
- Adding 2 to 4 drops of ordinary chlorine bleach per quart of water and waiting 30 minutes before using it.

Either U.S. military preventive medicine or veterinary personnel should inspect bottled water supplies. Bottled water does not guarantee purity; direct sunlight on bottled water supplies may promote bacterial growth.

Water in canals, lakes, rivers, and streams is likely contaminated; unnecessary bathing, swimming, and wading should be avoided. If the tactical situation requires entering bodies of water, all exposed skin should be covered to protect from parasites. Following exposure, it is important to dry vigorously and change clothing.

Rodents

Rodents should not be tolerated in the unit area; they can spread serious illness. Diseases may be contracted through rodent bites or scratches, transmitted by insects carried on rodents (such as fleas, ticks, or mites), or by contamination of food from rodent nesting or feeding. Personnel can minimize the risk of disease caused by rodents by:

- Maintaining a high state of sanitation throughout the unit area;
- Sealing openings 1/4 inch or greater to prevent rodents from entering unit areas;
- Avoiding inhalation of dust when cleaning previously unoccupied areas (mist these areas with water prior to sweeping; when possible, disinfect area using 3 ounces of liquid bleach per 1 gallon of water).
- Promptly removing dead rodents. Personnel should use disposable gloves or plastic bags over the hands when handling any dead animal and place the dead rodent/animal into a plastic bag prior to disposal.
- Seeking immediate attention if bitten or scratched by a rodent or if experiencing difficulty breathing or flu-like symptoms.

Insects

Exposure to harmful insects, ticks, and other pests is a year-round, worldwide risk. The following protective measures reduce the risk of insect and tick bites:

- Use DoD-approved insect repellents properly;
- Apply DEET on all exposed skin;
- Apply permethrin on clothing and bed nets;
- Tuck bed net under bedding; use bed net pole;
- Avoid exposure to living or dead animals;
- Regularly check for ticks;
- Discourage pests by disposing of trash properly; eliminate food storage in living areas; and
- Cover exposed skin by keeping sleeves rolled down when possible, especially during peak periods of mosquito biting (dusk and dawn); keep undershirts tucked into pants; tuck pant legs into boots.

Uniforms correctly treated with permethrin, using either the aerosol spray-can method (reapply after sixth laundering) or with the Individual Dynamic Absorption (IDA) impregnation kit (good for 6 months or the life of the uniform) will help minimize risks posed by insects. The date of treatment should be labeled on the uniform.

Bed nets should be treated with permethrin for protection against biting insects using either the single aerosol spray can method (treating two bed nets) or the unit's 2-gallon sprayer. All personnel should sleep under mosquito nets, regardless of time of day, ensure netting is tucked under bedding, and use poles to prevent bed nets from draping on the skin.

DoD-approved insect repellents are:

IDA KIT: NSN 6840-01-345-0237

Permethrin Aerosol Spray: NSN 6840-01-278-1336

DEET Insect Repellent: NSN 6840-01-284-3982

Hot Weather

If heat is a threat in the area, personnel should:

- Stay hydrated by drinking water frequently;
- Follow work-rest cycles;
- Monitor others who may have heat-related problems;
- Wear uniforms properly;
- Use a sun block (SPF 15 or higher), sunglasses, and lip balm;
- During hot weather, wear natural fiber clothing (such as cotton) next to the skin for increased ventilation;
- Seek immediate medical attention for heat injuries such as cramps, exhaustion, or stroke. Heat injuries can also occur in cold weather;
- Avoid standing in direct sunlight for long periods; be prepared for sudden drops in temperature at night, and construct wind screens if necessary to avoid blowing dust or sand.

Sunscreens:

Sunscreen lotion: NSN 6505-01-121-2336

Non-alcohol lotion base sunscreen: NSN 6505-01-267-1486

Work/Rest Table

Heat Cat	WBGT Index (° F)	EASY WORK		MODERATE WORK		HARD WORK	
		Work / Rest	Water Intake (Qt/Hr)	Work / Rest	Water Intake (Qt/Hr)	Work / Rest	Water Intake (Qt/Hr)
1	78 – 81.9	NL	1/2	NL	3/4	40/20 min	3/4
2	82 – 84.9	NL	1/2	50/10 min	3/4	30/30 min	1
3	85 – 87.9	NL	3/4	40/20 min	3/4	30/30 min	1
4	88 – 89.9	NL	3/4	30/30 min	3/4	20/40 min	1
5	> 90	50/10 min	1	20/40 min	1	10/50 min	1

The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specific heat category. Individual water needs will vary +/- (plus/minus) 1/4 qt/hr.

NL = no limit to work time per hour. Rest means minimal physical activity (sitting or standing) and should be accomplished in shade if possible.

Caution: Hourly fluid intake should not exceed 1 ½ quarts. Daily fluid intake should not exceed 12 quarts. Note: MOPP gear adds 10° to WBGT Index.

Food

High risk food items such as fresh eggs, unpasteurized dairy products, lettuce or other uncooked vegetables, and raw or undercooked meats should be avoided unless they are from U.S. military approved sources. Those who must consume unapproved foods should choose low risk foods such as bread and other baked goods, fruits that have thick peels (washed with safe water), and boiled foods such as rice and vegetables.

Human Waste

Military-approved latrines should be used when possible. If no latrines are available, personnel should bury all human waste in pits or trenches.

Cold Weather

If cold weather injuries are a threat in the area, personnel should:

- Drink plenty of fluids, preferably water or other decaffeinated beverages;
- Closely monitor others who have had previous cold injuries;
- Use well-ventilated warming tents and hot liquids for relief from the cold. Watch for shivering and increase rations to the equivalent of four MREs per day;
- Not rest or sleep in tents or vehicles unless well ventilated; temperatures can drop drastically at night;
- Dress in layers, wear polypropylene long underwear, and use sunglasses, scarf, unscented lip balm, sunscreen, and skin moisturizers;
- Insulate themselves from the ground with tree boughs or sleeping mats and construct windscreens to avoid unnecessary heat loss; and
- Remember that loss of sensitivity in any body part requires immediate medical attention.

WIND SPEED		COOLING POWER OF WIND EXPRESSED AS "EQUIVALENT CHILL TEMPERATURE"																														
KNOTS	MPH	TEMPERATURE (°F)																														
CALM	CALM	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	-80	-85	-90	-95			
EQUIVALENT CHILL TEMPERATURE																																
3 - 6	5	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	-80	-85	-90	-95				
7 - 10	10	30	20	15	10	5	0	-10	-15	-20	-25	-30	-35	-40	-45	-50	-60	-65	-70	-75	-80	-85	-90	-95	-100	-105	-110	-115	-120			
11 - 15	15	25	15	10	0	-5	-10	-20	-25	-30	-40	-45	-50	-60	-65	-70	-75	-80	-85	-90	-95	-100	-105	-110	-115	-120	-125	-130	-135			
16 - 19	20	20	10	5	0	-10	-15	-25	-30	-35	-45	-50	-60	-65	-70	-75	-80	-85	-90	-95	-100	-105	-110	-115	-120	-125	-130	-135	-140	-145		
20 - 23	25	15	10	0	-5	-15	-20	-30	-35	-45	-50	-60	-65	-70	-75	-80	-90	-95	-105	-110	-120	-125	-130	-135	-140	-145	-150	-155	-160			
24 - 28	30	10	5	0	-10	-20	-25	-30	-40	-50	-55	-65	-70	-80	-95	-95	-100	-110	-115	-125	-130	-140	-145	-150	-155	-160	-165	-170	-175	-180	-185	-190
29 - 32	35	10	5	-5	-10	-20	-30	-35	-40	-50	-60	-65	-75	-80	-90	-100	-105	-115	-120	-130	-135	-140	-145	-150	-155	-160	-165	-170	-175	-180	-185	-190
33 - 36	40	10	0	-5	-10	-20	-30	-35	-45	-55	-60	-70	-75	-85	-95	-100	-110	-115	-125	-130	-140	-150	-155	-160	-165	-170	-175	-180	-185	-190	-195	-200
Winds Above 40 MPH Have Little Additional Effect		LITTLE DANGER					INCREASING DANGER Flesh may freeze within 1 minute										GREAT DANGER Flesh may freeze within 30 seconds															

First Aid

Basic Lifesaving

Those caring for injured persons should immediately:

- Establish an open airway,
- Ensure the victim is breathing,
- Stop bleeding to support circulation,
- Prevent further disability,
- Place dressing over open wounds,
- Immobilize neck injuries,
- Splint obvious limb deformities, and
- Minimize further exposure to adverse weather.

Injuries and Care

Shock

- Symptoms:
 - Confusion
 - Cold, clammy skin
 - Sweating
 - Shallow, labored, and rapid breathing
 - Rapid pulse
- Treatment:
 - An open airway should be maintained.
 - Unconscious victims should be placed on their side.
 - Victims should be kept calm, warm, and comfortable.
 - Lower extremities should be elevated.
 - Medical attention should be sought as soon as possible.

Abdominal Wound

■ Treatment:

- Exposed organs should be covered with moist, clean dressing.
- Wound should be secured with bandages.
- Organs that have been displaced should never be reintroduced to the body.

Bleeding

■ Treatment:

- Direct pressure with hand should be applied; a dressing should be used if available.
- Injured extremity should be elevated if no fractures are suspected.
- Pressure points may be used to control bleeding.
- Dressings should not be removed; additional dressings may be applied over old dressings.

■ Tourniquet:

- **NOTE: Tourniquets should only be used when an injury is life threatening.**
- A 1-inch band should be tied between the injury and the heart, 2 to 4 inches from the injury, to stop severe bleeding; wire or shoe strings should not be used.
- Band should be tight enough to stop bleeding and no tighter.
- Once the tourniquet is tied, it should not be loosened.
- The tourniquet should be left exposed for quick visual reference.
- The time that the tourniquet is tied and the letter “T” should be written on the casualty’s forehead.

Eye Injury

Treatment:

- Embedded objects should not be removed; dressings should secure objects to prohibit movement.
- Bandages should be applied lightly to both eyes.
- Patients should be continuously attended.

Chest Wound

Symptoms:

- Sucking noise from chest
- Frothy red blood from wound

Treatment:

- Entry and exit wounds should be identified; wounds should be covered (aluminum foil, ID card).
- Three sides of the material covering the wound should be taped, leaving the bottom untaped.
- Victim should be positioned to facilitate easiest breathing.

Fractures

Symptoms:

- Deformity, bruising
- Tenderness
- Swelling and discoloration

Treatment:

- Fractured limb should not be straightened.
- Injury should be splinted with minimal movement of injured person.
- Joints above and below the injury should be splinted.
- If not in a chemical environment, clothing should be removed from injured area.
- Rings should be removed from fingers.
- Pulse should be checked below injury to determine blood flow restrictions.

Spinal, Neck, Head Injury

Symptom:

- Lack of feeling and/or control below neck

Treatment:

- Conscious victims should be cautioned to remain still.
- Airway should be checked without moving injured person's head.
- Victims who must be moved should be placed, without bending or rotating victim's head and neck, on a hard surface that would act as a litter (door, cut lumber).
- Head and neck should be immobilized.

Heat Injuries

Heat Cramps: Symptoms

- Spasms, usually in muscles or arms
- Results from strenuous work or exercise
- Loss of salt in the body
- Normal body temperature

Heat Exhaustion: Symptoms

- Cramps in abdomen or limbs
- Pale skin
- Dizziness, faintness, weakness
- Nausea or vomiting
- Profuse sweating or moist, cool skin
- Weak pulse
- Normal body temperature

Heat Stroke: Symptoms

- Headache
- Dizziness
- Red face/skin
- Hot, dry skin (no sweating)
- Strong, rapid pulse
- High body temperature (hot to touch)

Treatment:

- Victim should be treated for shock.
- Victim should be laid in a cool area with clothing loosened.
- Victim can be cooled by sprinkling with cool water or fanning (though not to the point of shivering).
- If conscious, victim may drink cool water (2 teaspoons of salt to one canteen may be added).
- Medical attention should be sought immediately; heat stroke can result in death.

Burns

Burns may be caused by heat (thermal), electricity, chemicals, or radiation. Treatment is based on depth, size, and severity (termed degree of burn). All burn victims should be treated for shock and seen by medical personnel.

Thermal/First Degree: Symptoms

- Skin reddens
- Painful

Treatment:

- Source of burn should be removed.
- Cool water should be applied to the affected area.

Thermal/Second Degree: Symptoms

- Skin reddens and blisters
- Very painful

Treatment:

- Source of burn should be removed.
- Cool water should be applied to the affected area.
- Blisters should not be broken.
- A dry dressing should cover the affected area.

Thermal/Third Degree: Symptoms

- Charred or whitish looking skin
- May burn to the bone
- Burned area not painful; surrounding area very painful

Treatment:

- Source of burn should be removed.
- Clothing that adheres to burned area should not be removed.
- A dry dressing should cover the affected area.

Electrical Burns

Treatment:

- Power source must be off.
- Entry and exit wounds should be identified.
- Burned area should be treated in accordance with its severity.

Chemical Burns

Treatment:

- Skin should be flushed with a large amount of water; eyes should be flushed for at least 20 minutes.
- Visible contaminants should be removed.
- Phosphorus burns should be covered with a wet dressing (prevents air from activating the phosphorous)

Cold Injuries

Hypothermia: Symptoms

- Body is cold under clothing
- Victim may appear confused or dead

Treatment:

- Victim should be moved to a warm place.
- Wet clothing should be removed; victim should be dressed in warm clothing or wrapped in a dry blanket.
- Body parts should not be rubbed.
- Victims must not consume alcoholic beverages.

Frostbite: Symptoms

- Skin appears white or waxy
- Skin is hard to the touch

Treatment:

- Victim should be moved to a warm place.
- Affected area should be warmed in 104 to 108° F (40° C) water for 15 to 30 minutes (NOT hot water).
- Affected area should be covered with several layers of clothing.
- Affected area must not be rubbed.
- Victim must seek medical attention.

Emergency Life-Saving Equipment

Equipment may be improvised when necessary. Following is a list of possible uses for commonly found items.

- Shirts = Dressings/Bandages
- Belts, Ties = Tourniquets, Bandages
- Towels, Sheets = Dressings/Bandages
- Socks, Panty Hose, Flight cap = Dressings/Bandages
- Sticks or Tree Limbs = Splints
- Blankets = Litters, Splints
- Field Jackets = Litters
- BDU Shirts = Litters/Splints
- Ponchos = Litters/Bandages
- Rifle Sling = Bandages
- M-16 Heat Guards = Splints

APPENDIX H: **Individual Protective Measures**

Security Threats

Individual protective measures are the conscious actions which people take to guard themselves against physical harm. These measures can involve simple acts such as locking your car and avoiding areas where crime is rampant. When physical protection measures are combined they form a personal security program, the object of which is to make yourself a harder target. The following checklists contain basic individual protective measures that, if understood and followed, may significantly reduce your vulnerability to the security threats overseas (foreign intelligence, security services, and terrorist organizations). If you are detained or taken hostage, following the measures listed in these checklists may influence or improve your treatment.

Foreign Intelligence and Security Services

- Avoid any actions or activities that are illegal, improper, or indiscreet.
- Guard your conversation and keep sensitive papers in your custody at all times.
- Take it for granted that you are under surveillance by both technical and physical means, including:
 - Communications monitoring (telephone, telex, mail, and radio)
 - Photography
 - Search
 - Eavesdropping in hotels, offices, and apartments
- Do not discuss sensitive matters:
 - On the telephone
 - In your room
 - In a car, particularly in front of an assigned driver

- Do not leave sensitive personal or business papers:
 - In your room
 - In the hotel safe
 - In a locked suitcase or briefcase
 - In unattended cars, offices, trains, or planes
 - Open to photography from the ceiling
 - In wastebaskets as drafts or doodles
- Do not try to defeat surveillance by trying to slip away from followers or by trying to locate “bugs” in your room. These actions will only generate more interest in you. If you feel you are under surveillance, act as naturally as possible, go to a safe location (your office, hotel, U.S. Embassy), and contact your superior.
- Avoid offers of sexual companionship. They may lead to a room raid, photography, and blackmail. Prostitutes in many countries report to the police, work for a criminal organization, or are sympathetic to insurgent or terrorist organizations; in other words, are anti-U.S. Others may be employed by an intelligence service.
- Be suspicious of casual acquaintances and quick friendships with local citizens in intelligence/terrorist threat countries. In many countries, people tend to stay away from foreigners and do not readily or easily make contact. Many who actively seek out friendships with Americans may do so as a result of government orders or for personal gain.

In your personal contacts, follow these guidelines:

- Do not attempt to keep up with your hosts in social drinking.
- Do not engage in black market activity for money or goods.
- Do not sell your possessions.
- Do not bring in or purchase illegal drugs.
- Do not bring in pornography.

- Do not bring in religious literature for distribution. (You may bring one Bible, Koran, or other religious material for your own personal use.)
- Do not seek out religious or political dissidents.
- Do not take ashtrays, towels, menus, glasses, or other mementos from hotels or restaurants.
- Do not accept packages, letters, etc., from local citizens for delivery to the U.S.
- Do not make political comments or engage in political activity.
- Do not be lured into clandestine meetings with would-be informants or defectors.
- Be careful about taking pictures. In some countries it is unwise to take photographs of scenes that could be used to make unfavorable comparisons between U.S. and local standards of living or other cultural differences. Avoid taking any photographs from moving buses, trains, or aircraft.

The following picture subjects are clearly prohibited in most countries where an intelligence or terrorist/insurgent threat is evident:

- Police or military installations and personnel
- Bridges
- Fortifications
- Railroad facilities
- Tunnels
- Elevated trains
- Border areas
- Industrial complexes
- Port complexes
- Airports

Detention

Most intelligence and security services in threat countries detain persons for a wide range of real or imagined wrongs. The best advice, of course, is to do nothing that would give a foreign service the least reason to pick you up. If you are arrested or detained by host nation intelligence or security, however, remember the following:

- Always ask to contact the U.S. Embassy. You are entitled to do so under international diplomatic and consular agreements, to which most countries are signatories.
- Phrase your request appropriately. In Third World countries, making demands could lead to physical abuse.
- Do not admit to wrongdoing or sign anything. Part of the detention ritual in some threat countries is a written report you will be asked or told to sign. Decline to do so, and continue demanding to contact the Embassy or consulate.
- Do not agree to help your detainer. The foreign intelligence or security service may offer you the opportunity to help them in return for releasing you, foregoing prosecution, or not informing your employer or spouse of your indiscretion. If they will not take a simple no, delay a firm commitment by saying that you have to think it over.
- Report to your supervisor immediately. Once your supervisor is informed, the Embassy or consulate security officer needs to be informed. Depending on the circumstances and your status, the Embassy or consulate may have to provide you assistance in departing the country expeditiously.
- Report to your unit's security officer and your service's criminal investigative branch upon returning to the U.S. This is especially important if you were unable to report to the Embassy or consulate in country. Remember, you will not be able to outwit a foreign intelligence organization. Do not compound your error by betraying your country.

Foreign Terrorist Threat

Terrorism may seem like mindless violence committed without logic or purpose, but it is not. Terrorists attack soft and undefended targets, both people and facilities, to gain political objectives they see as out of reach by less violent means. Many of today's terrorists view no one as innocent. Thus, injury and loss of life are justified as acceptable means to gain the notoriety generated by a violent act in order to support their cause.

Because of their distinctive dress, speech patterns, and outgoing personalities, Americans are often highly visible and easily recognized when they are abroad. The obvious association of U.S. military personnel with their government enhances their potential media and political worth as casualties or hostages. Other U.S. citizens are also at risk, including political figures, police, intelligence personnel, and VIPs (such as businessmen and celebrities).

Therefore, you must develop a comprehensive personal security program to safeguard yourself while traveling abroad. An awareness of the threat and the practice of security procedures like those advocated in crime prevention programs are adequate precautions for the majority of people. While total protection is impossible, basic common sense precautions such as an awareness of any local threat, elimination of predictable travel and lifestyle routines, and security consciousness at your quarters or work locations significantly reduce the probability of success of terrorist attacks.

To realistically evaluate your individual security program, you must understand how terrorists select and identify their victims. Terrorists generally classify targets in terms of accessibility, vulnerability, and political worth (symbolic nature). These perceptions may not be based on the person's actual position, but rather the image of wealth or importance they represent to the public. For each potential target, a risk versus gain assessment is conducted to determine if a terrorist can victimize a target without ramifications to the terrorist organization. It is during this

phase that the terrorist determines if a target is “hard or soft.” A hard target is someone who is aware of the threat of terrorism and adjusts his personal habits accordingly. Soft targets are oblivious to the threat and their surroundings, making easy targets.

Identification by name is another targeting method gathered from aircraft manifests, unit/duty rosters, public documents (Who's Who or the Social Register), personnel files, discarded mail, or personal papers in trash. Many targets are selected based upon their easily identifiable symbols or trademarks, such as uniforms, luggage (seabags or duffle bags), blatant national symbols (currency, tatoos, and clothing), and decals and bumper stickers.

Travel Security

Travel on temporary duty (TAD/TDY) abroad may require you to stay in commercial hotels. Being away from your home duty station requires increasing your security planning and awareness; this is especially important when choosing and checking into a hotel and during your residence there.

The recent experiences with airport bombings and airplane hijacking suggest some simple precautions:

- You should not travel on commercial aircraft outside the continental U.S. in uniform.
- Prior to traveling by commercial aircraft, you should screen your wallet and other personal items, removing any documents (that is, credit cards, club membership cards, etc.) which would reveal your military affiliation.

NOTE: Current USMC policy requires service members to wear two I.D. tags with metal necklaces when on official business. Also, the current I.D. card must be in possession at all times. These requirements include travel to or through terrorist areas. In view of these requirements, the service member must be prepared to remove and

conceal these and any other items which would identify them as military personnel in the event of a skyjacking.

- You should stay alert to any suspicious activity when traveling. Keep in mind that the less time spent in waiting areas and lobbies, the better. This means adjusting your schedule to reduce your wait at these locations.
- You should not discuss your military affiliation with anyone during your travels because it increases your chances of being singled out as a symbolic victim.
- In case of an incident, you should not confront a terrorist or present a threatening image. The lower profile you present, the less likely you will become a victim or bargaining chip for the terrorists, and your survivability increases.

Hostage Situation

The probability of anyone becoming a hostage is very remote. However, as a member of the Armed Forces, you should always consider yourself a potential hostage or terrorist victim and reflect this in planning your affairs, both personal and professional. You should have an up-to-date will, provide next of kin with an appropriate power-of-attorney, and take measures to ensure your dependents' financial security if necessary. Experience has shown that concern for the welfare of family members is a source of great stress to kidnap victims.

Do not be depressed if negotiation efforts appear to be taking a long time. Remember, chance of survival actually increases with time. The physical and psychological stress experienced while a hostage, could seem overpowering, but the key to your well-being is to approach captivity as a mission. Maintaining emotional control, alertness, and introducing order into each day of captivity will ensure your success and survival with honor.

During interaction with captors, maintaining self respect and dignity can be keys to retaining status as a human being in the captor's eyes. Com-

plying with instructions, avoiding provocative conversations (political, religious, etc.), and establishing a positive relationship will increase survivability. Being polite and freely discussing insignificant and nonessential matters can reinforce this relationship. Under no circumstance should classified information be divulged. If forced to present terrorist demands to the media, make it clear that the demands are those of the captor and that the plea is not made on your behalf. You must remember that you are an American service member; conduct yourself with dignity and honor while maintaining your bearing.

Hostages sometimes are killed during rescue attempts; consequently, you should take measures to protect yourself during such an action. Drop to the floor immediately, remain still and avoid any sudden movement; select a safe corner if it offers more security than the floor. Do not attempt to assist the rescuing forces but wait for instructions. After the rescue, do not make any comment to the media until you have been debriefed by appropriate U.S. authorities.

APPENDIX I: Dangerous Animals and Plants

Snakes

European Viper, Common Adder

Description:

Adult length usually 0.5 to 0.6 meter; maximum of 0.9 meter. Stout snake with slightly flattened body. Background varies by



geographic location. Dorsal color varies from gray to copper to brown, or uniformly black with dark, heavy zigzag strip pattern. Belly gray, brown, or black; sometimes marked with white spots. Tip of tail yellow, orange, or reddish orange. Snout broadly rounded but not clearly upturned as in some other European vipers. May have X-shaped or inverted V-shaped mark on head.

Habitat:

Found in rocky or bushy hillsides, open fields, woods, shady areas, moors, swamps, marshes, bogs, lakes and rivers. In northern parts of region, found mainly at sea level but also up to 2,700 meters (8,800 feet). Can tolerate coldest environment of any viper species.

Activity and Behavioral Patterns:

Active during the day in colder months; largely nocturnal during warmer months. Generally not vicious or aggressive. Tends to freeze in place when danger is present; however, easily alarmed and bites if threatened or stepped on. Usually lives in colonies near suitable hibernation sites.

Venom's effects:

Hemotoxic; also some neurotoxic activity. Causes sharp pain or severe burning at site of bite, followed by swelling and inflammation of lymph system. Victim usually develops nausea, headaches, vomiting, chest pain, and labored breathing. Fatalities reported.

Arthropods

Scorpions

There is no data available regarding the presence of life-threatening scorpions in the region.

Spiders

Although there are several spider species in the region that are capable of inflicting a painful bite, none are known to be life-threatening.

Insects

There is little specific information of medical importance regarding insects. However, nearly all countries have at least one species of moth having venomous or urticating hairs or whose larva (caterpillar) has venomous spines. Some caterpillars are very hairy (such as puss moths and flannel moths) and almost unrecognizable as caterpillars, with long silky hairs completely covering the shorter venomous spines. Others bear prominent clumps of stiff, venomous spines on an otherwise smooth body. Contact with these caterpillars, some of which are brightly colored, can be very painful.

Paederus are small (usually 4 to 7 millimeters [.25 inches]), slender rove beetles that do not look like typical beetles and have very short wing covers which expose most of their flexible abdomens. When crushed, their body fluid contains an agent that will blister skin on contact. The lesions take about a week to heal and the area remains painful for 2 weeks. The substance is extremely irritating if it gets into the eyes; temporary blindness has been reported.

Centipedes

Although area centipedes are capable of inflicting a painful bite, none are known to be life-threatening.



Millipedes

Millipedes do not bite and in general are harmless to humans. However, when handled, some larger millipedes (may be more than 50 millimeters [2 inches] long) secrete a very noxious fluid that can cause severe blistering upon contact; some can squirt this fluid at least 2 feet.

Plants

Monkshood

Other names:

Wolfsbane, aconite, bikh, badger's bane.



Mechanisms of toxicity:

Toxic (entire plant) by ingestion or percutaneous absorption. Aconite is a medicinal made from the dried root containing an extremely toxic alkaloid known as aconitine (a steroid alkaloid); may also have quinoline alkaloids. Root has been mistaken for horseradish. Can cause instantaneous death in high doses. Fatal cardiac dysrhythmias has occurred after eating one teaspoonful of dried root. Percutaneous absorption has resulted in paresthesias of the lips followed by cardiac toxicity. Ingestion is followed almost immediately by oropharyngeal pain and burning. Can cause dermatitis. Extracts of this plant have been used in arrow poisons.

Comments:

Genus includes 100 northern temperate species; presumably all contain alkaloids. Monkshood is a northern European species; a perennial herb, 2 to 6 feet in height, with thick, black, tuberous rootstock; bears blue flowers. Found in fields, woods, and along roadsides and is cultivated in gardens. Seed pods contain numerous tiny seeds. Bikh is found in northern India. Badger's bane is an herb with tuberous roots known in subtropical and temperate areas of China, where it is used medicinally despite the toxicity.

Cohosh/baneberry

Other names:

White, black, and red cohosh/baneberry, doll's eyes, grapewort, snakeberry, necklace weed.



Mechanisms of toxicity:

All parts contain an innocuous glycoside that is metabolized to form the aglycone protoanemonin, a volatile, irritant oil. As few as six berries have caused severe symptoms (gastroenteritis, hematuria, and occasional circulatory collapse) for many hours. Handling can cause irritant dermatitis with vesiculation, severe eye irritation; ingestion can result in death.

Comments:

Perennial herbs having a berry-like fruit found in fields, deciduous forests, and along roadsides.

Chervil

No Photograph Available.

Mechanisms of toxicity:

Poisoning similar to hemlock and fool's parsley; piperidine colatile alkaloids exhibit nicotinic activity and have a curare-like effect.

Comments:

Drying of the plant results in decreased toxicity. Poisoning has occurred by mistaking the plant for parsley.

Agave

Other names:

Century plant, maguey.

Mechanisms of toxicity:

American species are inedible; irritating sap.

Comments:

Family has 650 species of tropical and subtropical regions — widely cultivated, thick-stemmed plants with confusing, controversial taxonomy. Its long and narrow leaves have spiny edges. Uses include ornamentals, medicinals, food sources (cooked in tortillas; heart or bud is edible); source of pulque (a fermented beverage) or mexal (a type of brandy); used as fiber source for paper.



Belladonna

Other name:

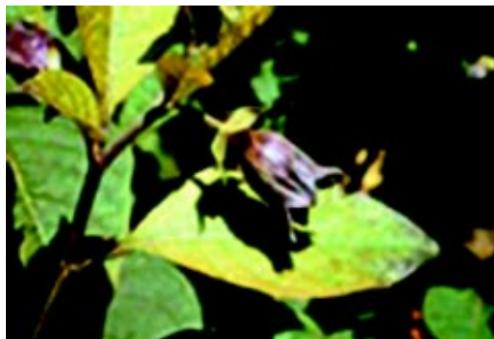
Nightshade.

Mechanisms of toxicity:

Berries, leaves, and roots contain tropane alkaloids that can cause death from anticholinergic poisoning.

Comments:

Perennial plants to 3 feet high. Native to Eurasia and North Africa.



Poison Hemlock

Other names:

Spotted hemlock,
fool's parsley.

Mechanisms of toxicity:

Quickly fatal potential. The leaves and unripe fruits have the piperide alkaloids coniine and coniceine with highest concentrations in the seeds and roots. Drying of the plant results in decreased toxicity. One mouthful of the root has caused death after a period of nervousness (within 30 minutes), nausea and vomiting, diarrhea, and respiratory failure.



Comments:

A biennial herb that resembles a carrot; smooth, spotted stems; foul odor. Naturalized in waste and marshy areas; native in temperate Eurasia. *C. chaerophyllum* appears to be an unspotted version of the former; noted in South Africa.

Croton

Other names:

Ciega-vista, purging croton.

Mechanisms of toxicity:

Long-lasting vesicular dermatitis results from contact with the toxic resin. The cathartic and purgative properties of the toxins (croton oil, a phorbol, in leaves, stems, and seeds) causes severe gastroenteritis, even death; 20 drops potentially lethal (the oil



applied externally will blister the skin). Many members covered with hundreds of sticky hairs that cling to the skin if contacted. Contact with the eyes can be very serious.

Comments:

Croton is a wooly-haired annual herb, evergreen, or small tree with smooth, ash-colored bark, yellow-green leaves, small flowers, and fruit.

Lily of the Valley



Mechanisms of toxicity:

Contains more than 20 cardiac glycosides (e.g. convallatoxin). Quickly fatal potential. Has caused death; children are attracted to its pretty flowers and bright berries; poisonings have occurred from drinking water from a vase in which flowers were placed. Has been mistaken for wild garlic and made into soup. Used as an arrow poison in Africa.

Comments:

Dried roots made into many medicinals, especially in Russia.

Snake's Head

No Photograph Available

Other names:

Guinea flower, crown imperial.

Mechanisms of toxicity:

Many contain veratrum alkaloids, used in some areas as medicinals.

Comments:

Genus has 100 species from western Europe and the Mediterranean to eastern Asia, but few have been implicated as etiology of dermatitis.

Spurge Laurel

Other names:

February daphne, mezereon.

Mechanisms of toxicity:

Bark, leaves, and fruit contain toxic agents. Entire plant is toxic. Resin is acrid; has been used in the past as pepper substitute, with fatal consequences. Vesicular dermatitis when skin contact is made (extract used by beggars to induce skin lesions to arouse pity).



Comments:

A very dangerous ornamental. A folk remedy for many symptoms (dropsy, neuralgia, snakebite, etc.).

Jimsonweed

Other names:

Thorn-apple, stinkweed, devil's trumpet.

Mechanisms of toxicity:

The entire plant is toxic because of tropane alkaloids. Fragrance from the flowers may cause respiratory irritation, and the sap can cause contact dermatitis. People have been poisoned through consumption of crushed seeds accidentally included in flour; also through attempting to experience the hallucinogenic high. In particular, jimsonweed has a quickly fatal potential.



Comments:

Originally called Jamestown weed because of the historic mass poisoning of soldiers sent to quell Bacon's rebellion in 1666; they ate the seeds during a severe food shortage. Often confused with angel's trumpet.

Mole Plant

Other names:

Caper spurge, Mexican fire plant, milkweed, red spurge, poison spurge, mala mujer, cypress spurge, cat's milk, wart-wort, sun spurge, candelabra cactus, Indian spurge tree, milkwood, pencil tree, pencil cactus, rubber euphorbia.



Mechanisms of toxicity:

Herbs, often with colored or milky sap, containing complex terpenes; irritate the eyes, mouth, and gastrointestinal tract, and may cause dermatitis by direct contact. In some cases, rain water dripping from the plant will contain enough toxic principle to produce dermatitis and keratoconjunctivitis; can blind. Some contain urticating hairs (skin contact breaks off ends and toxic chemicals are injected). The caper spurge has killed those who mistook the fruit for capers. The Mexican fire plant was known for having medicinal properties in the 1st century and has killed children. Red spurge causes dermatitis. The pencil cactus has an abundant, white, acrid sap extremely irritating to the skin; has caused temporary blindness when accidentally splashed in the eyes, and has killed as a result of severe gastroenteritis after ingestion.

Comments:

Approximately 2,000 species of extremely variable form; may appear as herbs, shrubs, or trees — many are cactus-like. Fruit is usually a capsule opening in three parts, each one seeded; sometimes a drupe.

Spindle Tree

Other names:

Burning bush, wahoo.

Mechanisms of toxicity:

Spindle tree is the most toxic member of the genus. The flowers are yellow-green; the attractive pink (or orange-red) drupes are enticing but have phyllorhodin, several cardiac glycosides, and other unknown substances as the toxic principles, which cause symptoms 10-12 hours after ingestion - bloody diarrhea, nausea and vomiting, fever, hallucinations, somnolence, eventual coma, and seizures.



Comments:

Deciduous or evergreen shrubs or trees; fruit a three-to five-valved, brightly-colored capsule dehiscing to expose bird-dispersed to scarlet to orange seeds. Other species of this group should be considered toxic.

Black Henbane

Other names:

Insane root, fetid nightshade.

Mechanisms of toxicity:

Old, well-known medicinal and deadly poison (hyoscyamine, atropine) with uses in many cultures. Tropine alkaloids in the seeds (in a pod); has resulted in death; dermatitis (low risk).



Comments:

Erect, hairy annual with coarse, hairy stems 1-5 feet tall; native to Europe. Found in weed communities along roadsides in nutrient-rich

sandy soils and loam. Has dusky yellow flowers with violet veins. Fruits capsules contain black seeds (can be confused with poppy seeds).

Cow Parsnip

Other names:

Wild rhubarb, giant hogweed, hogweed.

Mechanisms of toxicity:

Many species within this genus contain furocoumarins; roots and rind have phototoxic sap resulting in acute bullous dermatitis a few hours to two days after contact if then exposed to the sun, followed by pigmentation (may take months to years to disappear).



Annual/French Mercury

No Photograph Available

Other names:

Dog's mercury.

Mechanisms of toxicity:

Native to Europe; entire plant is toxic. Has been mistaken for edible greens. Emetic and purgative. Has proven fatal.

Comments:

Dye source; carpeting rhizome herb typical of disturbed woodland.

Herb Paris

No Photograph Available.

Mechanisms of toxicity:

Narcotic in large doses, producing abdominal pain, delirium, seizures; has caused fatalities in children.

Comments:

Common in Europe.

Heliotrope

Other names:

Cherry pie, scorpion's tail, Indian heliotrope.

Mechanisms of toxicity:

Contains pyrrolizidine alkaloids. Cause of large epidemics (Afghanistan, India) of illness following ingestion of bread made with contaminated flour. The pathologic effects (Budd-Chiari syndrome) take weeks to months, and death comes slowly over years. Chronic copper poisoning has occurred associated with this plant.

Comments:

A large genus worldwide (250 tropical and temperate trees and shrubs).



Christmas Rose

Other names:

Hellebore, stinking helleborus, bear's foot, green hellebore.

Mechanisms of toxicity:

An ancient medicinal, reportedly used as a chemical weapon over 2000

years ago. Alkaloids are very toxic and have a burning taste. The rootstocks and leaves contain cardiac and saponin glycosides and protoanemonin as the main toxic elements.

Comments:

The hellebores are native to Europe but are naturalized in many areas.



Golden Chain/Rain

Mechanisms of toxicity:

All parts of this species are poisonous. Beans are cooked for food (boiled with several changes of water) in the tropics. Cytisine is the toxic principle, particularly concentrated in the seeds and bark. Excreted in cow's milk — poisoning may occur after milk ingestion. Has proven fatal.



Comments:

Cultivated ornamental trees and shrubs with timber as hard as ebony. Native to southern Europe.

Coffeeberry

Other names:

Alder buckthorn, common buckthorn, cascara.

Mechanisms of toxicity:

The fresh bark is recognized as a particularly strong laxative. There are reports of deaths in children after ingesting buckthorn berries.



Comments:

Cascara bark is source of American cascara. Of low relative toxicity, requires chronic use to result in chronic diarrhea and/or melanin pigmentation of the mucous membranes of the colon. Freshly prepared cascara products contain anthrones and can cause severe vomiting and intestinal cramping. Bark should be stored for at least a year before use or detoxified with heat to reduce the presence of anthrones.

Poison Ivy

Other names:

Manzanillo, Japanese wax or tallow tree, scarlet rhus, sumac, western poison oak, eastern poison oak, poison sumac, Chinese lacquer tree.

Mechanisms of toxicity:

All contain allergenic, nonvolatile oils known as urushiol in the resin canals; these oils are highly sensitizing (delayed, type IV sensitivity) for some individuals.



Comments:

All species are deciduous and the leaves turn red before being shed. Poison ivy is a climbing or trailing vine with trifoliate, alternate leaves smooth above and hairy beneath. Poison oak is never a climbing shrub, alternately three-leaved, smooth above and hairy beneath. Found in disturbed areas and along trails in North America. Is a common source of dermatitis. Poison sumac is a shrub or small tree with 7 to 13 alternate leaflets, and is found in swampy areas of North America. Very few cases of dermatitis are caused by this species as it inhabits isolated areas and few people are exposed to it. Some individuals suffer intense, debilitating reactions from contact with the sensitizing chemicals.

Whorled Solomon's Seal

No Photograph Available.

Mechanisms of toxicity:

Although not known as a highly toxic group, genus contains saponins, volatile oils, and tannic acid. Dermatitis is the most common symptom after handling or eating. Fruits are toxic (saponins), similar to herb paris. Ingestion results in vomiting, oral pain, and diarrhea.

Black Nightshade

Other names:

Deadly or common nightshade, horse nettle, bitter-sweet, Jerusalem cherry, nipple fruit, quena, wild tomato, apple of Sodom, white-edged nightshade.



Mechanisms of toxicity:

The fruit of the Jerusalem cherry is a black berry; the fully ripe berries are eaten; unripe berries contain solanine alkaloids, which can cause gastroenteritis, weakness, circulatory depression, and death.

Comments:

Approximately 2,000 species of herbs, vines, shrubs covered with small, star-shaped hairs. Perfect white, yellow, or blue flowers. Berries have dry or juicy pulp and several seeds.

Burn Bean

No Photograph Available.

Other names:

Colorines, mescal bean, red hots, necklace pod sophora, silverbush, pagoda tree.

Mechanisms of toxicity:

Dark to bright red beans in woody pods produce hallucinogenic effects when eaten; used by American Indians before peyote was discovered. Seeds and flowers are very poisonous, causing convulsions; has caused death. One seed can kill a child. Cytisine acts much like a nicotinic ganglionic stimulation agent.

Comments:

Fruit is source of a yellow dye. Dried flowers are sold as medicinal in Indonesia; used for bleeding problems.

Stinging Nettle

Other names:

Roman nettle, dog or small nettle.

Mechanisms of toxicity:

Brushing against the plant shears off a protective cap from siliceous stinging hairs, puncturing skin. After puncture, an irritant liquid is released that can contain several inflammatory mediators including alkaloids, histamine, acetylcholine, and 5 hydroxytryptamine. The term urticaria, describing the characteristic skin eruption, is derived from the genus name. Thought to be a defense against browsing animals; usually



does not involve a hypersensitivity reaction. Stinging can persist for more than 12 hours after clinical features of urticaria have disappeared. This persistence is due to secondary release of inflammatory mediators, or persistence of implanted hairs.

Comments:

Genus of 30 species, usually perennial, single-stalked herbs less than a foot high, found in northern temperate areas. The tender tips are used as a vegetable in some areas; simmering renders stingers ineffective.

English Yew

Other names:

Ground hemlock, American yew, Japanese yew.

Mechanisms of toxicity:

Taxine A and B, classed as steroid alkaloids, are present in all



plant parts except the aril. A single chewed seed is deadly. An hour after ingestion, nausea, dizziness, and abdominal pain begin. This is followed by reddening of the lips, dilation of the pupils, shallow breathing, tachycardia, and coma. Then the pulse slows, blood pressure drops, and death occurs through respiratory paralysis. No proven treatment exists. Emptying the stomach hours after ingestion may be helpful as leaves may not pass through the GI tract expeditiously. Various clinical measures (circulatory stimulants, artificial respiration, cardiac pacemaker) have not prevented death in suicide cases.

Comments:

An evergreen shrub or small tree bearing a characteristic fleshy, red, sweet-tasting aril with a single green to black, partly exposed, hard-shelled seed within. In North America, the Japanese yew, the toxicity of which may exceed that of the English yew, has repeatedly caused fatal animal poisonings. Was once known as the tree of death.

APPENDIX J: International Telephone Codes

International Telephone Codes

Algeria	213	Malta	356
Australia	61	Mexico	52
Austria	43	Morocco	212
Bahrain	973	Netherlands	31
Belgium	32	Nigeria	234
Brazil	55	New Zealand	64
Canada	1	Norway	47
China	86	Oman	968
Cyprus	357	Philippines	63
Denmark	45	Portugal	351
Djibouti	253	Qatar	974
Egypt	20	Republic of Korea	82
Ethiopia	251	Saudi Arabia	966
Finland	358	Senegal	221
France	33	Seychelles	248
Gabon	241	Singapore	65
Germany	49	Somalia	252
Greece	30	South Africa	27
Hawaii	1	Spain	34
Hong Kong	852	Sweden	46
Indonesia	62	Switzerland	41
Iran	98	Syria	963
Iraq	964	Taiwan	886
Ireland	353	Tanzania	255
Israel	972	Thailand	66
Ivory Coast	225	Tunisia	216
Japan	81	Turkey	90
Jordan	962	UAE	971
Kenya	254	United Kingdom	44
Kuwait	965	United States	1
Libya	218	Yemen	967
Madagascar	261	Zambia	260
Malaysia	60	Zimbabwe	263
AT&T (public phones)	0072-911 or 0030-911	On-base	550-HOME or 550-2USA

Notes

Notes