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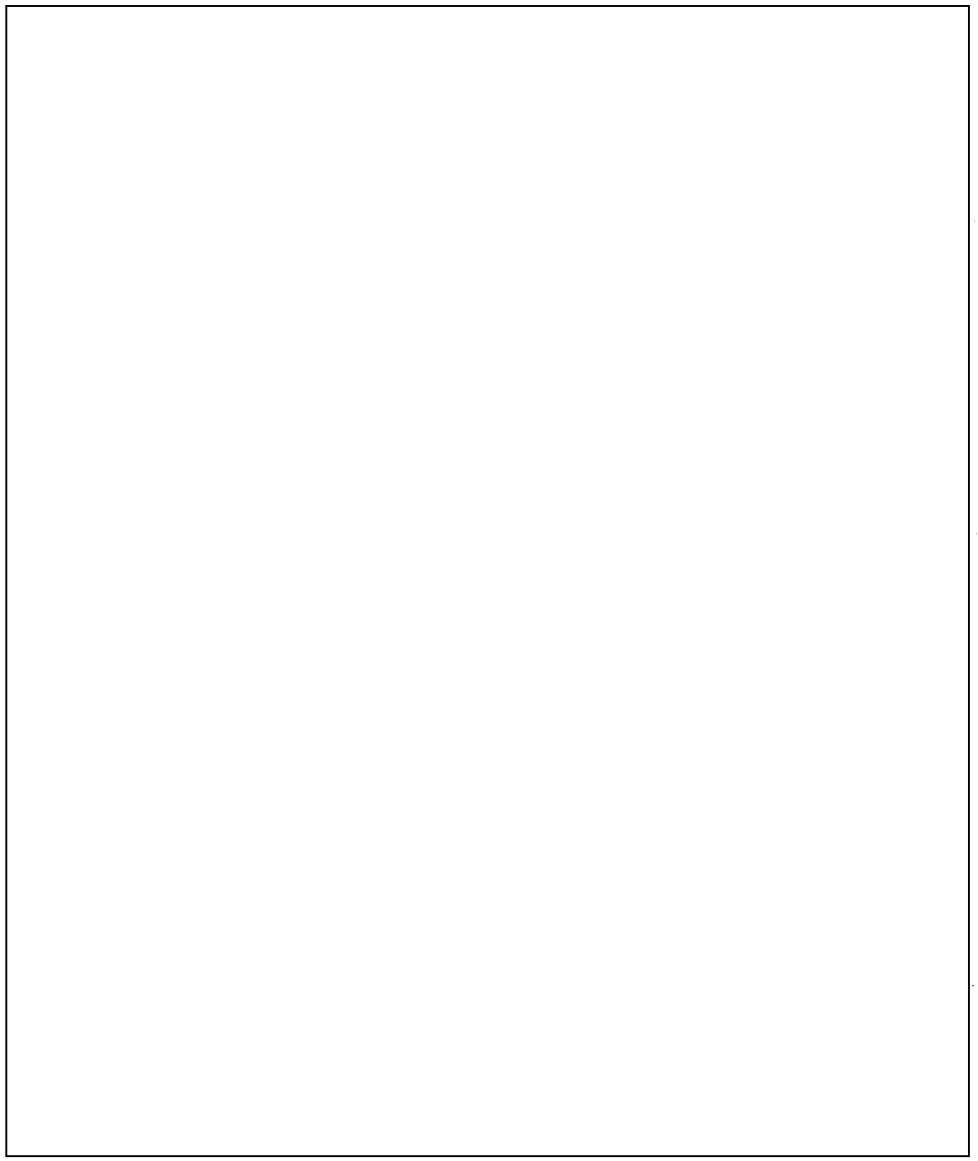
KEY JUDGMENTS: IRAQI BALLISTIC MISSILE DEVELOPMENTS [ ]:

IRAQ HAS THE MOST AGGRESSIVE AND ADVANCED BALLISTIC MISSILE PROGRAM IN THE ARAB WORLD. IN 1988 IT MODIFIED ITS SOVIET-SUPPLIED SCUD B MISSILES TO REACH AT LEAST 600 KM--TWICE THE NORMAL RANGE--AND IT CURRENTLY IS PUSHING FOR INDIGENOUS PRODUCTION OF SEVERAL OTHER MISSILES, INCLUDING THE 750- TO 1,000-KM-RANGE CONDOR II AND AN EXTENDED-RANGE VERSION OF THE SCUD B. [ ]



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1. KEY JUDGMENTS: IRAQI BALLISTIC MISSILE DEVELOPMENTS [ ]:
THE FOLLOWING KEY JUDGMENTS ARE REPRINTED FROM A RECENTLY

PUBLISHED INTELLIGENCE ASSESSMENT PRODUCED BY THE OFFICE OF SCIENTIFIC AND WEAPONS RESEARCH.

IRAQ HAS THE MOST AGGRESSIVE AND ADVANCED BALLISTIC MISSILE DEVELOPMENT PROGRAM IN THE ARAB WORLD. IT ALREADY POSSESSES TWO MISSILES--IRAQI-MODIFIED SOVIET SCUD B'S CALLED THE AL HUSAYN AND THE AL ABBAS--CAPABLE OF REACHING TEL AVIV OR TEHRAN, TARGETS SOME 600 KM AWAY. SEEKING AN INDIGENOUS MISSILE PRODUCTION CAPABILITY, IRAQ ALSO HAS DEVELOPMENT WELL UNDER WAY OF FIVE OTHER MISSILES CAPABLE OF GREATER RANGES AND PAYLOADS.

FOREIGN ASSISTANCE IS CRITICAL TO IRAQ'S EFFORT. WITH IT, PRODUCTION OF ONE OR MORE OF IRAQ'S NEW MISSILES COULD POSSIBLY BEGIN DURING THE EARLY 1990S. OTHERWISE, PRODUCTION COULD BE DELAYED INTO THE MID-TO-LATE 1990S. IRAQ REALIZES THIS DEPENDENCE AND IS WORKING TO BECOME SELF-SUFFICIENT AND TO WEAN ITSELF FROM FOREIGN SUPPORT--INCLUDING MOSCOW, ITS ONLY SUPPLIER OF SCUD B MISSILES.

IRAQ HAS ACQUIRED MOST OF ITS MISSILE DEVELOPMENT AND PRODUCTION INFRASTRUCTURE IN LESS THAN THREE YEARS. WITH WEST EUROPEAN DESIGN AND TECHNICAL ASSISTANCE, IT HAS BUILT OVER 70 BUILDINGS NEEDED TO PRODUCE AND TEST MAJOR MISSILE COMPONENTS AND TO DEVELOP AND PRODUCE SUBCOMPONENTS. AT THE HEART OF THIS EFFORT ARE TWO EXTENSIVE CONSTRUCTION PROJECTS, PROJECT 395 AND SA'AD 16, WHICH INCLUDE FACILITIES FOR SOLID-PROPELLANT PRODUCTION, FOR ROCKET MOTOR PRODUCTION AND TESTING, FOR GUIDANCE AND CONTROL SYSTEMS DEVELOPMENT AND PRODUCTION, AND FOR MISSILE INTEGRATION. IRAQ STILL DEPENDS ON FOREIGN SUPPLIERS FOR SOME RAW MATERIALS BUT IS PURSUING PRODUCTION FACILITIES FOR THESE MATERIALS IN ITS DRIVE FOR SELF-SUFFICIENCY. SEVERAL GOVERNMENT ORGANIZATIONS--ESPECIALLY THE TECHNICAL CORPS FOR SPECIAL PROJECTS AND THE NASSR STATE ENTERPRISE FOR MECHANICAL INDUSTRIES--CONTINUE TO SEEK ADDITIONAL EQUIPMENT AND MATERIALS TO SUPPORT IRAQ'S MISSILE PROGRAM.

IRAQ HAS BASED ITS MISSILE PROGRAM ON A DIVERSIFIED ACQUISITION STRATEGY, WITH LOW-RISK AND HIGH-RISK DEVELOPMENT PROJECTS RUNNING IN PARALLEL. AT THE LOW-RISK END, THREE OF THE FIVE MISSILES UNDER DEVELOPMENT--THE DOMESTIC VARIANTS OF THE AL HUSAYN AND THE AL ABBAS AND THE TAMUZ I--ARE DERIVED FROM BASIC, PROVEN SCUD B TECHNOLOGY. THE OTHER TWO--THE CONDOR II AND THE AL HAMZA--USE MORE ADVANCED WESTERN PROPULSION AND GUIDANCE TECHNOLOGY. ALL OF THESE DEVELOPMENTS ARE BASED ON FOREIGN TECHNOLOGY AND DESIGN. WE BELIEVE IRAQ WILL NOT BE ABLE TO DESIGN ITS OWN MISSILES FOR A LEAST FIVE TO 10 YEARS.

CONDUCTING THESE FIVE MISSILE PROJECTS AT ONCE IS COSTLY AND UNDOUBTEDLY STRETCHES IRAQ'S FINANCIAL AND MANPOWER

RESOURCES. THE MULTIPLE DEVELOPMENTS, HOWEVER, PROVIDE A SAFETY NET AND GIVE IRAQ SOMETHING TO FALL BACK ON IF ONE OR MORE MISSILE PROJECTS FAIL. WORKING WITH SEVERAL GENERATIONS OF TECHNOLOGY, SOME OF WHICH IRAQ WILL GRASP VERY EASILY, REINFORCES THIS SAFETY NET.

WE BELIEVE IRAQ COULD BEGIN INDIGENOUS PRODUCTION OF ITS VARIANTS OF THE AL HUSAYN AND THE AL ABBAS BY 1991. BOTH SHOULD BE ABLE TO REACH 600-KM TARGETS, WITH 300- OR 660-KG WARHEADS, RESPECTIVELY. IN ADDITION, SOME AL ABBAS MISSILES COULD BE EQUIPPED WITH A 200-KG WARHEAD TO REACH TARGETS AT 900 KM. IN THE MEANTIME, IRAQ WILL PUSH TO COMPLETE DEVELOPMENT OF THE CONDOR II, WITH PRODUCTION POSSIBLY BEGINNING BY THE EARLY 1990S IF FOREIGN ASSISTANCE CONTINUES. IF THE FLOW OF ASSISTANCE IS INTERRUPTED, PRODUCTION COULD BE DELAYED UNTIL THE MID-TO-LATE 1990S. IRAQ COULD OPERATE DEVELOPMENT AND PRODUCTION FACILITIES ON ITS OWN, POSSIBLY WITHIN FIVE YEARS OF THE BEGINNING OF MISSILE PRODUCTION.

WE JUDGE THAT, IN ADDITION TO HIGH-EXPLOSIVES WARHEADS, IRAQ WILL DEVELOP AND MANUFACTURE CHEMICAL AND POSSIBLY BIOLOGICAL WARHEADS FOR ALL OF ITS MISSILE SYSTEMS. CHEMICAL AND BIOLOGICAL WARHEADS ARE MORE COST EFFECTIVE, RESULT IN GREATER NUMBERS OF HUMAN CASUALTIES, PROVIDE A PSYCHOLOGICAL EDGE, AND MAKE THE MISSILE A MORE EFFECTIVE DETERRENT. IRAQ CURRENTLY HAS THE ABILITY TO WEAPONIZE ITS CHEMICAL AND BIOLOGICAL AGENTS. IT MAY ALREADY POSSESS A CHEMICAL WARHEAD FOR ITS MODIFIED SCUDS.

WE ALSO JUDGE THAT, DEPENDING ON THE LEVEL OF FOREIGN ASSISTANCE, IRAQ MAY ALSO BE ABLE TO DEVELOP A NUCLEAR WARHEAD BEFORE THE END OF THE DECADE. IT IS PROCURING EQUIPMENT, MATERIALS, AND TECHNOLOGY THAT STRONGLY SUGGEST A NUCLEAR WEAPONS PROGRAM EXISTS. BUT IT WILL NOT BE A SIMPLE TASK TO FIT A NUCLEAR WEAPON INTO A MISSILE'S WARHEAD. ALSO, THERE ARE WEAPONIZATION PROBLEMS--HOW TO ENSURE THAT A NUCLEAR DEVICE WILL SURVIVE MISSILE FLIGHT--THAT MUST BE SOLVED. IF THESE PROBLEMS ARE NOT READILY SOLVED, IRAQ COULD FACE TWO OR MORE YEARS DELAY IN FIELDING A NUCLEAR PAYLOAD.

IN OUR ASSESSMENT, THE HIGH-PRIORITY STATUS OF IRAQ'S MISSILE PROGRAM WILL CONTINUE TO COMMAND THE NECESSARY PERSONNEL AND FINANCIAL RESOURCES. IRAQ PROBABLY HAS PLACED SOME OF ITS MOST CAPABLE ENGINEERS, TECHNICIANS, AND MANAGERS ON MISSILE PROJECTS. IRAQ WILL CONTINUE TO FUND DEVELOPMENT, PROBABLY USING A COMBINATION OF IRAQI AND FOREIGN--PROBABLY SAUDI ARABIAN--MONIES. IN THE FUTURE, IRAQ MAY SELL MISSILE-RELATED TECHNOLOGY TO GARNER PRESTIGE AS THE EMERGING TECHNOLOGY LEADER IN THE ARAB WORLD.

IN OUR JUDGMENT, CURRENT IRAQI MISSILE PROJECTS WILL BE DIFFICULT, IF NOT IMPOSSIBLE, TO STOP. IMPEDING THE FLOW OF FOREIGN ASSISTANCE, HOWEVER, COULD SLOW DEVELOPMENT CONSIDERABLY. THIS WOULD BEST BE ACHIEVED BY THWARTING IRAQI ATTEMPTS TO SECURE TECHNOLOGY IN AREAS SUCH AS GUIDANCE AND

CONTROL, IN WHICH IRAQ HAS LIMITED, BUT GROWING, CAPABILITIES. IRAQ HAS, HOWEVER, PROVED ITSELF CAPABLE OF TAPPING INTO WESTERN AND OTHER NATIONS' AEROSPACE INDUSTRIES FOR TECHNOLOGY SUPPORT, DESPITE ATTEMPTS BY SOME GOVERNMENTS TO PREVENT IT. IT HAS EFFECTIVELY EXPLOITED A CONSORTIUM OF WESTERN FIRMS KNOWN AS THE CONSEN GROUP AND HAS ORGANIZED A COVERT PROCUREMENT NETWORK OF ITS OWN. THERE ALMOST CERTAINLY IS NO WAY TO BLOCK SUCH ASSISTANCE ENTIRELY. THE MISSILE TECHNOLOGY CONTROL REGIME WILL HAVE LIMITED SUCCESS AS IRAQ TAPS NONMEMBER NATIONS LIKE CHINA, INDIA, OR BRAZIL FOR ASSISTANCE WITH ITS PROGRAM. IRAQ PROBABLY WILL ALSO USE ITS SPACE PROGRAM AS A CONDUIT TO GAIN DUAL-USE TECHNOLOGY FOR ITS MISSILE PROGRAM.