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WASHINGTON, JUNE 8 - SIX WEEKS AFTER A NUCLEAR POWER PLANT EXPLODED AT CHERNOBYL IN THE SOVIET UNION, SCIENTISTS AND NUCLEAR SPECIALISTS CONCEDE THERE IS NO COMPREHENSIVE PLAN TO RESPOND TO THE DANGER OF SIMILAR ACCIDENTS AT SOME 374 NUCLEAR PLANTS NOW OPERATING WORLDWIDE.

THEIR FEARS ARE COMPOUNDED BECAUSE DOZENS OF NUCLEAR POWER PLANTS ARE, OR SOON WILL BE, OPERATING IN THIRD WORLD COUNTRIES THAT WOULD BE ALL BUT HELPLESS SHOULD THEY FACE A SITUATION SIMILAR TO THE ACCIDENT AT CHERNOBYL.

THE EXPLOSION IN THE UKRAINE ON APRIL 26 AND THE SUBSEQUENT RELEASE OF HUGE CLOUDS OF DEADLY RADIATION KILLED AT LEAST 26 PEOPLE, INCLUDING TWO WORKERS AT THE SITE, JEOPARDIZED THE LIVES OF THOUSANDS OF SOVIETS AND RESULTED IN WIDESPREAD HEALTH AND ENVIRONMENTAL DANGERS ACROSS EUROPE.

A SURVEY OF TOP GOVERNMENT AND CIVILIAN NUCLEAR EXPERTS OVER THE LAST TWO WEEKS FOUND THAT THE ACCIDENT HAS REFOCUSSED INTERNATIONAL NUCLEAR CONCERN FROM THE DANGER OF WEAPONS TO THE DANGERS OF INDUSTRIAL USES OF THE ATOM AROUND THE WORLD. A NUCLEAR DISASTER, UNLIKE MANY OTHER INDUSTRIAL ACCIDENTS, CAN IMMEDIATELY HOLD DANGERS FOR THOUSANDS IN NEARBY COUNTRIES OR EVEN HUNDREDS OF MILES AWAY.

THESE EXPERTS SAID THE CRISIS HAS EXPOSED VAST GAPS IN THE SAFETY PRECAUTIONS AND DRAWN THE ATTENTION OF MANY GOVERNMENTS TO THESE DANGERS:

--NO INTERNATIONAL TEAMS EXIST TO RESPOND TO A NUCLEAR CRISIS IN COUNTRIES THAT LACK THE KNOW-HOW FOR DEALING WITH AN ACCIDENT AT A REACTOR SITE. INDEED, EVEN THE INDUSTRIALIZED SOVIET UNION HAD TO DESPERATELY SEEK EXPERTISE AS CHERNOBYL BURNED.

--NO MANDATORY INTERNATIONAL STANDARDS HAVE BEEN SET UP TO GOVERN THE CONSTRUCTION OF NUCLEAR REACTORS. STANDARDS ARE ADOPTED VOLUNTARILY BY NATIONS BUT THEY VARY AMONG THE NUCLEAR EXPORTING COUNTRIES, WHICH NOW INCLUDE THE UNITED STATES, THE SOVIET UNION, FRANCE, WEST GERMANY, CANADA, SWEDEN AND BRITAIN.

--THE INTERNATIONAL COMMUNITY HAS NO MANDATORY STANDARDS CONCERNING THE REPORTING OF NUCLEAR ACCIDENTS. SUCH A CONVENTION WAS CONSIDERED IN 1981, BUT WAS SHELVED IN THE CONTROVERSY THAT FOLLOWED THE ISRAELI ATTACK ON A NUCLEAR REACTOR NEARING COMPLETION IN IRAQ.

--WHILE SHIPS' MASTERS AND EVEN AUTO DRIVERS MUST MEET MINIMUM REQUIREMENTS WHEN OPERATING OUTSIDE THEIR HOME COUNTRY, NO INTERNATIONAL LICENSING REQUIREMENTS EXIST FOR OPERATORS OF NUCLEAR PLANTS. FOLLOWING THE THREE MILE ISLAND (TMI) ACCIDENT IN THE UNITED STATES IN 1979, INVESTIGATING BOARDS FOUND POOR TRAINING HAD MADE THE ACCIDENT WORSE.

--NO INTERNATIONAL TEAM EXISTS FOR DEALING WITH THE CONSEQUENCES OF EXPOSURE TO RADIATION AMONG A LARGE POPULATION. THE EFFECTS OF EXPOSURE ARE PREDICTABLE, BASED ON THE WORLD WAR II ATOMIC BOMB EXPLOSIONS AT HIROSHIMA AND NAGASAKI IN JAPAN AS WELL AS THE EXPLOSION AT CHERNOBYL. BUT NO INTERNATIONAL EFFORT HAS BEEN MADE TO ASSEMBLE A LIST OF EXPERTS AND EXISTING MEDICAL TECHNOLOGY OR TO ARRANGE FOR THEM TO BE AVAILABLE IF NEEDED.

"THE COUNTRIES WITH ONE OR TWO NUCLEAR POWER PLANTS DON'T HAVE THAT MUCH OF AN INDUSTRIAL INFRASTRUCTURE TO CALL ON," SAID WARREN DONNELLY, WHO RESEARCHES NUCLEAR MATTERS FOR THE CONGRESSIONAL RESEARCH SERVICE. "UNLESS THEY HAVE A CADRE OF FOREIGN ENGINEERS SITTING THERE, THEY COULD GET IN REAL TROUBLE AND NOT EVEN KNOW IT."

IF THE SOVIET UNION HAD PROBLEMS RESPONDING TO CHERNOBYL, WORSE COULD BE EXPECTED IN NATIONS SUCH AS PAKISTAN, THE PHILIPPINES, EGYPT, OR CUBA, WHERE PLANTS HAVE BEEN BUILT RECENTLY OR ARE UNDER CONSTRUCTION. (PTO)

ARMS - (1) GAPS IN NUCLEAR SAFETY

WITH ALL OF THE SOVIET UNION'S TECHNICAL EXPERTISE, MANPOWER AND EQUIPMENT, IT TOOK SOVIET SPECIALISTS DAYS TO EXTINGUISH A FURIOUS FIRE THAT BURNED IN THE SHATTERED REACTOR CORE -- A FEAT ACCOMPLISHED BY USING FLEETS OF HEAVY HELICOPTERS TO DROP BORON, LEAD PELLETS, SAND AND OTHER MATERIALS ONTO THE CORE TO CREATE A RADIATION SHIELD. SOVIET SPECIALISTS HAVE CONCEDED THE REACTOR ITSELF REMAINS HOT, AND MUST BE ENCASED IN CONCRETE TO LIMIT FURTHER DAMAGE.

THE SOVIETS DID ALLOW AN AMERICAN MEDICAL SPECIALIST, DR. ROBERT GALE, TO PERFORM BONE-MARROW TRANSPLANTS, THE ONLY EFFECTIVE TREATMENT FOR LARGE RADIATION DOSES.

IN AN EFFORT TO BETTER COORDINATE A FUTURE RESPONSE, THE NATIONS MOST CONCERNED WITH NUCLEAR POWER HAVE BEEN MEETING IN VIENNA AT THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA). ON MAY 21, THE 35 NATIONS THAT MAKE UP THE BOARD OF GOVERNORS OF THE IAEA, AN AFFILIATE OF THE UNITED NATIONS, DECIDED TO DRAW UP TWO CONVENTIONS, ONE CALLING FOR EARLY AND FULL COMMUNICATION CONCERNING NUCLEAR ACCIDENTS AND THE OTHER "TO COORDINATE EMERGENCY RESPONSES AND ASSISTANCE" IN EVENT OF ANOTHER ACCIDENT.

THE BOARD OF GOVERNORS IS TO MEET AGAIN BEGINNING TUESDAY TO CONSIDER SPECIFIC MEASURES IN WHAT IS EXPECTED TO BE A THREE-DAY CONFERENCE. THEIR RECOMMENDATIONS MUST BE APPROVED BY THE 112 MEMBER NATIONS AT A GENERAL MEETING IN SEPTEMBER. THE TALKS HAVE THE BACKING OF THE SOVIETS, THE EUROPEANS, THE UNITED STATES AND OTHERS.

IN GENERAL, EXISTING SAFETY GUIDELINES MAY BE TURNED INTO MORE BINDING CONVENTIONS, ACCORDING TO OFFICIALS FAMILIAR WITH THE IAEA.

SAFETY "REVIEWS" AT PLANTS AROUND THE WORLD BY TEAMS OF IAEA INSPECTORS IS LIKELY TO INCREASE. IN ADDITION TO THE 374 OPERATING PLANTS, THERE ARE 157 REACTORS UNDER CONSTRUCTION AND ANOTHER 116 PLANNED, ACCORDING TO THE ATOMIC INDUSTRIAL FORUM, A NUCLEAR INDUSTRY GROUP.

MONITORS TO DETECT THE SPREAD OF RADIATION BEYOND A COUNTRY'S BORDERS ARE LIKELY TO BE PUT IN PLACE. THIS PROJECT IS EXPECTED TO COST ABOUT \$4 MILLION AND CREATE AN "EARLY WARNING" LINE FOR ACCIDENTS LIKE THAT AT CHERNOBYL. AND THE IAEA WILL VERY LIKELY SET UP AN EMERGENCY CENTER AT ITS VIENNA HEADQUARTERS.

THE CENTER WOULD KEEP TRACK OF THE RESULTS OF THE MONITORING AND PROVIDE A "CLEARING HOUSE" FOR NUCLEAR INFORMATION, INCLUDING A CATALOG OF SPECIALISTS AND EQUIPMENT AVAILABLE FOR A MAJOR EMERGENCY. AT PRESENT, THERE ARE NO PLANS FOR ROUND-THE-CLOCK STAFFING.

U.S. AND INTERNATIONAL OFFICIALS SAY THAT WHEN THE DUST SETTLES, NUCLEAR REACTOR SAFETY WILL STILL BE MOSTLY THE RESPONSIBILITY OF THE NATION WHERE THE PLANT IS LOCATED. AND INCREASINGLY, THIS GROUP HAS COME TO INCLUDE COUNTRIES THAT LACK A SOPHISTICATED SCIENTIFIC COMMUNITY, A HIGH-TECHNOLOGY INDUSTRIAL BASE AND A BUREAUCRACY USED TO DEALING WITH NUCLEAR PROBLEMS.

A SPOKESMAN FOR THE NUCLEAR INDUSTRY HERE SAID, HOWEVER, THAT ALL NUCLEAR REACTORS SOLD ON THE EXPORT MARKET HAVE INCLUDED A SAFETY PACKAGE AT LEAST EQUAL TO THE MINIMUM STANDARDS OF THE EXPORTING NATION.

"COUNTRIES SELL NUCLEAR PLANTS WITH THE SAME STANDARDS AS THEY APPLY TO THEMSELVES," SAID FRANK GRAHAM, VICE PRESIDENT OF THE ATOMIC INDUSTRIAL FORUM. "IN THIRD WORLD COUNTRIES, GOVERNMENTS VIEW A BIG NUCLEAR PLANT AS A PRESTIGE PROJECT AND ARE INCLINED TO ASSIGN THEIR BEST PEOPLE TO THEM. THE TWO BIGGEST ACCIDENTS HAPPENED IN THE UNITED STATES AND THE SOVIET UNION, THE TWO COUNTRIES WITH THE BROADEST TECHNOLOGICAL BASES."

WHILE THERE IS NO OFFICIAL SAFETY SURVEY OF WORLD REACTOR PLANTS, SCIENTISTS AND GOVERNMENT EXPERTS OUTSIDE THE INDUSTRY SAY THE MOST WORRISOME CASES ARE THOSE INVOLVING SINGLE PLANTS IN REMOTE AREAS. AUSTRIA, BRAZIL, PAKISTAN, SOUTH AFRICA AND YUGOSLAVIA HAVE A SINGLE REACTOR EACH, THOUGH AUSTRIANS VOTED NOT TO START UP THEIR PLANT.

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ARMS - (2) GAPS IN NUCLEAR SAFETY

BRAZIL AND YUGOSLAVIA BOTH HAVE NUCLEAR NEIGHBORS -- ARGENTINA AND THE SOVIET UNION -- WHO COULD BE OF HELP DURING AN ACCIDENT. SOUTH AFRICA HAS A STRONG INDUSTRIAL BASE. PAKISTAN IS THE MOST WORRISOME.

SEVERAL COUNTRIES HAVE BEGUN CONSTRUCTION OR PLANNING FOR THEIR FIRST NUCLEAR PLANTS. THESE INCLUDE CHINA, CUBA, EGYPT, ISRAEL, LIBYA, THE PHILIPPINES AND TURKEY. ALL OF THESE COULD BENEFIT FROM SAFETY REVIEWS, EXPERTS SAY.

CHINA HAS BEGUN WORK ON A SINGLE PLANT, WITH SIX MORE PLANNED. CUBA IS PLANNING TWO PLANTS IMPORTED FROM THE SOVIETS, DIFFERENT FROM THE CHERNOBYL MODEL, WHICH CAN BE MODIFIED TO INCLUDE SAFETY FEATURES BUILT INTO SIMILAR REACTORS THE SOVIETS EXPORTED TO FINLAND. EGYPT WANTS ONE REACTOR, BUT HAS FINANCING DIFFICULTY.

OPINION IN ISRAEL IS DIVIDED ON WHETHER TO BUILD A REACTOR, AND CONSTRUCTION HAS NOT BEGUN. LIBYA HAS PLANS FOR TWO REACTORS, BUT CANNOT FIND A WILLING EXPORTER AND MAY BE RECONSIDERING THE PROJECT. THE NEW AQUINO GOVERNMENT IN THE PHILIPPINES CONDEMNED THE PLANT STARTED UNDER FORMER DICTATOR MARCOS, BUT IS SEEKING REFINANCING FOR IT. TURKEY HAS PLANS FOR THREE UNITS, BUT THEY ARE FAR IN THE FUTURE.

THE UNITED STATES STOPPED EXPORTING SPARE PARTS TO INDIA FOLLOWING ITS EXPLOSION OF A DEVICE IN 1974, RAISING SAFETY CONCERNS ABOUT THE U.S.-INSTALLED PLANT NEAR BOMBAY. THE UNITED STATES ALSO REFUSED SOUTH AFRICA'S REQUEST FOR U.S. TECHNICIANS TO OPERATE ITS PLANTS ON THE GROUND THAT SOUTH AFRICA HAS REFUSED TO SIGN THE NUCLEAR NONPROLIFERATION TREATY.

THE SOVIETS NOW APPEAR TO BE TAKING SOME OF THE SAME CORRECTIVE STEPS THE UNITED STATES TOOK AFTER THE THREE MILE ISLAND NUCLEAR ACCIDENT IN 1979. MOSCOW HAS INCREASED TRAINING AND CALLED FOR BETTER EMERGENCY COMMUNICATIONS. LIKE THE UNITED STATES, IT APPEARS TO BE LEARNING FROM ITS MISTAKES.

FOLLOWING TMI, THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) ISSUED EXTENSIVE GUIDELINES CALLING FOR UPGRADED TRAINING AND COMMUNICATIONS. AS A RESULT, THE WORKFORCE AT TMI HAS NEARLY TRIPLED FROM 320 TO 900 TODAY. WORKERS NOW SPEND ONE WEEK IN SIX IN SOME SORT OF TRAINING PROGRAM. COMMUNICATIONS HAVE BEEN IMPROVED.

THE NRC REQUIRED NEW SAFETY FEATURES, SUCH AS CONTROL ROOMS AWAY FROM THE REACTOR. AND THE NRC ITSELF SET UP A 24-HOUR OPERATIONS CENTER CONNECTED BY DIRECT LINE WITH ALL 100 REACTORS OPERATING IN THE UNITED STATES. TEAMS OF EXPERTS INCLUDING MEDICAL AND SCIENTIFIC PERSONNEL HAVE BEEN NAMED TO RESPOND IN CASE OF AN ACCIDENT.

EVEN SO, SAID GORDON TOMB, A TMI SPOKESMAN, PERSONNEL WOULD BE RELYING PRIMARILY ON THEMSELVES IN THE FIRST CRITICAL HOURS OF AN ACCIDENT. AN NRC INCIDENT RESPONSE TEAM WOULD EVENTUALLY ARRIVE AT THE SCENE, ASSESS THE SITUATION AND ISSUE ORDERS.

BUT SHOULD ANOTHER ACCIDENT SIMILAR TO CHERNOBYL OCCUR, THERE WOULD BE NO TEAM STANDING BY TO RUSH TO THE STRICKEN COUNTRY.

THE IAEA DOES INTEND TO KEEP AN UPDATED CATALOG OF AVAILABLE RESOURCES, INCLUDING DOCTORS, WEATHER WATCHERS, NUCLEAR EXPERTS AND OTHERS WITH SPECIAL KNOWLEDGE, ACCORDING TO ONE OF ITS HIGH OFFICIALS.

"EVERYONE IS VERY OPTIMISTIC. THE MEMBER STATES HAVE INDICATED THEY WANT TO COOPERATE, AND THIS BODES WELL," SAID MORRIS ROSEN, DIRECTOR OF THE IAEA'S DIVISION OF NUCLEAR SAFETY.

WHILE THE IAEA HAS NO AUTHORITY TO IMPOSE SAFETY STANDARDS, IT DOES OFFER DETAILED GUIDELINES, CONDUCT SAFETY CLASSES AND PUBLISH MUCH INFORMATION ON SAFETY TECHNIQUES.

"WE DO NOT HAVE THE AUTHORITY, NOR DO WE BELIEVE IT IS NECESSARY," SAID ROSEN. "THE FINAL SAFETY BELONGS WITH THE NATIONAL GOVERNMENTS."

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ARMS - (3) GAPS IN NUCLEAR SAFETY

TUESDAY, SOVIET LEADER MIKHAIL GORBACHEV SENT A LETTER TO THE UNITED NATIONS CALLING FOR EARLY ACTION ON A PLAN FOR NOTIFICATION OF NUCLEAR ACCIDENTS.

"CERTAINLY WHAT IS NEEDED FIRST IS A SYSTEM OF PROMPT NOTIFICATION IN THE EVENT OF ACCIDENTS AND MALFUNCTIONS AT ATOMIC POWER PLANTS WHEN SUCH OCCURRENCES ARE ACCOMPANIED BY THE RELEASE OF RADIATION," GORBACHEV SAID. "TO ENSURE A SAFE AND DANGER-FREE DEVELOPMENT OF NUCLEAR ENERGY SHOULD BECOME A UNIVERSAL INTERNATIONAL OBLIGATION OF ... EVERY INDIVIDUAL STATE." /AR/NJ