

# Can America Survive?

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Thematic Outline

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## Chapter I. Introduction and Summary

CAN AMERICA SURVIVE? THE ANSWER IS “NO.”

EVERYTHING IN THE MODERN WORLD IS DEPENDENT ON ENERGY – MASSIVE AMOUNTS OF IT

THE MAJOR ENERGY SOURCE IS FOSSIL FUELS: OIL, GAS, AND COAL

OIL AND GAS WILL RUN OUT WITHIN 50 YEARS, COAL SOMEWHAT LATER

SOLAR ENERGY CAN SUPPORT ONLY A FEW HUNDRED MILLION PEOPLE

NUCLEAR POWER CAN PROVIDE THE ENERGY FOR A HIGH-POPULATION INDUSTRIAL WORLD, BUT ONLY IF FAST-BREEDER REACTORS ARE USED

FAST-BREEDER REACTORS PRODUCE PLUTONIUM, WHICH CAN EASILY BE USED TO MAKE ATOMIC BOMBS. IF FAST-BREEDER REACTORS ARE USED, TERRORISTS WILL HAVE READY ACCESS TO LARGE AMOUNTS OF PLUTONIUM.

THE CHOICE IS CLEAR: A LOW POPULATION BASED ON SOLAR ENERGY, OR NUCLEAR WAR

FORECAST FOR EARTH: FAST-BREEDER REACTORS, GLOBAL WAR, SOCIAL FRAGMENTATION, AND DRAMATIC POPULATION REDUCTIONS. THIS BOOK EXPLAINS WHY.

## Chapter II. The Current State of the World

**ECONOMIC STATE OF THE WORLD:** LESS THAN A SIXTH OF THE WORLD'S POPULATION ENJOYS A HIGH STANDARD OF LIVING

THE NUMBER OF PEOPLE IN DIRE POVERTY IS EXPLODING

PROVISION OF A HIGH STANDARD OF LIVING REQUIRES A COMMERCIAL ENERGY CONSUMPTION OF ABOUT 2,500 KILOGRAMS OF OIL EQUIVALENT (KGOE)

THE WORLD'S ENERGY RESOURCES ARE NOT SUFFICIENT TO PROVIDE A HIGH STANDARD OF LIVING TO ITS CURRENT POPULATION, OR EVEN SUPPORT A POPULATION OF THIS SIZE FOR VERY LONG

**ENVIRONMENTAL STATE OF THE WORLD:** INDUSTRIALIZATION AND OVERPOPULATION ARE DESTROYING THE PLANET'S AIR, LAND, WATER AND ECOLOGY. DEFORESTATION, HABITAT DESTRUCTION, SPECIES EXTINCTION, POLLUTION, DESTRUCTION OF THE OZONE LAYER, TEMPERATURE RISE

**NUCLEAR-WARFARE STATE OF THE WORLD:** THE WORLD'S INDUSTRIALIZED NATIONS HAVE LOST CONTROL OF FISSIONABLE MATERIAL (E.G., PLUTONIUM), USED TO MAKE ATOMIC BOMBS

ROGUE NATIONS AND TERRORIST GROUPS ARE ADVERTISING FOR PLUTONIUM. RUSSIA IS PRODUCING LARGE AMOUNTS OF PLUTONIUM, AND ITS NUCLEAR SCIENTISTS ARE UNPAID AND UNDERPAID.

### Chapter III. Human Population Growth

THE ROOT CAUSE OF ALL OF THE ENVIRONMENTAL AND ECOLOGICAL PROBLEMS FACING THE PLANET IS TWOFOLD: THE VERY LARGE HUMAN POPULATION AND THE EXTRAORDINARILY HIGH LEVELS OF TOXIC WASTE PRODUCED BY HUMAN ACTIVITY

IN EVOLUTIONARY TERMS, HUMAN POPULATION GROWTH HAS OCCURRED IN "SURGES" – A SURGE WHEN MANKIND INVENTED WEAPONS AND TOOLS ABOUT THREE MILLION YEARS AGO (2-20 MILLION PEOPLE), ONE WHEN MANKIND INVENTED AGRICULTURE ABOUT TEN THOUSAND YEARS AGO (200-300 MILLION PEOPLE), AND THE PRESENT TIME (POPULATION AT SIX BILLION AND STILL EXPLODING)

CURRENT POPULATION SURGE (80 MILLION PER YEAR) WILL SOON LEVEL OFF, SINCE EXPLOSIONS (EXPONENTIAL GROWTH) CANNOT CONTINUE FOR VERY LONG

EVEN THE CURRENT POPULATION LEVEL OF SIX BILLION IS NOT SUSTAINABLE: THE INDUSTRIAL ACTIVITY OF THIS LARGE POPULATION IS POISONING THE PLANET AND DESTROYING THE BALANCE OF NATURE ON WHICH MANKIND'S VERY EXISTENCE DEPENDS

### Chapter IV. Population Projections

MANY DEMOGRAPHIC ORGANIZATIONS MAKE POPULATION PROJECTIONS, WHICH ARE ESTIMATES OF FUTURE POPULATION UNDER VARIOUS ASSUMPTIONS ABOUT FERTILITY AND MORTALITY LEVELS AND IMMIGRATION

UNDER UNITED NATIONS ASSUMPTIONS, WORLD POPULATION IS PROJECTED TO BE BETWEEN 8 AND 12 BILLION BY YEAR 2050

UNDER WORLD BANK ASSUMPTIONS, BETWEEN 8 AND 10 BILLION BY 2050

POPULATION PROJECTIONS ARE NOT FORECASTS, SINCE THEY DO NOT TAKE INTO ACCOUNT THE MANY SOCIAL, ECONOMIC, BIOLOGICAL AND ENVIRONMENTAL FACTORS THAT AFFECT POPULATION, SUCH AS WAR, FAMINE AND DISEASE

PROJECTIONS ARE NEVERTHELESS USEFUL SINCE THEY SHOW HOW RAPIDLY HUMAN POPULATION IS GROWING AND HOW SERIOUS THE POPULATION EXPLOSION IS

## Chapter V. Carrying Capacity Estimates

CARRYING CAPACITY ESTIMATES ARE ESTIMATES OF THE GLOBAL HUMAN POPULATION TAKING INTO ACCOUNT PLANETARY RESOURCE CONSTRAINTS, SUCH AS SIZE, AMOUNT OF ARABLE LAND, AND AMOUNT OF WATER

CONSIDERATION MAY ALSO BE GIVEN TO QUALITY OF LIVE, IN WHICH CASE THE ISSUE IS HOW MANY PEOPLE CAN BE SUPPORTED INDEFINITELY AT WHAT STANDARD OF LIVING

IN THEIR BOOK, FOOD, ENERGY, AND SOCIETY, DAVID AND MARCIA PIMENTEL ESTIMATE THAT EARTH MAY BE ABLE TO SUPPORT 10-15 BILLION PEOPLE LIVING IN POVERTY AND MALNOURISHMENT OR ABOUT 1-2 BILLION PEOPLE AT A GOOD STANDARD OF LIVING

## Chapter VI. Planetary Forecasts

POPULATION PROJECTIONS AND CARRYING CAPACITY ESTIMATES ARE NOT PREDICTIONS, OR FORECASTS, OF THE FUTURE HUMAN POPULATION OF EARTH

FORECASTS TAKE INTO ACCOUNT ALL OTHER FACTORS, SUCH AS POLITICAL, RELIGIOUS, SOCIOLOGICAL, AND ECOLOGICAL FACTORS

THIS BOOK FORECASTS THAT THE HUMAN POPULATION OF EARTH WILL BE ON THE ORDER OF A FEW TENS OF MILLIONS, AND NO MORE THAN A FEW HUNDRED MILLION, WITHIN JUST A FEW YEARS

## Chapter VII. The Relationship of Population and Quality of Life to Energy Consumption

ACHIEVEMENT OF A HIGH STANDARD OF LIVING REQUIRES THE USE OF LARGE AMOUNTS OF ENERGY – ABOUT 2,500 KILOGRAMS OF OIL EQUIVALENT (KGOE) PER PERSON PER YEAR

STANDARD MEASURES OF QUALITY OF LIFE: LIFE EXPECTANCY AT BIRTH, INFANT MORTALITY RATE, LITERACY, ACCESS TO SAFE WATER, ACCESS TO SANITATION

COMPOSITE MEASURES: UNITED NATIONS DEVELOPMENT PROGRAM'S HUMAN DEVELOPMENT INDEX, GENDER-RELATED DEVELOPMENT INDEX, GENDER EMPOWERMENT MEASURE, HUMAN POVERTY INDEX

PROVISION OF 2,500 KGOE OF ENERGY PER PERSON PER YEAR WOULD REQUIRE ABOUT TWICE AS MUCH COMMERCIAL ENERGY AS THE WORLD CURRENTLY PRODUCES

JUST FOR CHINA AND INDIA TO PROVIDE THIS MUCH ENERGY TO THEIR POPULATIONS WOULD REQUIRE THEIR USE OF ALL OF THE ENERGY AVAILABLE FROM SOLAR ENERGY, PLANETWIDE

WHEN FOSSIL FUEL SUPPLIES ARE EXHAUSTED IN A FEW DECADES, THE STANDARD OF LIVING WILL BE EXTREMELY LOW FOR MOST PEOPLE ON THE PLANET, OR THERE WILL BE A TREMENDOUS INCREASE IN THE UTILIZATION OF NUCLEAR POWER

## Chapter VII. Energy Sources

THE MAJOR SOURCE OF ENERGY FOR MANKIND AT THE PRESENT TIME IS FOSSIL FUEL

REMAINING WORLD RESERVES WILL LAST FOR ABOUT 50 YEARS FOR OIL AND GAS, SOMEWHAT LONGER FOR COAL

THE WORLD'S COAL IS DISTRIBUTED VERY UNEVENLY – 70% OF THE RECOVERABLE COAL RESERVES IS LOCATED IN JUST THREE COUNTRIES (CHINA, USA, AND RUSSIA)

AS FOSSIL FUEL DEPLETES, MANKIND WILL HAVE TO TURN TO ALTERNATIVE SOURCES. THE PRIMARY ALTERNATIVES ARE SOLAR AND NUCLEAR.

SOLAR ENERGY CAN PROVIDE A HIGH LEVEL OF LIVING TO ABOUT A BILLION PEOPLE (INDEFINITELY)

WORLD SUPPLIES OF NUCLEAR FUEL (URANIUM) WILL LAST FOR ABOUT A HUNDRED YEARS IF USED IN THERMAL (“ONCE-THROUGH”) REACTORS, FOR SEVERAL HUNDRED THOUSAND YEARS IF USED IN “FAST-BREEDER” REACTORS

THE PROBLEM WITH BREEDER REACTORS IS THAT THEY PRODUCE PLUTONIUM, WHICH CAN BE EASILY USED TO MAKE ATOMIC BOMBS

IF THE WORLD MOVES TO USING BREEDER REACTORS ON A LARGE SCALE, THERE WILL BE SOURCES OF PLUTONIUM EVERYWHERE

ROGUE NATIONS AND TERRORIST GROUPS ARE ALREADY SOLICITING PLUTONIUM, AND THE WORLD'S INDUSTRIALIZED NATIONS ARE LOSING TRACK OF CURRENT SUPPLIES

IT IS JUST A MATTER OF TIME UNTIL THESE GROUPS HAVE ACCESS TO PLUTONIUM IN SUFFICIENT QUANTITIES TO PRODUCE A LARGE NUMBER OF “SUITCASE” BOMBS

THE CHOICE IS CLEAR: LIMIT MANKIND'S ENERGY CONSUMPTION TO THAT AVAILABLE FROM SOLAR SOURCES, OR FACE NUCLEAR DESTRUCTION

## Chapter IX. The Role of Economics

ECONOMICS IS A DRIVING FORCE UNDERLYING POPULATION GROWTH

MANKIND IS CONSTANTLY STRIVING FOR MORE OF EVERYTHING: MORE MATERIAL POSSESSIONS, MORE POWER, MORE KNOWLEDGE, MORE SECURITY, MORE COMFORT, BETTER HEALTH, LONGER LIFE, MORE VARIETY, MORE FREEDOM, MORE PEOPLE

THE STANDARD MEASURE OF A COUNTRY'S WELL BEING ARE THE GROSS DOMESTIC PRODUCT AND GROSS DOMESTIC PRODUCT PER CAPITA. ALL OF THE WORLD'S COUNTRIES ARE STRIVING TO RAISE THESE MEASURES TO HIGHER AND HIGHER LEVELS, IRRESPECTIVE OF COST TO THE ENVIRONMENT

THE PROBLEM FACING MANKIND IS THAT LARGE-SCALE INDUSTRIALIZATION AND ECONOMIC DEVELOPMENT IS DESTROYING THE PLANET'S ENVIRONMENT AND ECOLOGY, AND NOTHING IS HAPPENING TO CHANGE THIS

COUNTRIES ARE WILLING TO GO TO WAR FOR ECONOMIC BENEFIT, BUT NOT FOR ENVIRONMENTAL BENEFIT

ECONOMICS HAS FATAL LIMITATIONS AS A LONG TERM BASIS FOR HUMAN SOCIETY (KEYNES, SCHUMACHER, HELLER, RABINOWITCH)

## Chapter X. What Size Should the Human Population Be?

UNDER CURRENT CONDITIONS, HUMAN POPULATION AND INDUSTRIAL ACTIVITY WILL LIKELY CONTINUE TO GROW WITHOUT LIMIT FOR AS LONG AS POSSIBLE. NEITHER WILL STOP UNLESS SOME EXTERNAL FACTOR, UNTIL NOW NOT OPERATIVE, COMES INTO PLAY.

PREVIOUS WORK ON THE POPULATION PROBLEM HAS EMPHASIZED FINDING WAYS TO MAXIMIZE ECONOMIC ACTIVITY AND THE SIZE OF THE HUMAN POPULATION

THE PRESENT WORK ASSERTS THAT MANKIND AND THE ENVIRONMENT WILL SURVIVE LONG-TERM ONLY IF IT SUCCEEDS IN RESTRICTING ECONOMIC ACTIVITY AND INDUSTRIAL DEVELOPMENT TO LOW LEVELS

THE FOLLOWING CRITERIA ARE PROPOSED AS A BASIS FOR POPULATION POLICY:

- (1) THE PROBABILITY OF LONG-TERM SURVIVAL OF THE HUMAN SPECIES IS MAINTAINED VERY HIGH

(2) DAMAGE TO THE PLANET'S ENVIRONMENT AND ECOLOGY FROM HUMAN ACTIVITY IS KEPT VERY LOW

A POPULATION THAT SATISFIES THE PRECEDING CRITERIA IS REFERRED TO AS A "MINIMAL-REGRET" POPULATION

UNDER THIS APPROACH TO POPULATION POLICY, THERE IS NO ATTEMPT TO MAXIMIZE EITHER THE NUMBER OF HUMAN BEINGS OR THE HUMAN STANDARD OF LIVING

THE FOLLOWING IS SUGGESTED AS A CANDIDATE MINIMAL-REGRET POPULATION: A GLOBAL HUMAN POPULATION OF FIVE MILLION HUNTER-GATHERERS AND A SINGLE INDUSTRIAL COUNTRY OF FIVE MILLION

THE PURPOSE OF THE SINGLE INDUSTRIAL POPULATION IS PLANETARY MANAGEMENT – TO KEEP THE SIZE OF THE HUNTER-GATHERER POPULATION UNDER CONTROL. THE PURPOSE OF THE HUNTER-GATHERER POPULATION (DISTRIBUTED OVER THE GLOBE) IS TO REDUCE THE RISK OF EXTINCTION OF MANKIND FROM A LOCALIZED CATASTROPHE.

THE CANDIDATE MINIMAL-REGRET POPULATION PUTS AN IMMEDIATE HALT TO LARGE-SCALE INDUSTRIAL ACTIVITY. IT RESTORES THE PLANET'S BIOSPHERE AS CLOSE AS POSSIBLE TO THE WAY IT WAS PRIOR TO THE MASSIVE CHANGES BROUGHT ABOUT BY AGRICULTURE AND INDUSTRIALIZATION.

## Chapter XI. How Soon Should Human Population Be Reduced?

MANKIND'S INDUSTRIAL ACTIVITY IS CAUSING PLANETARY CHANGES AT A HORRIFIC RATE. THE RATE OF CHANGE WILL INCREASE EVEN FASTER AS UNDEVELOPED COUNTRIES INDUSTRIALIZE.

IN VIEW OF THE FACT THAT THE CONSEQUENCES OF THESE CHANGES WILL BE CATASTROPHIC, HUMAN POPULATION AND INDUSTRIAL ACTIVITY MUST BE REDUCED DRAMATICALLY AND IMMEDIATELY IN ORDER FOR THE PLANET TO SURVIVE

THERE IS NO KNOWN REASON FOR WAITING

## Chapter XII. The Inevitability of Nuclear War

THIS CHAPTER DISCUSSES THE LIKELIHOOD OF NUCLEAR WAR

DURING THE PAST SEVERAL DECADES, FROM THE END OF WORLD WAR II (1945) TO THE DEMISE OF THE SOVIET UNION (1991) THE WORLD POLITICAL SITUATION WAS RELATIVELY STABLE. THE COLD WAR INVOLVED TWO SUPERPOWERS, THE UNITED STATES AND THE SOVIET UNION, ENGAGED IN A NUCLEAR STANDOFF. THE DEFENSE STRATEGY WAS MUTUAL ASSURED DESTRUCTION (MAD).



THE SITUATION IS NOW VERY DIFFERENT. THE NUMBER OF NATIONS POSSESSING NUCLEAR WEAPONS IS INCREASING (INDIA AND PAKISTAN). THE LEVEL OF CONTROL OVER THE NUCLEAR WEAPONS OF THE FORMER SOVIET UNION HAS BEEN REDUCED. THE AMOUNT OF FISSIONABLE MATERIAL IS INCREASING WITH EACH PASSING YEAR, AS IS THE AMOUNT OF "LOST" FISSIONABLE MATERIAL. THE NUMBER OF PEOPLE LIVING IN DIRE POVERTY IS EXPLODING. THE RESENTMENT AND ANGER OF THE WORLD'S POORER NATIONS IS INCREASING. TERRORISM IS INCREASING.

TERRORIST GROUPS AND "ROGUE STATES" ARE SOLICITING FISSIONABLE MATERIAL AND NUCLEAR WEAPONS. THE SOVIET UNION CONTINUES TO PRODUCE LARGE AMOUNTS OF PLUTONIUM. ITS SCIENTISTS ARE UNPAID AND UNDERPAID. IT IS JUST A MATTER OF TIME UNTIL TERRORIST GROUPS HAVE THE PLUTONIUM THEY WANT, AND THE NUCLEAR BOMBS THEY WANT.

THE UNITED STATES AND OTHER INDUSTRIALIZED NATIONS HAVE LOST CONTROL OF THEIR BORDERS AND ARE VERY VULNERABLE TO ATTACK FROM TERRORIST GROUPS USING NUCLEAR "SUITCASE" BOMBS.

TERRORIST GROUPS HAVE THE MOTIVATION, MEANS, AND OPPORTUNITY TO DELIVER SUITCASE BOMBS TO ANY CITY IN THE WORLD. THE LIKELIHOOD OF NUCLEAR WAR IS VERY HIGH.

### Chapter XIII. Low-Intensity Nuclear Conflict

THIS CHAPTER EXAMINES SEVERAL DIFFERENT TYPES OF LOW-INTENSITY NUCLEAR WAR (A WAR INVOLVING 1,000 OR LESS NUCLEAR BOMBS). THIS SIZE WAR COULD READILY BE WAGED BY A ROGUE NATION OR TERRORIST GROUP OF SMALL SIZE, USING 1,000 SUITCASE-SIZED ATOMIC BOMBS.

THE MAIN CONCLUSION OF THE CHAPTER IS THAT, WITH A RELATIVELY SMALL NUCLEAR ATTACK – 1,000 ATOMIC BOMBS – IT IS POSSIBLE TO DESTROY A LARGE PROPORTION OF EARTH'S CITY POPULATION. AN ATTACK OF THIS SIZE CAN DESTROY ABOUT THREE-QUARTERS OF THE PLANET'S CITY POPULATION (OF CAPITAL CITIES AND CITIES OF SIZE OVER ONE MILLION).

### Chapter XIV. Country Case Studies

THE PRECEDING CHAPTER SHOWED THAT A LOW-LEVEL NUCLEAR ATTACK (1,000 WEAPONS) CAN DESTROY A VERY LARGE PROPORTION OF THE WORLD'S CITY POPULATION. THIS CHAPTER EXAMINES WHAT IS LEFT AFTER SUCH AN ATTACK.

THE PURPOSE OF THE CHAPTER IS TO IMPART A SENSE OF THE LEVEL OF DESTRUCTION OF THE GLOBAL ECONOMIC SYSTEM. TO THAT END, IT EXAMINES THE DAMAGE TO THE MAJOR WORLD COUNTRIES AND SUMMARIZES THE DAMAGE TO EACH COUNTRY.

FOLLOWING SUCH AN ATTACK, A LARGE NUMBER OF COUNTRIES WOULD STILL HAVE LARGE REMAINING POPULATIONS, BUT NOT NECESSARILY SO LARGE THAT THE REMAINING POPULATIONS COULD NOT BE SUPPORTED BY LOW-LEVEL AGRICULTURE ON THE COUNTRY'S ARABLE LAND.

AFTER THE ATTACK THERE IS STILL A LARGE POPULATION REMAINING. IT WOULD REPRESENT A FORMIDABLE CHALLENGE FOR ANY SINGLE COUNTRY TO ATTEMPT TO ASSUME WORLD CONTROL. THE COUNTRY HAVING THE BEST CHANCE OF DOING SO WOULD BE CHINA, WITH A POSTATTACK POPULATION OF ALMOST 900 MILLION.

## Chapter XV. What to Do after the War?

THIS CHAPTER ADDRESSES IN FURTHER DETAIL THE ISSUE OF WHETHER A SINGLE NATION OR ORGANIZATION COULD PREVAIL OVER (I.E., DEFEAT) ALL OTHER COUNTRIES OF THE WORLD, AFTER A LOW-LEVEL NUCLEAR ATTACK (I.E., OF BECOMING THE SINGLE INDUSTRIALIZED NATION OF THE CANDIDATE MINIMAL-REGRET POPULATION).

OF THE SEVERAL COUNTRIES EXAMINED, AT THE PRESENT TIME ONLY THE US AND RUSSIA HAVE THE WHEREWITHAL TO ACCOMPLISH THE OBJECTIVE OF BECOMING THE SINGLE INDUSTRIALIZED CONTROLLING NATION. CHINA WILL TOO, BEFORE LONG.

THE SPACE-BASED LASER AND VERY-LARGE-SCALE DIRIGIBLES SHOW PROMISE IN ASSISTING THE ACCOMPLISHMENT OF THIS OBJECTIVE, AND OF MAINTAINING THE WORLD POSTATTACK POPULATION AT LOW LEVELS

## Chapter XVI. The Role of Religion

IT SEEMS CLEAR THAT A GLOBAL WAR AIMED AT ESTABLISHING A MINIMAL-REGRET POPULATION WOULD BE RELIGIOUSLY MOTIVATED

THIS CHAPTER DISCUSSES WAR FROM THE VIEWPOINTS OF THE WORLD'S MAJOR MONOTHEISTIC RELIGIONS

## Chapter XVII. Socio-political Characteristics of Energy-Rich and Energy-Poor Societies

THE MASSIVE AMOUNT OF ENERGY THAT FOSSIL FUEL HAS MADE AVAILABLE TO COMMON CITIZENS HAS ENABLED THEM TO LIVE LIKE KINGS. IT HAS TRANSFORMED INDUSTRIAL SOCIETY INTO A CULTURE IN WHICH THE INDIVIDUAL POSSESSES AN UNPRECEDENTED LEVEL OF RIGHTS AND PRIVILEGES.

WHEN CHEAP ENERGY IS GONE, THE PROFUSION OF RIGHTS AND PRIVILEGES THAT IT HAS ENABLED WILL DISAPPEAR.

WHEN CHEAP ENERGY IS GONE, LARGE AMOUNTS OF THE WORLD'S POPULATION WILL FACE STARVATION. IN VIEW OF PAST EXPERIENCE, THEY WILL NOT SIT AROUND WAITING TO STARVE TO DEATH. GLOBAL WAR WILL ENSUE. AS HAS ALWAYS BEEN THE CASE, THE COMPOSITION OF THE COMBATANTS WILL BE DETERMINED BY DIFFERENCES IN RACE, RELIGION, LANGUAGE AND ETHNICITY.

IN A LOW-ENERGY, LAND-POOR SETTING, THE DOMINANT GROUP IN ANY AREA WILL BE HOMOGENEOUS FROM RACIAL, LINGUISTIC, RELIGIOUS, AND CULTURAL PERSPECTIVES.

## Chapter XVIII. Who Will Rule?

A LOW-INTENSITY NUCLEAR WAR CAN BE ACCOMPLISHED BY VIRTUALLY ANY MOTIVATED GROUP. UNLIKE CONVENTIONAL OR BALLISTIC-MISSILE WARFARE, WHICH REQUIRE EXPENSIVE PLANES OR MISSILES AND GUIDANCE SYSTEMS, THE COST OF THE "DELIVERY SYSTEM" FOR 1,000 SUITCASE BOMBS IS VERY LOW. ALL IT TAKES IS 1,000 DEDICATED INDIVIDUALS AND SOME CAREFUL PLANNING AND COORDINATION. BECAUSE OF THE LOW COST, THE "GROUP" NEED NOT BE A COUNTRY. IN FACT, A NON-COUNTRY GROUP MAY HAVE A DISTINCT ADVANTAGE OVER TRADITIONAL GEOGRAPHICALLY DEFINED COUNTRIES, SINCE IT IS MORE DIFFICULT TO TARGET.

A MINIMAL-REGRET WAR HAS TWO DISTINCT PHASES – THE FIRST PHASE CONSISTING OF A NUCLEAR ATTACK ON CITIES, AND A SECOND, LONG-TERM PHASE AIMED AT DESTRUCTION OF THE RESIDUAL INDUSTRIAL CAPACITY. THIS CHAPTER IDENTIFIES A NUMBER OF CULTURAL GROUPS AND DISCUSSES THEIR RELATIVE STRENGTHS AND WEAKNESSES RELATIVE TO THE ISSUE OF WHO WILL PREVAIL IN PHASE 2.

THE GROUP THAT PREVAILS WILL BE HOMOGENEOUS WITH RESPECT TO RACE, RELIGION, LANGUAGE AND CULTURE – THE REQUIREMENTS FOR ANY STRONG NATION.

## Chapter XIX. Isaac Asimov Saw It All

THE SCIENCE AND SCIENCE FICTION WRITER ISAAC ASIMOV WROTE A NUMBER OF BOOKS ON THE TOPICS OF ENERGY, INDUSTRIAL POLLUTION, AND THE DECLINE, FALL, AND REGENERATION OF CIVILIZATION.

CONSIDERING THE FUTURE IS A POPULAR THEME OF SCIENCE FICTION WRITERS. H. G. WELLS DESCRIBES A FUTURE WRACKED BY PLANETARY WAR, THE DESTRUCTION OF CAPITALISM, HOBBSIAN CHAOS, AND THE RISE OF A WORLD GOVERNMENT.

AS AUTHOR KENNETH BOULDING ONCE OBSERVED, IN CRITICIZING JULIAN SIMON AND THE ANTI-MALTHUSIANS, "IT IS SOMETIMES THE POETS AND THE SCIENCE-FICTION WRITERS WHO ARE THE BEST GUIDES TO THE FUTURE."

## Chapter XX. Religious Aspects

THIS CHAPTER SUMMARIZES THE ATTITUDES OF THE WORLD'S THREE LARGEST MONOTHEISTIC RELIGIONS TOWARD ISSUES THAT RELATE TO A MINIMAL-REGRET POPULATION AND A MINIMAL-REGRET WAR.

APPENDIX L CONTAINS A SELECTION OF VERSES FROM THE JEWISH, CHRISTIAN, AND ISLAMIC SCRIPTURES (I.E., THE BIBLE AND THE KORAN). THE VERSES RELATE TO THE VARIOUS TOPICS COVERED IN THE BOOK, INCLUDING WAR, POLITICS, MORALITY, SLAVERY, IMMIGRATION, THE ENVIRONMENT, AND ESCHATOLOGY.

## Chapter XXI. Can America Survive?

SO, WHAT IS THE ANSWER TO THE QUESTION, "CAN AMERICA SURVIVE?"? THIS BOOK HAS ADDRESSED THAT ISSUE IN THE LARGER CONTEXT OF WHAT IS LIKELY TO HAPPEN TO THE PLANET. AND THE BEST GUESS IS THAT THE CURRENT MASS DESTRUCTION OF THE PLANET WILL NOT CONTINUE. IT WILL NOT CONTINUE BECAUSE IT RISKS DESTROYING ALL ANIMAL LIFE ON THE PLANET, IN ADDITION TO MAKIND. IT WILL NOT CONTINUE BECAUSE THERE IS A BETTER SOLUTION, AND THAT SOLUTION – THE MINIMAL-REGRET SOLUTION – IS TO TRANSFORM THE HUMAN POPULATION IMMEDIATELY, BY WAR, TO A SINGLE MINIMAL-SIZED INDUSTRIAL POPULATION PLUS A HUNTER-GATHERER POPULATION EVERYWHERE ELSE.

ALL OTHER APPROACHES TO THE PROBLEM DO NOT ADDRESS THE PROBLEM THAT THE CURRENT HUMAN POPULATION SIZE IS DECIMATING OTHER ANIMAL SPECIES, AND THAT THE BEST ESTIMATE IS THAT THE HUMAN POPULATION SIZE WILL CONTINUE TO GROW WITHOUT LIMIT UNTIL STOPPED BY CATASTROPHE. AND AT THAT POINT, ALL ANIMAL SPECIES, HUMAN OR OTHERWISE, WILL BE WIPED OUT.

SO CAN AMERICA SURVIVE? THE ANSWER IS "NO!" IT WILL NOT SURVIVE BECAUSE THE PLANET'S BIOSPHERE DOES NOT NEED, AND CANNOT AFFORD, A SINGLE INDUSTRIAL COUNTRY OF SIZE 300 MILLION PEOPLE, COMMITTED TO THE GENERATION OF PRODIGIOUS AMOUNTS OF INDUSTRIAL WASTE FOR NO PURPOSE OTHER THAN HEDONISTIC PLEASURE. THE MINIMAL-REGRET SOLUTION IS ORIENTED TO MINIMIZING THE HUMAN POPULATION, SUBJECT TO AVOIDING EXTINCTION. OTHER SOLUTIONS ATTEMPT TO MAXIMIZE HUMAN POPULATION, NO MATTER WHAT THE RISK OF EXTINCTION TO HUMAN OR OTHER SPECIES.

## Appendix A. Selected Bibliography

The bibliography lists most of the over 600 books, articles, and other documents that were reviewed as background during the preparation of this book.

## Appendix B. Conversion Factors

Factors for converting between English and metric systems of measurements.

## Appendix C. Data Sources

Identification and brief description of the data sources on which the book's analysis is based. The primary data sources are the World Bank's CD-ROM, World Development Indicators and the United Nations' Statistical Yearbook (hardcopy).

## Appendix D. Country Characteristics

Selected demographic, economic, and physical characteristics of 229 countries: total fertility rate, population, kilograms of oil equivalent per capita, total land area and cropland area.

## Appendix E. Population Projections

A discussion of the population projection method used by the World Bank and United Nations (the cohort-component method), and a description of a simpler, two-parameter population-projection model.

## Appendix F. Graphs Showing the Relationship of Various Indicators of Quality of Life to Commercial Energy Use

This appendix presents a number of graphs that show the relationship of various economic and social indicators to commercial energy use. The graphs show that to achieve the quality of life comparable to that achieved by the world's industrially developed countries requires access to a minimum commercial energy of about 2,500 kilograms of oil equivalent (kgoe) per capita per year. Current commercial energy consumption in the US is about 8,000 kgoe per capita per annum. A majority of countries (55%) have per capita commercial energy consumptions of 1,000 kgoe or less, and only 25% have per capita energy consumptions of 2,500 kgoe or more.

## Appendix G. Low-Intensity Nuclear War

This appendix presents an analysis showing the damage that can be caused to the Earth's city population by nuclear war. Although interest centers on the damage that can

be caused by low-level nuclear war (i.e., an attack of 1,000 small nuclear bombs), damage curves are presented that show the damage over a wide range of attack sizes. The appendix begins with a discussion of the statistical distribution of city sizes, and then proceeds to examine four different types of attack. These four attacks have different “payoff functions.” The first attack targets population, the second one energy use, and the third one cities in countries having high levels of biodiversity. The fourth attack is a “combination” attack whose payoff function is a combination of population, energy use, and biodiversity.

## Appendix H. City Characteristics

This appendix presents selected characteristics for the largest 322 cities of the world (these cities have population of one million or more). The characteristics presented are those used to determine the target selection of the attacks described in the previous appendix. These characteristics include population, kilograms of oil equivalent per capita per annum, kilotons of oil equivalent (total annual consumption for the city), number of plant species in the country, and two characteristics derived from these. (The attack analysis of the preceding appendix used a list of 3,385 Earth cities that have population over one hundred thousand or are country capitals. The list of Appendix H is a portion of the complete list.)

## Appendix I. Attack Summaries

This appendix summarizes country characteristics for each of the four attacks considered in the book. For each of the four attacks, a table is presented that specifies, for each country, the number of cities attacked, the total population of the attacked cities, and the proportion of city population attacked (of the total population of the capital city and all cities having population of one hundred thousand or more). (Not all countries are included in the “energy” and “biodiversity” attacks, since the data required to determine the attack were not available for all countries.)

## Appendix J. Lest We Forget

Epitaphs in the Chittagong War Cemetery 1939-1945

## Appendix K. A Family Experience with the Japanese

A summary description of the Japanese attack on Hong Kong in December, 1941.

## Appendix L. Selections from the Bible and Koran

Selected verses from the Bible and Koran. The verses relate to the various topics covered in the book, including war, politics, morality, slavery, immigration, the environment, and eschatology.

## Appendix M. Figures

Figures supporting the analysis and discussion presented in the text. These figures present demographic characteristics of various countries, population projections, relationship of social and economic indicators to energy use, and attack payoff curves.