

# **LEGAL IMPLICATIONS: ACCESSING SPACE RESOURCES**

- **NATIONAL**
  - **FEDERAL LAW**
  - **STATE LAW**
  - **REGULATIONS**
- **INTERNATIONAL**
  - **CUSTOMARY LAW**
  - **TREATY LAW**
  - **SPACE LAW**
- **WEIGHT OF LEGAL IMPLICATIONS**
  - **DEPENDS ON MANAGEMENT CONTROL SYSTEM CHOSEN**



# MANAGEMENT CONTROL APPROACHES

## APPROACH

- **ALL U.S. GOVERNMENT**
- **INTERNATIONAL, ONE NATION / ONE VOTE (NOT EVALUATED)**
- **MULTILATERAL CONSENSUS MODEL**
- **MULTILATERAL PROPORTIONATE USE VOTING**
- **PRIVATE / GOVERNMENT PARTNERSHIP**
- **PRIVATE + GOVERNMENT R&D**
- **ALL PRIVATE**

## EXAMPLE

- **APOLLO**
- **UN AGENCIES / LAW OF THE SEA REGIME**
- **INTERNATIONAL SPACE STATION / ANTARCTIC REGIME**
- **INTELSAT / INMARSAT**
- **MODERN AIRLINE INDUSTRY / U.S. AGRICULTURE**
- **PRE-1958 AIRCRAFT INDUSTRY**
- **TRANS-ALASKA PIPELINE**

# MANAGEMENT CONTROL SYSTEM: RELATIVE PRIORITIES - 1

- **ALL GOVERNMENT OR GOVERNMENT / PRIVATE PARTNERSHIP**
  - **U.S. POLITICAL ENVIRONMENT**
  - **SPACE LAW ENVIRONMENT**
  - **MANAGERIAL CONTROL ENVIRONMENT**
  - **FINANCIAL AND TECHNICAL FEASIBILITY**
    - **BUDGETARY COMMITMENT**
    - **TECHNICAL MATURITY**
  - **REGULATORY ENVIRONMENT**

# MANAGEMENT CONTROL SYSTEM: RELATIVE PRIORITIES - 2

- **INTERNATIONAL**
  - **SPACE LAW ENVIRONMENT**
    - **MANAGERIAL CONTROL ENVIRONMENT**
      - **CONTRACT DISPERSION**
  - **U.S. POLITICAL ENVIRONMENT**
    - **BUDGETARY COMMITMENT**
  - **TECHNICAL FEASIBILITY**
  - **FINANCIAL FEASIBILITY**

# MANAGEMENT CONTROL SYSTEM: RELATIVE PRIORITIES - 3

- **MULTILATERAL (INTELSAT)**
  - **PROPORTIONATE USE VOTING SYSTEM**
    - SPACE LAW ENVIRONMENT
    - MANAGERIAL FREEDOM
  - **FINANCIAL AND TECHNICAL FEASIBILITY**
    - RETURN ON INVESTMENT ?
    - TECHNICAL MATURITY
  - **U.S. POLITICAL ENVIRONMENT**
    - BUDGETARY COMMITMENT

# MANAGEMENT CONTROL SYSTEM: RELATIVE PRIORITIES - 4

- **ALL PRIVATE**
  - **FINANCIAL AND TECHNICAL FEASIBILITY**
    - **RETURN ON INVESTMENT**
    - **TECHNICAL MATURITY**
  - **MANAGERIAL FREEDOM**
  - **REGULATORY ENVIRONMENT**
  - **SPACE LAW ENVIRONMENT**
  - **U.S. POLITICAL ENVIRONMENT**

# **SEMI-QUANTITATIVE EVALUATION OF MANAGEMENT APPROACHES: FINANCING ISSUES**

- **MINIMUM TOTAL START-UP CAPITAL REQUIRED**
  - **FIRST HE-3 DELIVERY TO FIRST ON-LINE FUSION POWER PLANT**
- **MINIMUM TAX REVENUES REQUIRED**
- **MINIMUM PRIVATE CAPITAL REQUIRED**
- **#MINIMUM COST OF CAPITAL / INTEREST ON NATIONAL DEBT**
- **\*MAXIMUM FINANCING FEASIBILITY**
- **LEAST REGULATORY COSTS**
- **\*MINIMUM OPERATING COSTS**
- **\*MAXIMUM RETURN ON INVESTMENT**
  - **FOR GOVERNMENT: SPINOFFS, LOWER POWER COSTS, REDUCED IMPORTS, ENVIRONMENTAL BENEFITS**
- **\*MAXIMUM STAYING POWER**

**# WEIGHTING FACTOR OF 2**

**\* WEIGHTING FACTOR OF 3**



# **SEMI-QUANTITATIVE EVALUATION OF MANAGEMENT APPROACHES: MANAGERIAL ISSUES**

- **MINIMUM COMPLEXITY OF MANAGEMENT**
- **#MINIMUM COMPLEXITY OF OPERATIONS**
- **ACCESS TO LARGEST TECHNICAL BASE**
- **#QUALITY IN PLANNING**
- **#QUALITY IN RDT&E**
- **#QUALITY IN PRODUCTION**
- **#QUALITY IN OPERATIONS**
- **QUALITY IN MARKETING AND SALES**
- **QUALITY IN PRODUCT DISTRIBUTION**
- **\*MAXIMUM SALES MARGINS**
- **#QUALITY IN FINANCIAL CONTROLS**
- **#QUALITY OF WORK FORCE**
- **\*MOTIVATION OF WORK FORCE**

**# WEIGHTING FACTOR OF 2**

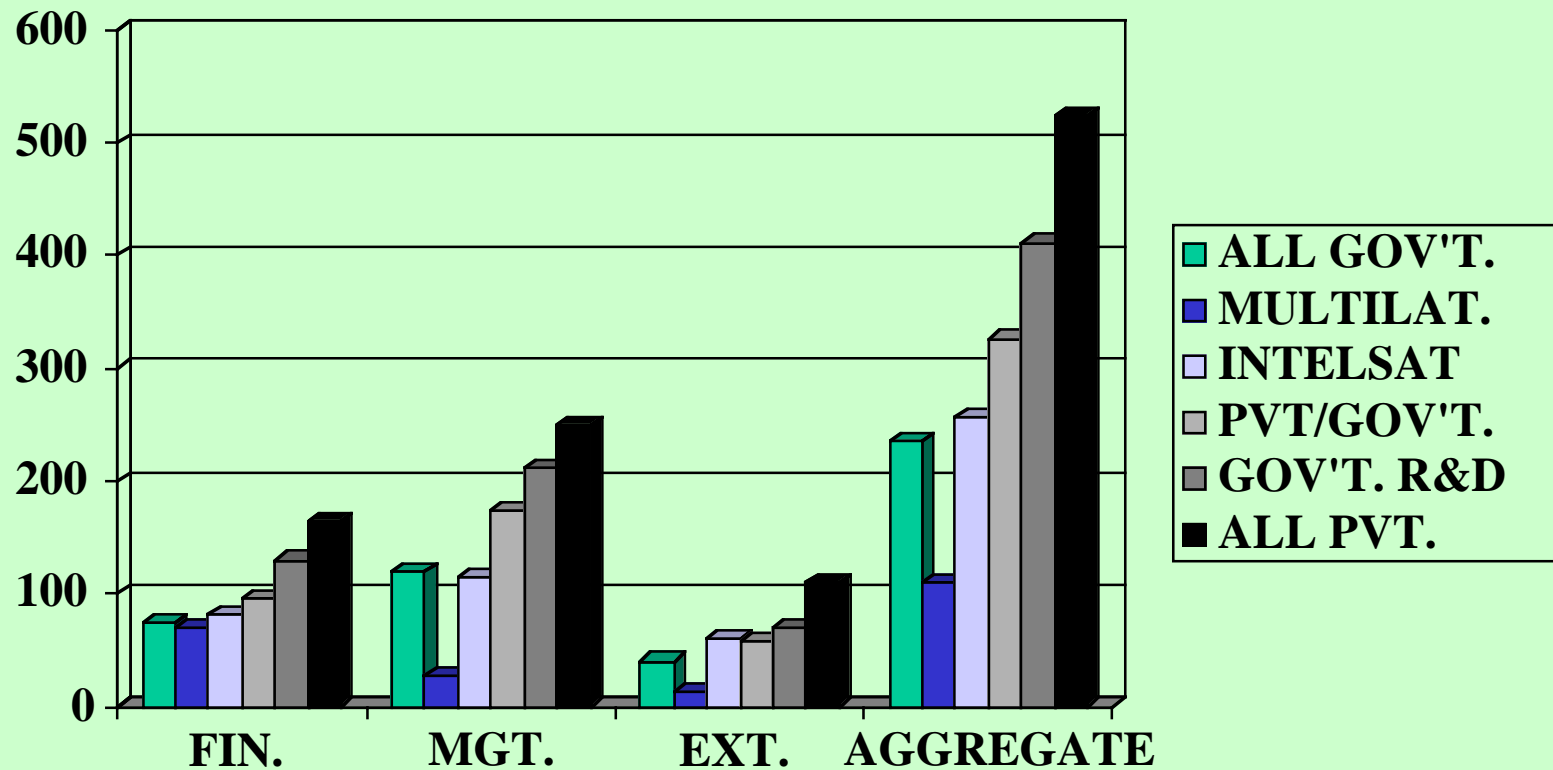
**\* WEIGHTING FACTOR OF 3**

# **SEMI-QUANTITATIVE EVALUATION OF MANAGEMENT APPROACHES: EXTERNAL ISSUES**

- **\*MAXIMUM ENVIRONMENTAL PROTECTION**
- **MAXIMUM POTENTIAL FOR TECHNOLOGY SPINOFF**
- **#MAXIMUM BENEFIT TO OVERALL U.S. ECONOMY**
- **\*MAXIMUM BENEFIT TO PEOPLE IN DEVELOPING NATIONS**
- **#MAXIMUM POTENTIAL FOR SPACE SETTLEMENT**

**# WEIGHTING FACTOR OF 2**  
**\* WEIGHTING FACTOR OF 3**

# SEMI-QUANTITATIVE EVALUATION OF MANAGEMENT APPROACHES



# **INTERNATIONAL LAW: GENERAL - 1**

- **WHAT COUNTS AS INTERNATIONAL LAW?**

- **LAW OF PRESENT INTERNATIONAL POLITICAL SYSTEM "GOVERNING" THE COEXISTENCE OF NATIONS**

- **BODY OF PRINCIPLES**
- **RULES**
- **INSTITUTIONS**
- **PROCEDURES AND PRECEDENTS**
- **BENEFITS**

- **WHAT ARE ITS POTENTIAL ADVANTAGES?**

- **REGULATION OF RELATIONS**
- **PREDICTABILITY OF INTERACTIONS**
- **RESOLUTION OF DISPUTES**



# INTERNATIONAL LAW: GENERAL - 2

- **DOES INTERNATIONAL LAW WORK?**

- **MOST STATES COMPLY WITH MOST OF THE TIME.**

- **SOURCES**

- **TREATIES OR FORMAL AGREEMENTS**
- **INTERNATIONAL CUSTOMARY LAW**
- **GENERAL PRINCIPLES OF LAW RECOGNIZED BY MOST MAJOR NATIONAL LEGAL SYSTEMS**

- **TREATIES AND AGREEMENTS**

- **MOST IMPORTANT COMPONENT OF INTERNATIONAL LAW**
- **LEGALLY BINDING ONLY ON THOSE WHO EXPRESSLY RATIFY**
  - **INTERNATIONAL PRESSURES CAN BE APPLIED**
- **MAY REQUIRE MINIMUM NUMBER TO "ENTER INTO FORCE"**
- **"RESERVATIONS" RELATED TO PARTICULAR PROVISIONS MAY BE TAKEN BY INDIVIDUAL STATES**





# INTERNATIONAL LAW: GENERAL - 3

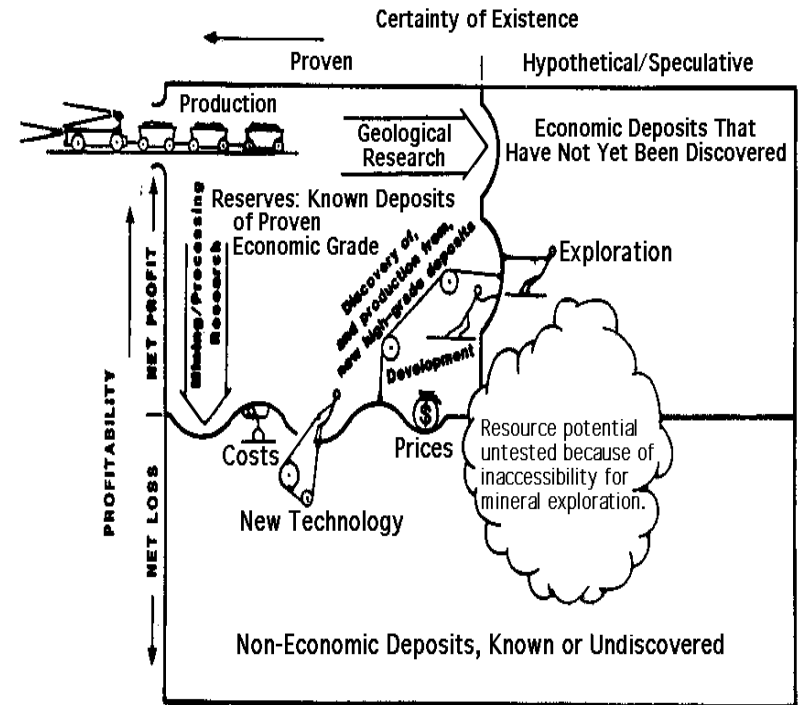
- **CUSTOMARY LAW**

- **WIDESPREAD PRACTICE OR COMMON TO MOST LEGAL SYSTEMS**
- **"RULE" FOLLOWED AS BINDING OVER TIME RATHER THAN CONVENIENT**



# TERRESTRIAL MINING LAW: GENERAL -1

- NATIONAL SYSTEMS PREDOMINATE
- ALL "INTERNATIONAL" MINING LAW DERIVES FROM NATIONAL LAW.
- ALTERNATIVE SITUATIONS FOR A PROSPECTIVE MINER:
  - OWNS LAND AND MINERAL RIGHTS
  - OWNS ONLY THE MINERAL RIGHTS
  - LEASES MINERAL RIGHTS FROM OWNER
  - EMPLOYED BY "STATE" OWNER
- PUBLIC OWNERSHIP OF MINERAL BEARING LANDS
  - ROOTS IN "SOVEREIGN" RIGHTS, I.E., THE RIGHTS OF THE CROWN.



# TERRESTRIAL MINING LAW:

## GENERAL -2

- **ACCESS TO PUBLIC MINERAL RIGHTS:**
  - **MINING CLAIMS SYSTEM (MINER HAS TITLE TO MINERALS)**
    - **CURRENT SPACE LAW**
  - **CONCESSION OR LEASING SYSTEM (STATE HAS TITLE TO MINERALS)**
  - **STATE PRODUCTION**
  - **STATE-PRIVATE PARTNERSHIPS**
  - **STATE MANAGED CONTRACTS WITH PRIVATE ENTITIES**
- **REGULATORY CONTROL MAY BE (AND USUALLY IS) EXERTED BY THE STATE**
  - **LAUNCH LICENSES**
  - **COMMUNICATION LICENSES**
  - **RETURN PAYLOAD LICENSES**
  - **ENVIRONMENTAL IMPACT STATEMENT**

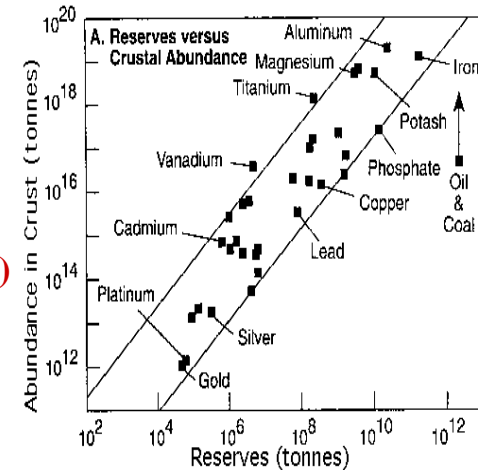


Figure 13-1 A, Mineral Resources, Economics and the Environment, S.E. Kesler, Macmillan



# TERRESTRIAL MINING LAW: HISTORY - 1

- UNITED STATES\*

- PRIVATE ENTERPRISE UNDER REGULATORY FRAMEWORK

- GENERAL MINING LAW OF 1872 LARGELY MODIFIED BY MODERN ENVIRONMENTAL REGULATIONS

- CLAIMS SYSTEM (METALLIC AND NON-METALLIC MINERALS)

- BIDDING / LEASING SYSTEM (FOSSIL FUELS)

NO EFFECTIVE NATIONAL MINERALS  
POLICY EXCEPT DURING WAR-TIME  
(WW II AND KOREA)

STRATEGIC MATERIALS "POLICY"  
DRIVEN BY THE INTERNATIONAL  
MARKETPLACE AND DOMESTIC  
POLITICS

STRATEGIC STOCKPILE NO  
LONGER A PRIORITY ISSUE  
(EVEN THOUGH, AS A  
MARITIME NATION, IT  
PROBABLY SHOULD BE)



\*SEE <<http://www.cnie.org/nle/mine-1.html>> FOR DETAILS

# TERRESTRIAL MINING LAW: HISTORY - 2

- SOVIET UNION / RUSSIA

- ORIGINAL OBJECTIVES OF STATE PRODUCTION

- SELF-SUFFICIENCY
- ECONOMIC BASE FOR SETTLEMENT OF SIBERIA
- FOREIGN EXCHANGE

- CURRENT OBJECTIVES OF STATE-PRIVATE PARTNERSHIPS

- FOREIGN EXCHANGE
- CRIMINAL AND / OR POLITICAL CONTROL
- RE-EMERGENCE OF NATIONALISM



# TERRESTRIAL MINING LAW: HISTORY - 3

- CHINA
  - STATE PRODUCTION THROUGH MILITARY SUBDIVISIONS
    - WARLORD TRADITION
  - STATE EMPHASIS ON INDUSTRIAL AND ENERGY SUPPLY GROWTH
  - SOME TRANSITION TO CONCESSION SYSTEM?
  
- JAPAN
  - "PRIVATE" ENTERPRISE WITH CLOSE STATE COOPERATION / INFLUENCE
  - DEPENDENT ON IMPORTS FROM FOREIGN PRODUCERS OR FROM CONCESSIONS IN FOREIGN LANDS

# TERRESTRIAL MINING LAW: HISTORY - 4

- WESTERN EUROPE
  - SPECTRUM OF APPROACHES
    - UNITED KINGDOM: MIX BETWEEN U.S. AND JAPAN
    - FRANCE: SIMILAR TO JAPAN
    - NORWAY: PRIVATE INTERNALLY / CONCESSIONS IN THE OFF-SHORE
    - SWEDEN: STATE-PRIVATE PARTNERSHIPS
- THIRD / FOURTH WORLD NATIONS
  - LARGELY CONCESSIONS TO PRIVATE OR FOREIGN STATE-RUN ENTITIES

# **TERRESTRIAL MINING LAW: IMPLICATIONS IN AN INTERNATIONAL REGIME**

- **A FUTURE NEGOTIATED SYSTEM MAY NOT HAVE A ROLE FOR PRIVATE ENTERPRISE**
  - **ALL RESOURCE ACTIVITY MAY BE UNDERTAKEN BY THE INTERNATIONAL ENTITY**
- **IF PRIVATE ENTERPRISE HAS A ROLE, IT MAY BE WITH A:**
  - **COMPETITIVELY BID CONCESSION, WITH PAYMENT OF RENT AND/OR ROYALTIES,**
  - **NON-COMPETITIVE CONCESSION, OR**
  - **CONTRACT TO WORK FOR THE INTERNATIONAL ENTITY.**

# CHRONOLOGY OF INTERNATIONAL AGREEMENTS RELEVANT TO SPACE

