Anthropology 103, Archaeology and Culture
Lecture Outlines

Lecture 1: What is Anthropology?

Holistic/multidisciplinary

Fields of Anthropology
- Physical
  - Paleontology
  - Human Variation
  - Forensics
- Archaeology
  - Old World: biblical, classical, Bronze Age, etc.
  - New World: prehistoric, historic
- Cultural
  - Ethnology
  - Ethnohistory
  - Cross-cultural research
  - Applied Anthropology
  - Ethnohistory
  - Linguistics
    - Struct.
    - Historical

Culture Scales
- Small-scale or domestic-scale, kin-based, household main social unit
  - Bands: Hunter-gatherers
- Medium-scale or political-scale,
  - Tribes: hunter-gatherers, farmers, influential extended kin-groups
  - Chiefdoms: farmers, power vested in a few individuals, collect tribute
  - Agricultural States: formal gov't, army, priests, rulers, highly stratified
- Large-scale or commercial-scale
  - Industrial states, highly stratified based on occupation, global system

Anth 103
Lecture 2: What is Culture?

Culture: first defined as formal concept in the 1870s; today, a multitude of definitions exist.

Definitions of Culture

Topical: culture consists of everything on a list of topics or categories: social organization, religion, economy, kinship, subsistence, etc.

Historical: culture is social heritage or tradition that is passed on to future generations

Behavioral: culture is shared, learned behavior; a way of life

Normative: culture is ideals, values, or rules for living

Functional: Culture is the way humans solve problems of adapting to the environment or living together

Mental: Culture is a complex of ideas, or learned habits, that inhibit impulses and distinguish people from animals

Structural: Culture consists of patterned and interrelated ideas, symbols, or behaviors

Symbolic: Culture is based on arbitrarily assigned meanings that are shared by a society

Material/nonmaterial

Anthropology 103
Lecture 3: Levels of Cultural Complexity
Bands, Tribes, Chiefdoms, and States

World Culture History

100-50,000 BP: Fully modern humans
100-10,000 BP: Small scale societies
After 10,000 BP: Sedentism
5,000 BP: State formation
200 BP: Global system

Culture Types

Bands
- carrying capacity
- resource poor environments
- resource rich environments
- sexual division of labor
- food sharing/reciprocity
- base camp
- egalitarian social structure
- Kung/Kalahari Bush People
- North American Inuit/Eskimo

Tribes
- Kin groups
- Village leader/headman
- Horticulture/slash and burn/swidden agriculture
- pastoralism
- intertribal warfare
- Public Architecture/Monuments
- Yanamamo/Amazon rain forest
- New Guinea Highlanders
- Cherokee/North America

Chiefdoms
- Resource rich environments
- Overlapping environmental zones
- Food Storage/Surplus Economy/Tribute
- Ranked Society
- Hereditary Status
- Public Architecture/Monuments
- Polynesian Chiefdoms
- North American Chiefdoms
- Formal Warfare

Agricultural States
- Intensive Agriculture
- Urban centers
- Armies
- Specialized division of labor
- Public architecture/Monuments
- Knowledge systems
- Social Stratification
- Conquest Warfare
- State Collapse

Anth 103, Lecture 4/Chapter 2:
History of Time Depth and Evolutionary Thought

Time Depth
Time Line
Evolution: Systematic Change Over Large Periods of Time
    Physical/Biological Evolution
    Cultural Evolution
Our Origins: Prescientific vs Scientific Thought
    Prescientific Thought
        Creation Myths
        Creationism
        Immutable Universe
            John Ray
        World in Decline
            Rev. Thomas Burnt
            Ben Franklin
        Prescientific Age of the Earth
        Catastrophism
    Early Scientific Thought
        Science
            Physical vs Social Sciences
        Age of the Earth: Early Geology
            James Hutton
            Uniformitarianism
            William Smith
            Charles Lyell
        Age of Humans: Archaeological and Paleontological Finds
            1700s-1800s: Stone Tool and Fossil Finds
            John Frere
            Narbone, France
            Father John MacEnery
            Christian Jurgensen Thomsen
                Three-Age System
            Jacques Boucher de Perthes
            Neander Skull, Germany
        Biology and Evolutionary Thought
            Naturalists
            Carolus Linneaus
            Georges Cuvier: Catastrophism vs Uniformitarianism
            Count Buffon
            Jean de Lamarck
        Charles Darwin and Synthesis of Evolutionary Thought
            Synthesis
            Robert Wallace
            Convergence
1850s-1870s: Anitiquity of Earth and Humans Discovered
    Beginning of Time Depth in Early Science
        1859, Darwin, The Origin of Species
        1859, Lyell, Geological Evidences of the Antiquity of Man
        1859, John Preswich and John Evans
            Supported de Perthes stone tools
        1859, John Evans
            Supports tools found by John Frere in 1799
    Cultural Evolution
        Unilineal Evolution
        Edward Tyler
        Lewis Henry Morgan

Anth 103, Lecture 5/Chapter 2
Gathering Data in Archaeology: Methods of Retrieving the Past

- The Scientific Method
- Importance of the Archaeological Record
  - History and Writing
  - Prehistory
- Archaeologists
  - Time Detectives/Archaeological Reporters
  - Ask 6 Basic Questions
    - Who, What, When, Where, How, and Why?
- Sources of Archaeological Data: Sites
  - Site
  - Artifacts and Material Culture
  - Ecofacts
  - Features
  - Site Formation Processes
  - Taphonomy
- Archaeological Deposits
  - Primary Refuse
  - Secondary Refuse
  - Site Preservation
  - Unusual Preservation Environments
    - Deserts
    - Caves
    - Mountains
    - Peat Bogs
    - Glaciers
    - Deep Water
- Site Discovery
  - Site Survey
  - Site Testing
    - Artifact Content
  - Site Excavation
    - Block Excavation
    - Site Stripping
- Artifact Analysis
  - Artifact Types
    - Stone Tools--Lithics
      - Lithic Functional Analysis
      - Use-Wear
      - Trace Element Analysis
      - Trade Networks
      - Tool Replication
    - Pottery
      - Attributes
  - Social Patterns
    - Burial Practices
  - Subsistence Practices
  - Human Remains
    - Health
    - Sex, Age, Race, Cause of Death
    - Paleopathology
- Chronology
  - Absolute vs Relative Dating Methods
  - Relative Dating Methods
    - Stratigraphy
    - Pottery Seriation
  - Absolute Dating
    - Carbon-14 Dating, C-14, AMS
    - Potassium-Argon Dating, K-Ar
    - Dendrochronology
    - Electron Spin Resonance Dating, ESR
    - Thermoluminescence Dating, TL
    - Obsidian Hydration Dating
    - Paleomagnetic Dating

Anth 103, Lecture 6:
Biological Evolution

- Biological Evolution: General Concepts
  - Charles Darwin
  - Natural Selection
  - Adaptive Variation
  - Reproductive Success
  - Robert Wallace
- Biological Evolution: Five Main Processes
  - Population Exceeds Food Supply
  - All Organisms Have Variation
  - Population Encourages Competition
  - Survival Advantages are Passed to Offspring (Reproductive Success)
  - Adaptive Success Encourages Speciation
- Biological Basis of Evolution
  - Inheritance
  - Genes
  - Traits
  - Genotype
  - Phenotype
  - Chromosomes
  - DNA
  - Recombination
  - Meiosis
- Population Genetics
- Forces of Evolution
  - Natural Selection and Adaptation
  - Mutation
  - Gene Flow
  - Genetic Drift and Founder Effect
  - Recombination
- Types of Evolution
  - Speciation
  - Geographic Isolation
  - Gradualistic Theory
  - Punctuated Equilibrium
  - Adaptive Radiation
- Pongid-Hominid Split

ANTH 103, LECTURE 7/CHAPTER 3
EARLY HOMINID EVOLUTION

Pongid-Hominid Split, 10-7 mya
- Miocene Geologic Epoch

First Hominids
- Hominid Trends
  - Bipedalism
  - Increasing Stature
  - Increasing Brain Size
  - Reduced Robusticity
  - Complex Tool Manufacture and Use
  - Mosaic Evolution

Early Hominids
- Physical Characteristics
- Genus
- Species
- *Ardipithecus ramidus*

Gracile Australopithecines
- *Australopithecus anamensis*
- *Australopithecus afarensis*
- *Australopithecus africanus*

- ***Australopithecus garhi***

Robust Australopithecines
- *Australopithecus aethiopicus*
- *Australopithecus robustus*
- *Australopithecus bosei*

Hominid Phylogeny

Homo habilis
- Oldowan stone tool tradition
  - Chopper tools
  - Flake tools

Early Hominid Issues
- Hominid Proliferation
- Bipedalism
- Hominid Brain
- Subsistence Practices
- Classifying Species
- Evolutionary Rates

ANTH 103 Study Guide
Lecture 8/Chapter 4
***Homo Erectus*: Out of Africa**

- Early Hominid Phylogeny
  - Traditional Model
    - H. habilis, H. erectus, Africa, Europe, Asia
  - Multiple Species Model (provisional species)
    - H. habilis, H. ergaster (Africa)
    - H. habilis, H. ergaster (Africa), H. antecessor (Europe), H. heidelbergensis (Europe)
    - H. habilis, H. erectus (Asia)
- Homo Erectus, 1.8 mya-300 kya
  - H. habilis, H. erectus, H. sapiens
- Physical Characteristics
  - Cranial Features
    - Larger brain
    - Forehead
    - Hemispheric asymmetry
    - Facial Prognathism
    - Supraorbital torus
    - Projecting nose
  - Post-Cranial Features
    - Modern stature
    - Heavy frame, very strong
    - Thick cortical bones--confrontation hunting
- Hominid Radiation
  - East Asia, Java Man
    - Trinil site
    - Ngandong
    - Sangiran
  - China
    - Zhoukoudian site
    - Gongwangling Hill
    - Longtandong site
  - Europe
    - Georgia, Russia
    - Gran Dolina site, Spain
    - Boxgrove Quarry
    - Isernia La Pineta
    - Soleilhac
- Acheulean Hand-axe
  - Movius Line
- Food and Subsistence Practices
  - Daka site, Ethiopia
  - Torralba and Ambrona sites, Spain
  - Aridos 1 and 2, Spain
  - Boxgrove Quarry, England
  - Confrontation hunting
- Hominid Radiation
  - Controlled Use of Fire
- Infant Growth and Development
- Prolonged human dependency
  - Secondarily altricial
- H. erectus: Extinction
  - Cultural/Physical Stability

ANTH 103, Lecture 9/Chapter 5
Neandertals: Premodern Humans

General Trends

Premodern humans: transitional between *H. erectus* and *H. sapiens sapiens*
Primitive skeletal features
Modern brain size
More complex culture compared to *H. erectus*
Archaic *H. sapiens*: 400,000 ya to 30,000 ya in Europe and southwest Asia during the Ice Age
Physically adapted to Ice Age: short height and thick, heavy bones due to environmental and lifestyle

Fossil Evidence

East Africa: Bodo, Ileret, Ndutu
South Africa: Broken Hill, Zambia
Asia: Narmada hominid; Jinniushan Man, Yingkou, China
Europe: Sima de la Huesos "The Pit of Bones"; Steinheim Skull; Swanscombe Skull fragments, Petralona skull

Cultural Evidence

Core tools, Flake tools, Levallois technique, Prepared cores

Neandertals

Boule, French scientist, "La Chapelle Man"

Cranial Morphology

Brain size: 1300-1600 ml, 1480 average
Skull: retained primitive features
oval shape
thick cranial bones, large brow ridges,
occipital bun
mid-facial projection

Postcranial Morphology

Modern appearance
Cold adapted
Thick cortical bone
Musculoskeletal hypertrophy
Confrontation hunting

Culture

Mousterian tool tradition
Standardized tool types

Subsistence

Impact wear
Isotope analysis
Top-level carnivores

Compassion/Empathy

Injury/Illness
Burial of the Dead
Fetal/flexed positions

Speech?

Basicranium

Religious Beliefs, Art and Music?

Expressive culture

Kebara Cave, Israel: Case Study

Diet
Tools

ANTH 103, Lecture 10/Chapter 6
Modern Humans: Biological Evolution

First H. sapiens sapiens: Genetic Evidence

- Nuclear DNA
- Mitochondrial DNA (mtDNA)
  - Cheddar Man, England

How Did Modern Humans Evolve?

- Replacement Model (Chris Stringer)
- Multiregional Model (Milford Wolpoff)
- Partial Replacement/Middle Ground Model

Replacement or Continuity:Existing Evidence?

- Earliest modern human fossils
  - Africa 100kya
  - Mideast 90kya
  - Asia after 90kya
  - Europe 40kya
  - Australia 40kya
- African Migration
- Neandertal Extinction
- Neandertal mtDNA
- Mousterian tradition
- Aurignacian blade tradition
- Chatelperronian tradition

Genetic Genealogy

- Eve Hypothesis
- mtDNA/Living groups
- Y Chromosome Studies

Neandertal Replacement/Extinction

- High infant mortality rates
- Dietary/nutrional stress
  - Enamel hypoplasia
  - Harris lines
- Environmental overadaptation
- Less developed frontal brain

ANTH 103 Study Guide
Lecture 11/Chapter 7

Upper Paleolithic

50,000-15,000 YA

Major Developments
- Stone Tool Trends
- Stone Blades
  - Aurignacian
  - Gravettian
  - Solutrean
  - Magdelanian
- Subsistence Trends
  - Megafauna
- Larger Sites
- Composite Technology
- Nonutilitarian Objects
- Exotic Materials
- More Elaborate Burials
- Sophisticated Art
  - Nonportable
    - Pictographs
    - Petroglyphs
  - Portable
    - Figurines

Geographic Distribution of Art
- Africa
- Europe
  - Figurines

Cultural Meaning of Art
- Art for Art's Sake
- Sympathetic Magic
- Sexual Depictions
- Historical Events
- Group Symbols
- Territory Markers
- Depict important food animals
- Depict Trance States by Shaman

ANTH 103 Study Guide
Lecture 12/Chapter 8: Prehistoric Migrations

Modern Human Expansion
Pliocene Epoch
Pleistocene Epoch
Holocene Epoch

Indonesia, New Guinea, Australia
- Sunda
- Sahul
- Island-hopping
- Indonesia Archipelago
- 40,000 BP Barrier
  - Lake Mungo
- Post-40,000 BP
  - Waisted Axes
- New Guinea
  - Bobongara Hill
  - Kosipe site
  - Nombe site
- Australia
  - Coast
    - Upper Swan Bridge site
    - Devil's Lair Site
    - Willandra Lakes
  - Interior
    - Puritjarra Rockshelter
- Tasmania

Pacific
- Lapita Archaeological culture
- Island hopping
- Historic Pacific Islanders
- Melanesia
- Micronesia
- Polynesia

Americas
- Bering Land Bride
- Interior land route
  - Ice free corridor
    - Bluefish Cave site
    - Meadowcroft Rockshelter
    - Nenana Complex
    - Denali Complex
    - Clovis culture
      - Subsistence
    - South America
- Sea Routes
    - Coastal/Maratime adaptation
    - Monte Verde site
    - Quebrada Jaguay and Quebrada Tacahuay sites

First Americans—Other Evidence
- Skeletal
- Linguistic Diversity
- Genetic Diversity

Anth 103, Lecture 13/Chapter 9
The Old World Mesolithic and New World Archaic

Major Trends
Pleistocene/Ice Age Ends--Holocene Begins
Broad Environmental Adaptation
Environmental diversity--cultural diversity
Modern species
Resource specialization and resource domestication
Sedentization
New Foraging Equipment
Lithic downsizing
Complex hunter-gatherers
Population trends

Old World Mesolithic
- Africa
  - North Africa: Iberomaurusians Culture
  - Capsian Culture
  - Expressive Culture
    - Rock art
  - Europe
    - Maglemosian culture
      - Star Carr, England
    - Bow and Arrow
    - Canoe
    - Dog
- Asia
  - North China
    - blade and flake industry
    - microblade industry
  - South China
  - Thailand
    - Spirit Cave
- Australia
  - New Technology
    - Ground stone axes
    - Flaked stone adzes
    - Small-tool tradition

New World Archaic
- North America—the Archaic Period, 9,000 to 3,000 ya
  - Northeast Archaic
    - Lake Forest Archaic Culture
    - Maritime Archaic Culture
    - Mast Forest Archaic Culture
  - Koster Site
- South America
  - Pintada Cavern
  - Quebrada Jaguay, Quebrada Tacahuay

Complex Hunter-Gatherers
- The Natufians

Anth 103 Study Guide
Lecture 14/Chapter 10
The Origins of Farming

Importance of Farming—Source of Cultural Complexity
Neolithic Revolution, Food Producing Revolution, Agricultural Revolution

Consequences of Farming
- Social Complexity
- Global Food
- Neolithic Nutrition and Health

Causes of Agriculture
- Multiple causes
- Environmental Change/Oasis theory
- Cultural Evolution/Readiness hypothesis
- Population Growth
- Accident

Causes of Domestication
- Artificial Selection
- Domestication/Domesticates

Archaeological Evidence for Domestication and Agriculture
- Geography
- Size
  - Dogs
- Seed Morphology
- Osteological Changes
- Population Characteristics

Early Agricultural Regions

Old World

Near East
- Fertile Crescent/Levant
- Late Pleistocene Foragers
- Simple Foragers
  - Geometric Kebararn culture
  - Mushabian culture
  - Zarzian and Karim Shahirian cultures
- Complex foragers
  - Natufians
- Farming Model in Southewest Asia

Africa
- Neolithic Culture Regions
  - Savanna complex sites
  - Forest Margin complex sites
  - Ethiopian
- Chronology of Food Production
  - Egypt, Wadi Kubbaniya site
  - Qadan culture
  - Nabta Playa site
  - Sahara Pastoralists
- Tropical Africa

East Asia
- China
  - Zengpiyan Cave
- North China
  - Peiligang culture
  - Yangshao culture
- Southeast & Northeast Asia
  - Spirit Cave, Thailand
  - Northeast Thailand

Europe
- Southeast Europe
  - Greece
- Southern Europe
  - Western Europe
  - Swiss Alps
  - Central Europe/LBK culture

New World

North America
- Eastern Woodlands
- Southwest

Mesoamerica
- Squash
- Teosinte
- Oaxaca Valley
- Tehuacan Valley
  - Ajuereado phase
  - El Riego phase
  - Coxcatlan phase
  - Abejas phase
  - Purron phase
  - Ajalpan phase
- Farming Model in Mesoamerica

South America
- 3 Regional Neolithics in South America
  - Low Altitude
  - Mid Altitude
  - High Altitude
- Animal domestication
- Cotton

Lecture 15/Chapter 11
Beginnings of Complexity:
Origins of Civilization

Complex Societies
Larger populations
Sedentary
Produce agricultural surpluses
Religious-political systems
Regional centers
Origins of Complexity
Food surpluses
Labor organization
Subsistence Change and Social Change
Ranked societies
Big Men
Chiefdoms

Old World Complex Societies

Jericho
Catalhoyuk
Mesopotamia
    Northern Mesopotamia
        Umm Dabaghiyah culture, pre-8,000 ya
        Hassunan culture, 8,000-7200 BP
        Samarran culture, 7500 ya
        Halafian culture, 7500 to 6700 ya
Stonehenge
    Megaliths

New World

Mesoamerica
Olmec Culture
    La Venta, Tabasco, 3,650 ya
    San Lorenzo, Veracruz, 3,650
    Laguna de los Cerros, 3,100 ya

South America
Caral, 4500 ya
Chavin, 3,000 ya
    Chavin de Huantar
        Iconography/Cosmology
        Meaning of Chavin Iconography/Cosmology

Lectures 16 & 17/Chapter 14
Ranked Societies:
The Old and New World

Ranked Societies: Characteristics
Regional Centers
    Outlying villages
Complex hunter-gatherers and farming societies
Social Differences
Monuments/Labor Organization
Regional Trade
Craft Traditions
Burial Ritual

Africa
Great Zimbabwe, South Africa
    Site layout
    Settlement Patterns and Hierarchy
        Trade Routes
        Tri-level settlement system:
    Status Differences
        Elites vs Farmers

Eastern North America
Complex hunter-gatherers and farmers
Earthen mounds & mound centers
Watson Brake site, Louisiana, 5,200 ya
Poverty Point, Louisiana: Complex Hunter-Gatherers, 3200ya
Adena and Hopewell
Mississippian Chiefdoms, AD 1100-1500
    Cahokia, east St. Louis

Southwest
Hohokam, Sonoran Desert, southern Arizona, AD 700-1000
Mogollon, AD 200-1400, highlands of eastern Arizona and New Mexico, and south into Mexico
Anasazi: Ancestral Puebloan, 2500 ya-AD 1200, Four Corners area
    Chaco Canyon

Northwest Coast
Complex Hunter-Gatherers, 2600 ya to 1800s
    Potlatch
    Ozette village

ANTH 103
Lecture 18/Chapter 12
Old World Civilizations/Agricultural States

Characteristics
- Food Surplus
- Regional Urban Centers
- Large Urban Populations
- Formal Government, Theocracy
- Social Stratification
- Monumental Works
- Public Works
- Knowledge Systems
- Complex economy
- Regional and Long Distance Trade
- Craft/art traditions
- Burial Ritual

Evolution of Agricultual States
- Conflict models
- Integration models
- Historically particular causes
- Multiple Causes

Mesopotamia
- Ubaid, 6300 ya
- Uruk, first city, 5500—5200 ya
- Early Dynastic Period, 4850-4600 ya
- Elite Burial Ritual
    - Queen Pu-abi, Ur
- Sumerian Writing

Egypt
- Egyptian Neolithic
    - 7,000-5,000 ya, domesticated crops
    - 6,500-5500 ya, political formation, central places
    - Early Nile Valley Central Places
    - Nagada—lavish burials in tombs by 5500 ya
    - Hierakonopolis
    - First Egyptian Writing, 5,200 ya
    - First Pharaoh, 3540 ya
    - Pyramids, 4,600 ya

Nubia
- 3,500 ya, Kerma Civilization
    - Kerma site
    - Tumuli X
    - Meroe site, 2500-2200 ya

Indus Valley Civilization

Baluchistan Hills, early sites
- Mehrgarh, 9,000 ya
- Kili Ghul Muhamad, 6,500 ya
- Mundigak, 6,000 ya

Irrigation Systems
- Floodplain Settlement after 6,000 ya
- Irrigation/Flood control
- Cultural convergence
- Floodplain Villages
  - Kot Diji, 5500 ya
- Floodplain Cities, 4500-4000 ya
  - Mohenjo-daro
  - Harappa

China
- Yang-shao
- Lung-Shan,
- Shang

Minoan Crete
- King Minos, Minotaur
- Sir Authur Evans, 1890
- Temple of Knossos, 3800 ya
- New Temple Period, 3650-3420
- Eruption of Thera, 3420 bp

Khemer Kingdom
- Funan, A.D. 150-550
- Khemer, A.D. 800-1400
  - Angkor Wat, A.D. 1113

Lecture 19/Chapter 13
New World Civilizations

Collapse of Agricultural States

- Cultural evolution and cyclicity
- Multiple causes of State Collapse
  - Stressors
  - System Decline
    - Environmental Deterioration
    - Environmental Catastrophes
    - Conflict
      - Internal
      - External

Mesoamerica/Central America

- Teotihuacan, Basin of Mexico, Central Mexico, 2,000 ya-AD 1000
- Maya, Yucatan Peninsula, 2,500 ya-AD 1500
- Aztecs, AD 700-1500; late prehistoric/early historic group

South America

- Moche culture, 1700 ya, 2200 ya to AD 600, Peru
- Tiwanaku, AD 200-400
- Wari, AD 600-900
- Chimu/Chan Chan, AD 900-1400
- Inka, AD 1200-1534

Anth 103, Archaeology and Culture
Lecture 20: Historical Archaeology

What is historical archaeology?
- Study of a time period
- A Method
- Study of the Modern World

Pre-Industrial to Industrial Transition
- World Systems Theory
- *Annales* School/French Social History

Midwest: Culture History Periods/Study Topics
- Historic Native Americans
- The Settler Period
  - Indian Trading Posts
  - Military Posts/Forts
  - Subsistence-level Hunting Households
  - Cattle Herders/Livestock Raisers
  - Farmsteads

- Pre-Industrial Societies
  - Folk/vernacular cultures
  - self-sufficiency

- Industrial Influenced Societies

- Development of Commercial Farming
  - Progressive agriculture
  - Modernization

- Development of Urban Communities, Institutions, and Industry
  - Urban/Industrial Archaeology

- Infrastructure Development
  - Roads
  - Canals
  - Railroads
  - New Technology

Anth 103, Archaeology and Culture
Lecture 21/Chapter 15

Humans: Past, Present, and Future

Applied Anthropology: Problem Solving in a Modern World

Global Problems

- Environmental Deterioration
  - Global Agribusiness
  - Air Pollution
  - Greenhouse Effect
  - Loss of Biodiversity
- Resource Depletion
  - Culture of Consumption
  - Global Division of Consumers
  - Energy Consumption
- Global Instability
  - World Hunger
  - Culture of Discontent
  - Population Growth
  - Political/Civil Conflict
  - Global Diseases/Pandemics

Future Scenarios/Outcomes

- Pessimists: The Doomsday Model (system collapse)
- Optimists: The Logic of Growth Model (continuous growth)
- Middle View: Sustainability Model (conservation ethic: less is more)