

John Stuart Mill, 1848

"If the earth must lose that great portion of its pleasantness which it owes to things that the unlimited increase of wealth and population would extirpate from it, for the mere purpose of enabling it to support a larger, but not a better or a happier population, I sincerely hope, for the sake of posterity, that they will be content to be stationary, long before necessity compels them to it."

"I cannot.....regard the stationary state of capital and wealth with the unaffected aversion so generally manifested toward it by political economists of the old school.

I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. ...

.It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement."

Herman Daly, (1992):

"..economic growth is held to be the cure for poverty, unemployment, debt repayment, inflation, balance of payments deficits, pollution, depletion, population explosion, crime, divorce and drug addiction.

This is growth mania.

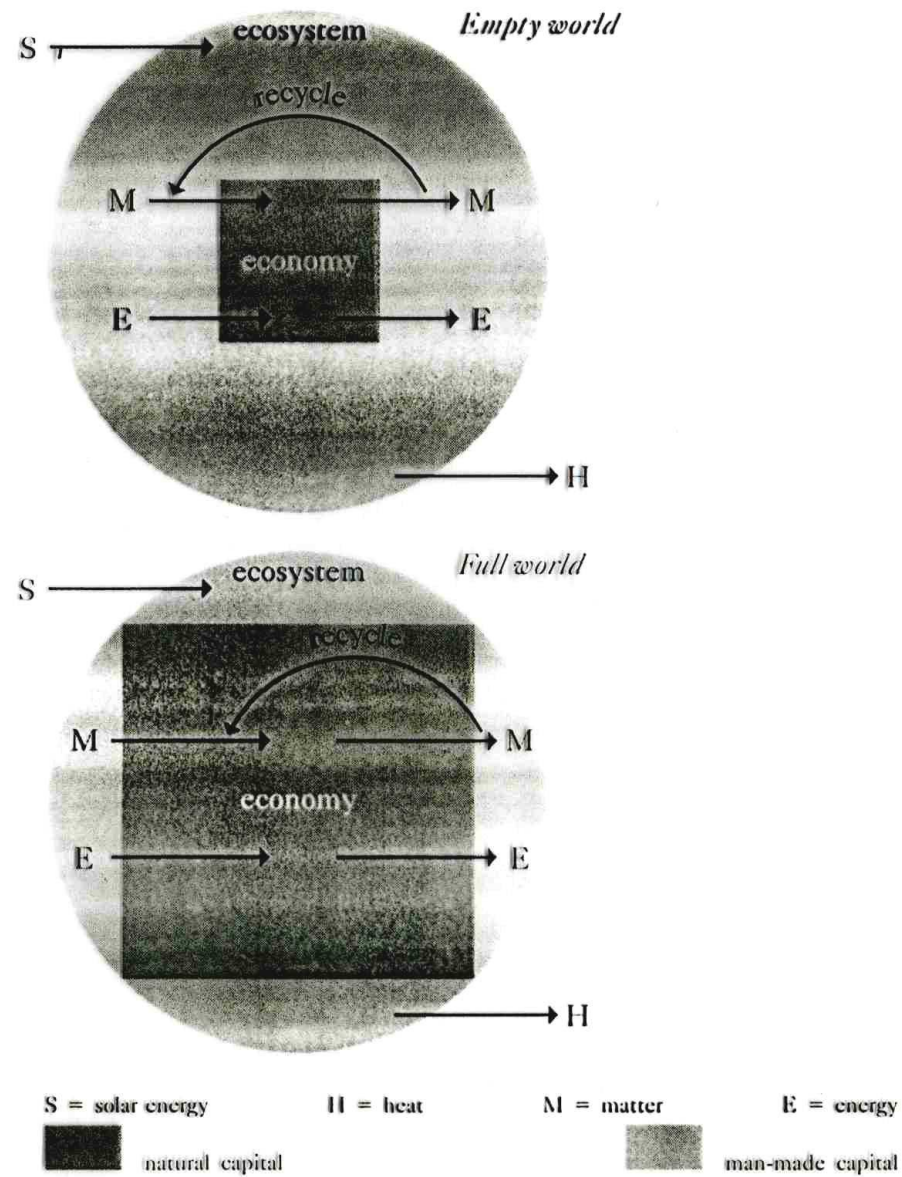
When we add to GNP the costs of defending ourselves against the unwanted consequences of growth and happily count that as further growth,

we then have **hyper-growth mania.**

When we deplete geological capability and ecological life support systems, and count that depletion as net current income,

then we arrive at our present state of **terminal hyper-growth mania.**"

Figure 3. The economy as an open subsystem of the ecosystem



Since the ecosystem remains constant in scale as the economy grows, it is inevitable that over time the economy becomes larger *relative* to the containing ecosystem. This transition from an "empty world" to a "full world" is depicted in figure 3. The point is that the evolution of the human economy has passed from an era in which man-made capital was the limiting factor in economic development to an era in which remaining natural capital is the limiting factor. This theme is developed in Part 2.

Disparities between Economic and Ecological Criteria (from a variety of sources, see references for some)

Economic

Circular flow of national product and income in competitive market

Fallacy of misplaced concreteness (Daly 1989)

Economics deals only with intermediate means Quantitative measures

Values scarcity, and distribution and ends (Daly, 1992)

eg. Does not account for:

- **natural resources**
- **human aims**

Neglects informal market

Ecological

Linear flow of resources to waste; influence of one person's welfare on others

Tries to integrate economy and environment

Decision making system for society, includes ultimate means and ends

Human activity based on:

- **natural resources**
- **fundamental needs**

Depends on informal market

Disparities between Economic and Ecological Criteria continued

Economic

Externalities and intangibles excluded

Depends on perceptions

Assumes substitutability of man-made for natural capital

Discounts the future

Money can be lent and borrowed

Money flows without degradation

Depends on growth:

- **positive feedback**
- **no limits**

GNP as indicator

Ecological

**Everything connected
also Qualitative changes
also values abundance**

Based on physical realities

Gaia depends on natural capital

Present lays basis for future

Energy can't be lent except by consuming natural cap.

Energy degrades with work

Sustainability through turnover:

- **negative feedback**
- **finite limits**

Various welfare and ecological indicators

Paradoxes of economic paradigms (mainly Henderson 1978, 1993)

Technological innovations in a free society destroys conditions for free markets

**Complex industrial societies
become unworkable**

**no public-choice systems adequate
to manage the complexity**

**Trade-off between inflation
and employment:**

**many sources of inflation
social costs of maintaining
coordination**

**Specialisation and division of
labour**

**social alienation: other criteria for
efficiency**

**Greater micro-efficiency in
production
Increasing production and
economic growth**

**structural unemployment and
poverty**

Financial Futures, the ideal compared to the consequences

Envisage the following:

when in fact:

Competition among many small producers

Domination by few large producers

Free entry to markets

costs prohibit new entrants

Perfect information among consumers and producers

producers not aware of "side effects" and consumers are manipulated

**Transactions without any external effects
(Ekins 1986, p195)**

Production and consumption depend on and produce many externalities

MYTHS of the Political-Economic World View (as described by Peet, 1992)

The Prime Myth of unlimited Resources -

-that lower grade resources will always be available; the two non-repeatable achievements of
1) discovery of a second hemisphere and
2) development of technology, were unique;
resources "homogenised" by thinking in money terms only.

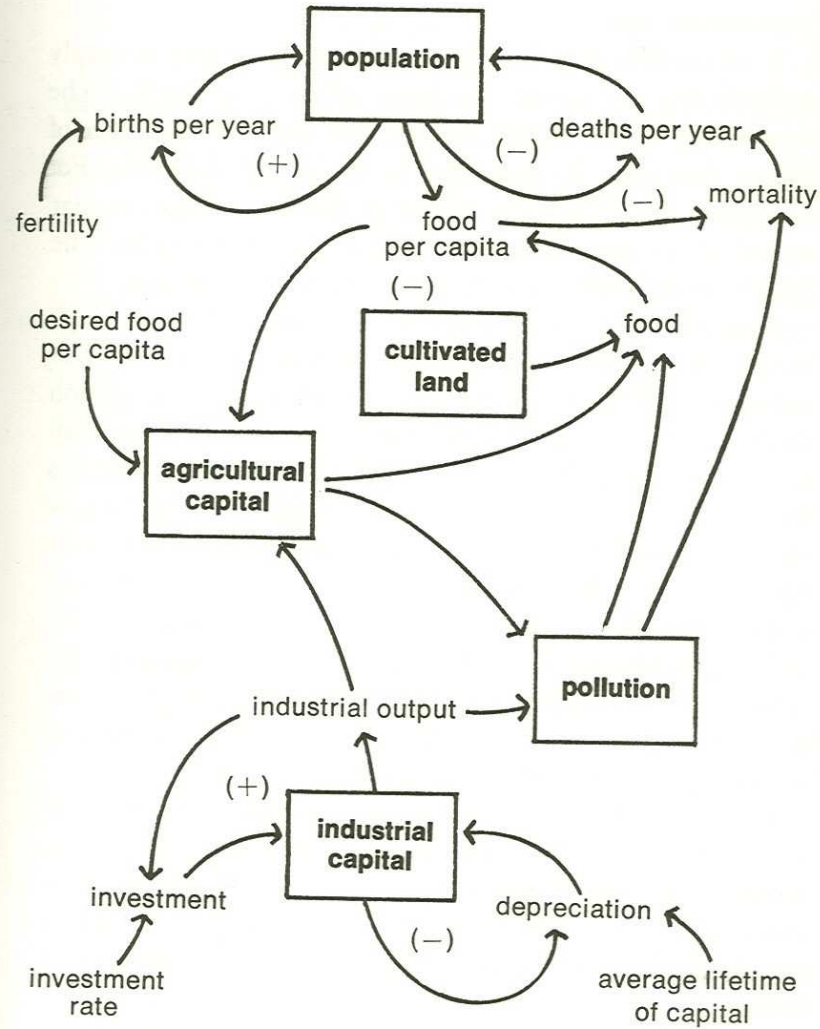
The Myth of Discounting

-that money in future is worth less than money today;
yet absurd future values arise, which are the result of applying cost-benefit analyses where it cannot apply; it leaves major problems for future solution.

The Myth of the Invisible Hand

-that guides each individual who acts in self-interest to promote the interests of society;
yet this applied only with strong social and community constraints on individual behaviour.

Figure 24 FEEDBACK LOOPS OF POPULATION, CAPITAL, AGRICULTURE, AND POLLUTION



Some of the interconnections between population and industrial capital operate through agricultural capital, cultivated land, and pollution. Each arrow indicates a causal relationship, which may be immediate or delayed, large or small, positive or negative, depending on the assumptions included in each model run.