RECOGNISING AND UTILISING RESOURCES

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Introduction

In this contribution, a trend-line is considered on the resource utilisation schemes, to be able to further formulate an adaptation of these considerations for the modelling of schemes in the North East India. An evolutionary perspective on what really resources mean is also in place here from the point of view of scientists.

Humans on the planet earth take cognisance of "what-'life'-is" by the way the happenings on the earth can be perceived. But an attempt to define "life" concisely leads invariably to ever-widening boundary conditions. What kind of changes—of all changes which humans can discern on planet earth—really form the basis for the transformations responsible for signifying life? This is an enduring question, seeking an answer to which itself is a sign of intelligent living. Exploring all the planets in the universe, and finding that all objects seem to be the same and similar to what material objects on earth are, and further, trying to attribute the credit to the presence of some of the material objects for the possible presence of "living" objects and so on—all this seem to be as much a cyclical process as the cycles symbolising life.

Hence the quest: for evidence of existence of life on other planets.

In this process living beings recognise and locate materials conducive for the growth and sustenance, trying to reach out for them. It is not so that, such conducive material-resources are located always where the human habitation thrives, but the humans are capable of setting as well as migrating depending on the materials available for convenient living.

It is not always true that the resource materials are directly consumed by the living species. The resource materials can be "fuels" used either for direct consumption for life-processes or the man-made contrivances would be consuming the fuel for the mobility, migration and settling processes. The direct consumption "fuels" for the transformation in human (living) systems are the "food" materials, which can be grown for replenishing the consumed stock.

But most of the fuels for man-made contrivances are materials available on earth and their existence do not essentially come under the purview of the man-made processes. Their availability and, hence, saving them and conserving them while using them, is the balance in the utilisation one looks for. Since these are not usually biological transformations, the byproducts of their use might turn out to be harmful for living. These are the conventional energy resources.

The process of growing food materials involves naturally occurring biological processes because of the usually available naturally provided unlimited energy sources. Trying to study these biological processes for the way they use the natural energy sources, and, trying to utilise these bounty of energy resources to run man-made contrivances by imitating those processes—all these come under the category of non-conventional energy resources.

From this point of view option in northeast could be only to utilise more and more the non-conventional energy resources. These utilisation methods for long term

sustenance while being extremely calculative about exploiting the viability of the limited (depleting) resources (conventional) from the mines and as minerals could be effective and advantageous.

The water resource, which is the vital resource for internal consumption and life sustenance, can become scarce unless the natural sources are properly tapped and maintained.[1] The soil fertility is an important criterion for food cycle. Food (water) cycle and Energy cycles must be so maintained that every next repetition of the cycle must be better than the previous cycle. It is this required improvement in each cycle marks the progress and sustenance. Maintaining the cycle to a mere perfunctory repetition of what was happening in the previous cycle would eventually prove counterproductive for lack of nourishment.

Where the prevailing conditions in northeast can be placed and it can be scaled and graded is a task of self-assessment by the public, which can come forth with only by conscientious reappraisal of the processes of progress.

Why at all Trends of Migration?

The migratory trends are a natural consequence of the intelligent inhabitance on this planet earth as can be evinced from the human habitations, and growth of civilisation. The question on migratory trends is not only on what are advantages at the destination of migrations, but the question also has to be retrospectively inquired as to what prevailing before migration in the place and what happens after the migration in the place just because of the phenomenon of migration and why at all the humans have a habitat in a place where they migrate from. Hence from the class of "NOMADS" to the present day trends of "EMIGRATION", and the consequent concerns like the obliquely referred to 'brain-drains' etc., all require great efforts to annul the undesirable consequences on the lot of the whole of population. This subject matter becomes disputable and irreconcilable because the migration due

to "resources-seeking" and the seeking after the mere "amenities" at a migratory point to where the "resources" also get drained "off" due to the "possessions" of the emigrants and not simply the distribution of wealth. All these arise because of a lack of proper appreciation of the process of recognising and delineating "sources", "resources", "amenities" and the related terms, which often find expression in these contexts. This would be more so if these trends are among the illiterates when they try to invest all their capital in these migratory processes and belatedly find them in an unfamiliar economic condition bordering on bankruptcy. Hence, the effort is being made in this article to describe these terms familiarly to even people who do not have a background in science but their expressions are affected illustratively by the scientific definitions.

The Mass, Matter and Material: An Illustrative Chart and Flow Diagram for Definitions

A "source" can be referred to a possible supply. But if it has to refer to the fact that what is being supplied was from another "source", has been remaining unused, and did not undergo undesirable changes "in store" then this may be referred to as a "resource". The coal mines are, thus, 'sources' of coal and coal itself is a "resource" since coal is capable of delivering 'heat-energy' on transformation. Hence, the latter aspect refers to the 'potential', that the material has for being a useful material. This we recognise only because we know how to "use" or tap out what is required from the given material. By this emphasized here is that mines are the 'sources' of coal, and coal is a 'source' for heat energy and hence coal is a "resource" or a 'resource material'.

Referring to the Scheme-1 one can know certain descriptions on the basis of the definitions in the Physical Sciences. The explanation, as in the previous paragraphs, indicates how a conventional expression can substitute for

the colloquial expressions. From the standard definitions it is possible to have characteristic "properties of matter" and each set of characteristic properties of matter define and identify a "material" with an assigned 'name' for that material. Among these characteristics of matter is the "State of Matter" with the three possibilities of "Solid", "Liquid", and "Gas". All this effort is to identify a particular material from the remaining lot. Thus 'material' is a distinct class of matter and "Mass" is a fundamental property (referring to the weight) common to all forms and states of matter. Another property similar to Mass is the "Volume" and if we would like to refer to the extent of the matters' pervasiveness and how much "filling" it is then the term "substance" might be preferred to indicate that it is this property of matter to which attention is being drawn to and the message gets conveyed more compactly and the expressions become "loaded" .

Let us recall that the most frequent use of the term "Biomass" refers to an "organic matter". Let us try to convince ourselves that this "organic matter" capable of undergoing transformations by biological degradations results in useful products. Each one of these products is in the class of Organic Matter and the total mass remains unaltered. Hence this material, the totality—before and after transformations—remain only organic matter and the totality could be referred to as the Biomass. One of the products if it is in the Gaseous State and also becomes a useful "fuel" then it is called the Biogas.

This much of implication is not usually built into while using the terms and when there are ambiguities extra effort should be made to sort out whether it requires a resolution to clarify and whether it could be an exceptional context and hence the statement can be only exclusive. Such an awareness is what is called for in recognising "resource" materials. This awareness would render it all only a matter of simple resolution when it becomes necessary to distinguish what could be a mere craving for amenities and what really is a source of facilities.

Resource Realities

As can be seen from the Scheme-2,[2] the situation of resource realities has three facets. The *Objective* and *Interactive* aspects are the ones, which are subjects for surveys and statistical estimates. The *Subjective* aspect seems to have the more dynamic factors of which the 'social' and socio-economic surveys are emphasised in this contribution. The social aspects of the migratory trends are well elucidated in the books on Human Geography. But to grasp such materials as they are presented in those books, it becomes inevitably necessary to have an approach of presenting it in seemingly simple terms at the same time in least ambiguous terms. Hence, the reasoning out of how do people recognise resource materials and why do people migrate and settle, even from the point of view of local context must be approached with a standing of validity in the global context—this means even if the context is only of the situation in North East India.

The Resource Generation and Regeneration

As illustrated in Scheme 3 the resources can fall under two categories. The first category refers to those resources, which are limited in availability, and hence depletion is concomitant with the use. The second category refers to those resource materials, which are available in abundance in nature and can be utilised in the natural biological processes.

When humans recognise the potential of a material, which is available only in limited quantities, then how to use this material in such a way that it is a durable endeavor? We should not be getting used to a limited resource to such an extent that we cannot have the human race sustain life when the resource deplete and get exhausted. Hence, having known the potential of the natural bounty, even if it is only a limited stock, humans try to find

alternatives for conservation purposes and look for the capability to produce in abundance. We also try to monitor and study natural biological processes to learn about the mechanisms and the activity of the substrates in natural processes. These processes are subjected to simulations in laboratory scale and imitations in large scale so that the human needs for utilisation and production of resource materials do not have the counter effect of undesirable environmental pollution. Since natural biological processes are congenial for human living by internal consumption and external provisions, even if we simulate such processes it should not be tampering with the on going biological processes. The very effort to understand the processes, and modifying the nature artificially to cause a simulation, should not upset the natural balances to become irreversible alterations.

Hence in the effort towards "unconventional" resources, essentially, biological materials have the main role to reinforce the natural processes.

The article[3] entitled *"The Geography of Poverty and Wealth"* succinctly deals with how the geography determines the economic conditions and the factors causing migratory trends become obvious. This study, which is a survey with particular reference to the situation in the United States, relatively, an affluent country, does have such connotations, which can be reflective upon the necessary considerations in North East India.

Conclusions

While considering the situation in North East India,[4] it is necessary to be pragmatic in the inferences of statistical analysis. More so while trying to critically assess resources in the region, and how far these are being utilised by the local people in the region to materially benefit from them. Which means the useful material should become part of the Region where it is available and remain so by utilisation. But for the sake of financial gains the people

should not be squandered away by selling off the materials to other regions for the monetary advantages (like seemingly better prices compared to similar outputs in other places) and the resulting low rates of resource utilisation scenario within could be more alarming than any other kind of pollution it may be causing. In fact, the coal from North East Region seem to have a superiority for its reduced ash content. But till now there has been neither convincing reason nor questions from people as to how and why the coal formed is superior in the region. But, according to the reports, in the competitive pricing this coal seemed to have fetched marginally increased revenue.

In case of the available resources in the North East Region some questions have to be answered viz., how much do they affect migratory trends, the influx or exodus. Even if it be so that very few from the region migrate, the influx which may be there should cause the people in the region learn to utilise the internal resources better rather than the natural inhabitants become subservient to the ways of affluent living without strengthening their individual capabilities to recognise the resource materials. They should also see that potentials of the resources are economically well balanced to benefit all and not only the few.

If the inhabitants in a region are not enterprising enough to reach out (for know-how) for settlements, then, enough caution must be exercised that their dependence is only on the inside resources. If they do not reach out for settlement and also do not manage their economy commensurate with their internal resources, they are bound to become subservient by the very fact that it is the external know-how which would make them aware of the potential resources within their reach and after getting the *advantage* of the external know-how (but not really acquiring the know-how by any transfer of know-how) any amount of tactical strategies would not fetch the real independence for managing these known resources. Hence, an all-round improvement of every individual should be targeted but

not a seemingly an improvement of the few at present who can all be rounded off as being closer to the "sources" of know-how. With incomplete comprehension, designing strategies would let the designers inescapably into a trap much sooner, and these considerations would never be evoked while in distress. In an underdeveloped region with pervasive illiteracy, such is the kind of initiatives clutching them to internal conflicts. Because of the limitations they cannot let these conflicts be well known for unbiased resolutions, without further becoming subservient and which never brings forth enrichment of any kind. By trying to categorize a given region with two independent sets of criteria, the Development Index and the Current Resource Abundance Index (Scheme-4)[3], and all the time establishing a correlation between the two to inquire for determining factors for the trends, a knowledgeable monitoring of the progress can be made.

These are the points well emphasised in this paper in the earlier sections with setting out to impart the capability to express and state precisely the situation either while being in distress or while prospering. Can a region be such a model for the much more global contexts?

REFERENCES

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   B. Pricing of Water Supply in Indian Cities, A Case Study. Gopal Kishan, p. 206.
2. Extracted from the Activity Guide for National Children's Science Congress on the Focal Theme of *'Nature: Let us Conserve, Share, Care'* Published by NCSTC Net Work, New Delhi.
3. "The Geography of Poverty and Wealth", *Scientific American,* March 2001, pp. 70–75.
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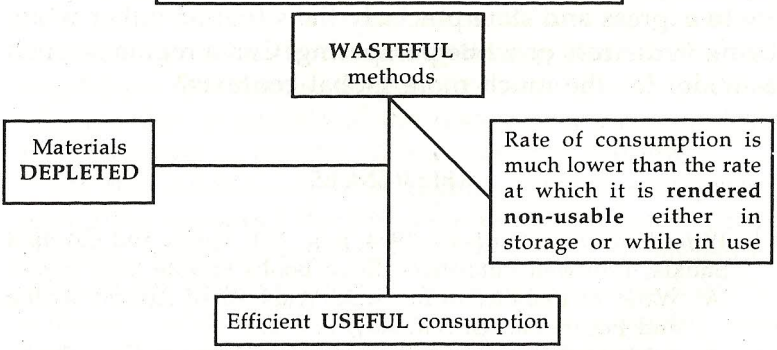
The constituents which are present in and around planet earth even without any intervention by the living species, and which are the *source* of the requirements for sustaining life (directly or remotely) are the **NATURAL RESOURCES**

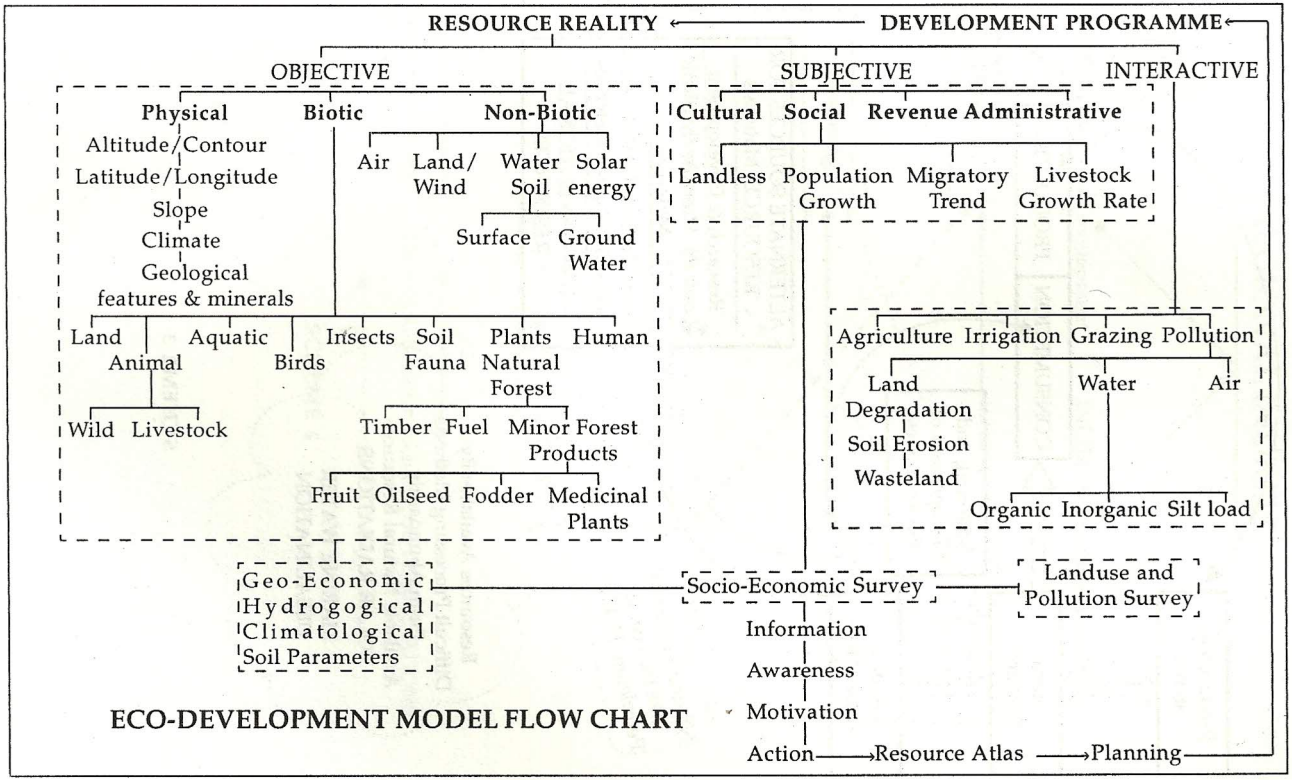
All the materials are basically
MATTERS
With characteristic **properties of matter** like the mass, density, volume, elasticity, texture (brittle, hard, soft) and external appearances in any of the three states, **Solid, Liquid, Gas**

When the **Matter,** that matter becomes significant for the living and ways of living with the living conditions then that substance is frequently referred to as
MATERIAL
which can be in its native form of occurrence or only in a modified form useful

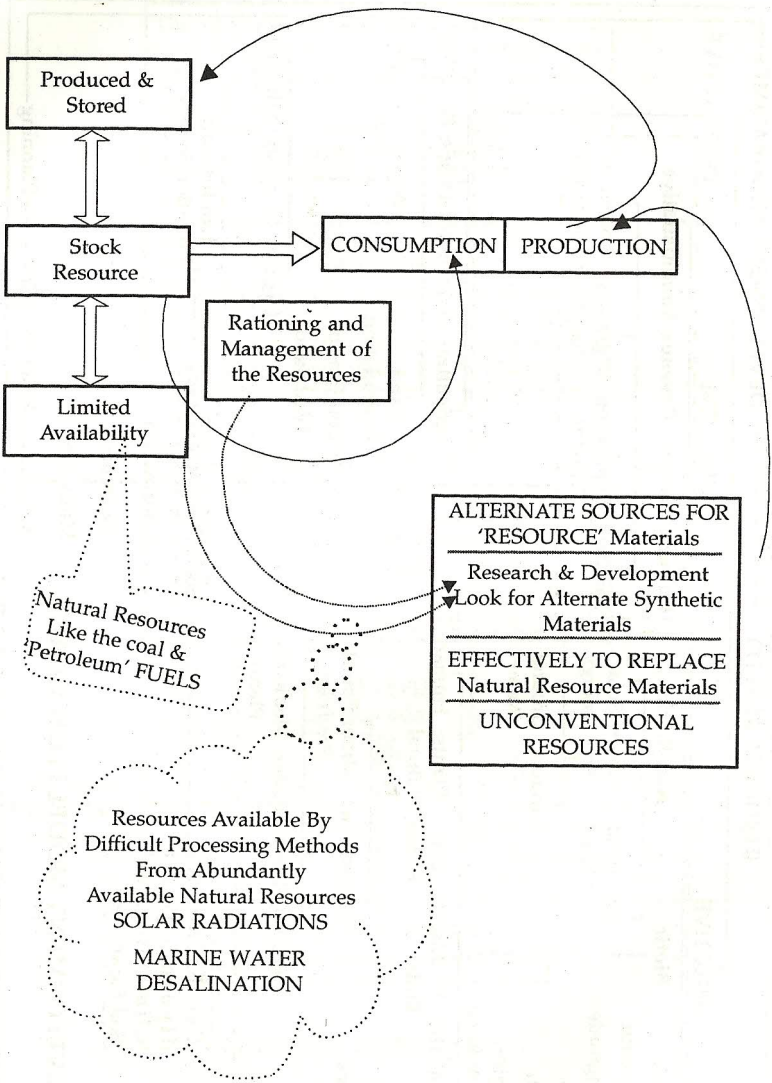


RESOURCE MANAGEMENT

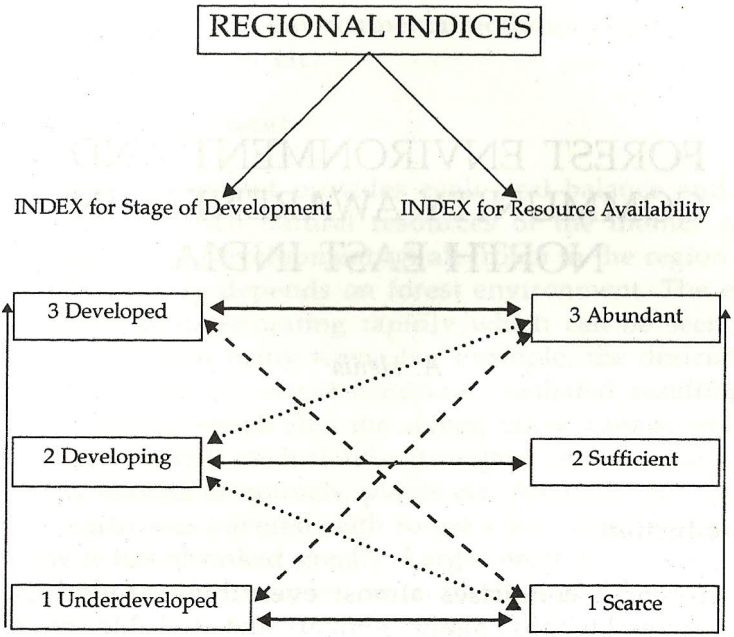
SCHEME I


RESOURCE REALITY
DEVELOPMENT PROGRAMME
OBJECTIVE
SUBJECTIVE
INTERACTIVE
Physical
Biotic
Non-Biotic
Altitude/Contour
Latitude/Longitude
Slope
Climate
Geological features & minerals
Air
Land/ Wind
Water Soil
Solar energy
Surface Water
Ground Water
Land Animal
Aquatic
Birds
Insects
Soil Fauna
Plants Natural Forest
Human
Wild
Livestock
Timber
Fuel
Minor Forest Products
Fruit
Oilseed
Fodder
Medicinal Plants
Cultural
Social
Revenue Administrative
Landless
Population Growth
Migratory Trend
Livestock Growth Rate
Agriculture
Irrigation
Grazing
Pollution
Land Degradation
Soil Erosion
Wasteland
Water
Air
Organic
Inorganic
Silt load
Geo-Economic
Hydrogogical
Climatological
Soil Parameters
Socio-Economic Survey
Landuse and Pollution Survey
Information
Awareness
Motivation
Action
Resource Atlas
Planning
ECO-DEVELOPMENT MODEL FLOW CHART

SCHEME 2


Produced & Stored
Stock Resource
CONSUMPTION
PRODUCTION
Rationing and Management of the Resources
Limited Availability
ALTERNATE SOURCES FOR 'RESOURCE' Materials
Research & Development
Look for Alternate Synthetic Materials
EFFECTIVELY TO REPLACE Natural Resource Materials
UNCONVENTIONAL RESOURCES
Natural Resources Like the coal & 'Petroleum' FUELS
Resources Available By Difficult Processing Methods From Abundantly Available Natural Resources
SOLAR RADIATIONS
MARINE WATER DESALINATION

SCHEME 3


REGIONAL INDICES
INDEX for Stage of Development
INDEX for Resource Availability
3 Developed
3 Abundant
2 Developing
2 Sufficient
1 Underdeveloped
1 Scarce
A Correlation Diagram?
Reasonable Direct Correlations
How to Rationalise such CROSS CORRELATIONS?

SCHEME 4