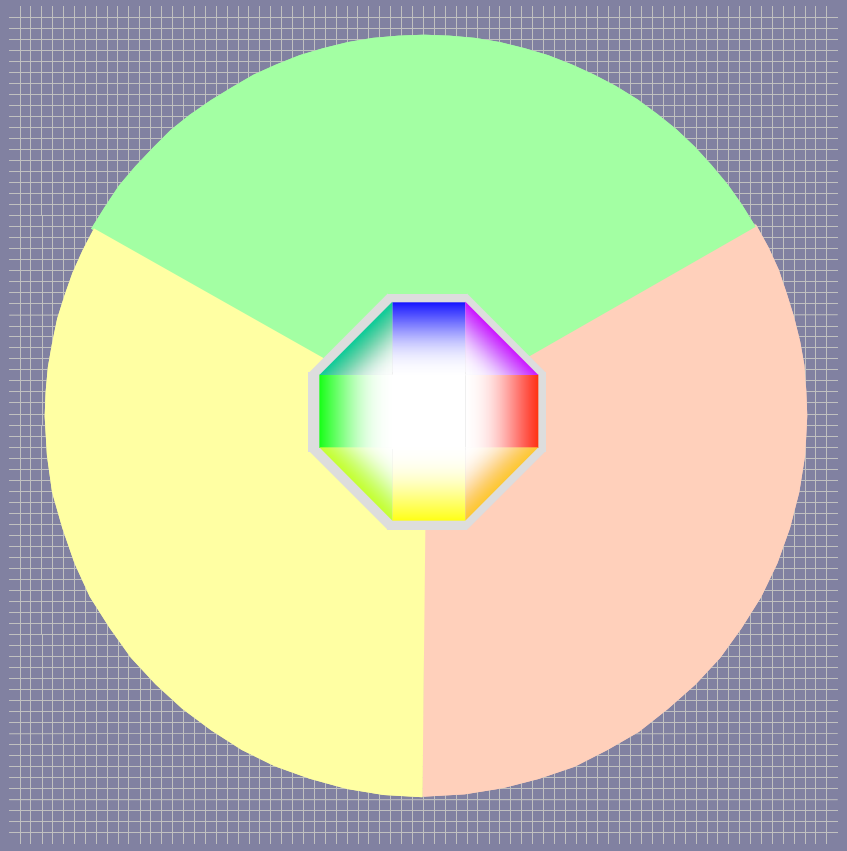
Terraikon

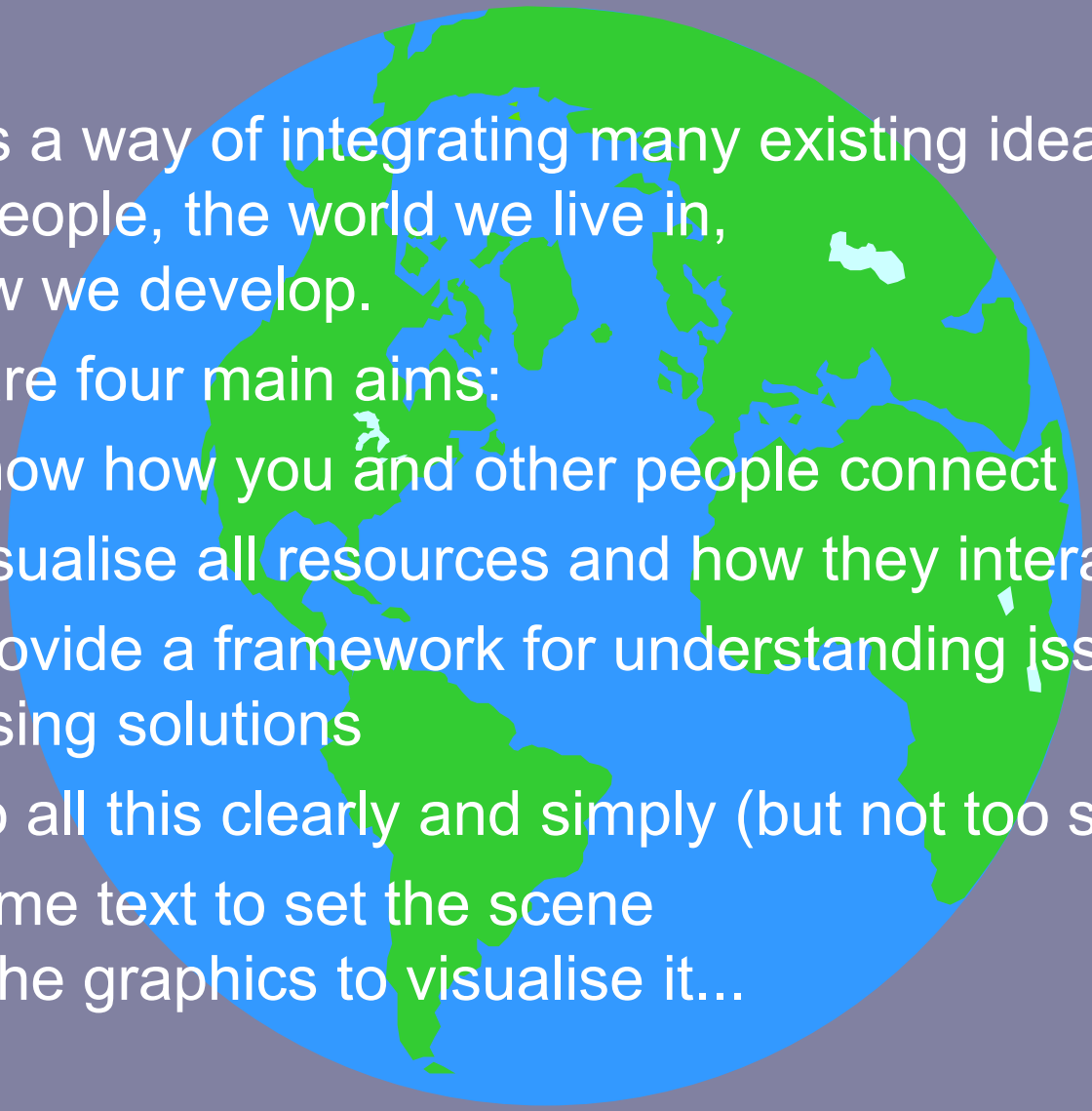
- *you, and our world* -

A model of how we connect
and a tool to help make connexions



A. Marcus J. Robbins
2014
marcus.robbins@virgin.net

Terraikon…
YET ANOTHER CONCEPT?

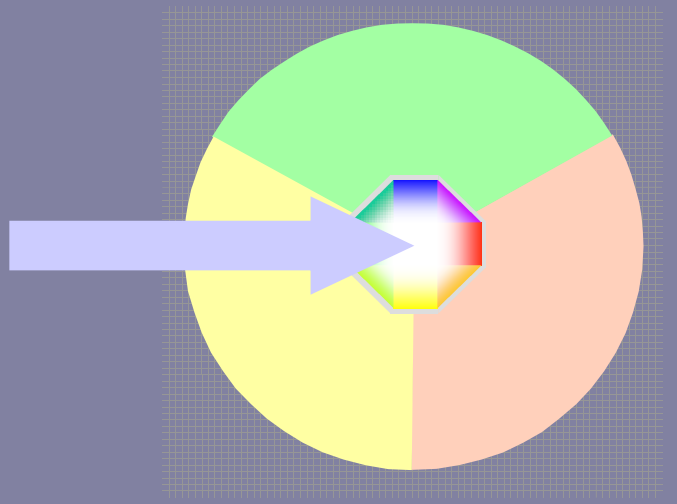


- No – it's a way of integrating many existing ideas about people, the world we live in, and how we develop.
- There are four main aims:
  - to show how you and other people connect
  - to visualise all resources and how they interact
  - to provide a framework for understanding issues and devising solutions
  - to do all this clearly and simply (but not too simply!)
- First some text to set the scene – then the graphics to visualise it...

Terraikon – setting the framework

WHO ARE PEOPLE?

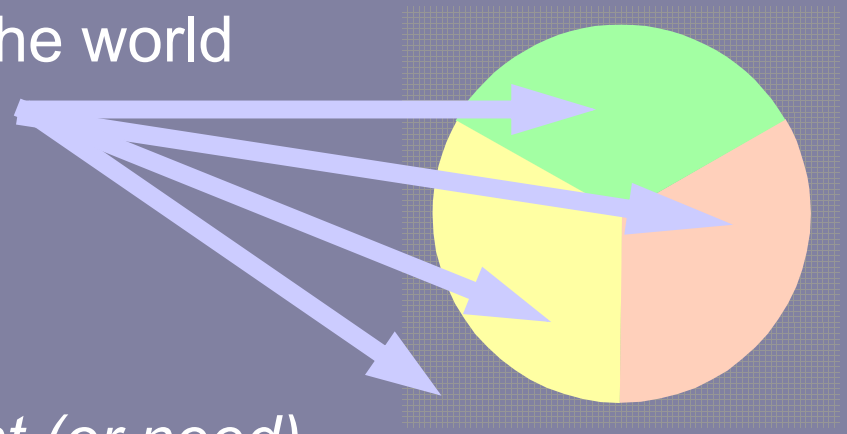
- The Terraikon model starts with you at the centre!
- Development of the world should be carried out by people for people – people first!
  Your role in doing this is critical.
- If we want an Earth that will support us, then we must first understand how we behave and what we believe.
- The companion Octaikon model that represents you, body and soul, provides the framework for this.
  This is explained on the website:
  www.octaikon.co.uk
  in particular, see the link to Okki Stuff



Terraikon – setting the framework

WHAT ARE RESOURCES?

The *Terraikon* model views the world as made up of **resources**
Here are some definitions of what resources are, all relevant to the model:



- *Means of supplying a want (or need)*
- *Stock (or asset) that can be drawn upon*
- *Country's collective means of support*
- *Possibility of aid*
- *Skill in devising expedients*
- *Practical ingenuity…*

Terraikon – setting the framework

TYPES OF RESOURCE

- ***Material*** resources can be grouped into three types
  - **Natural resources**:
    everything in nature, but excluding people
  - **Human resources**:
    people - the whole human population
  - **Produced resources**:
    everything that people make / manufacture / produce from nature…
- and there are also spiritual resources
  - The realm of faith and religions - spiritual phenomena.
  - Many people would say that that the whole world is both material and spiritual, especially ourselves.

Terraikon – setting the framework

RESOURCE INTERACTIONS

Interactions between and within all resources are complex.

In the case of material resources, remember that…

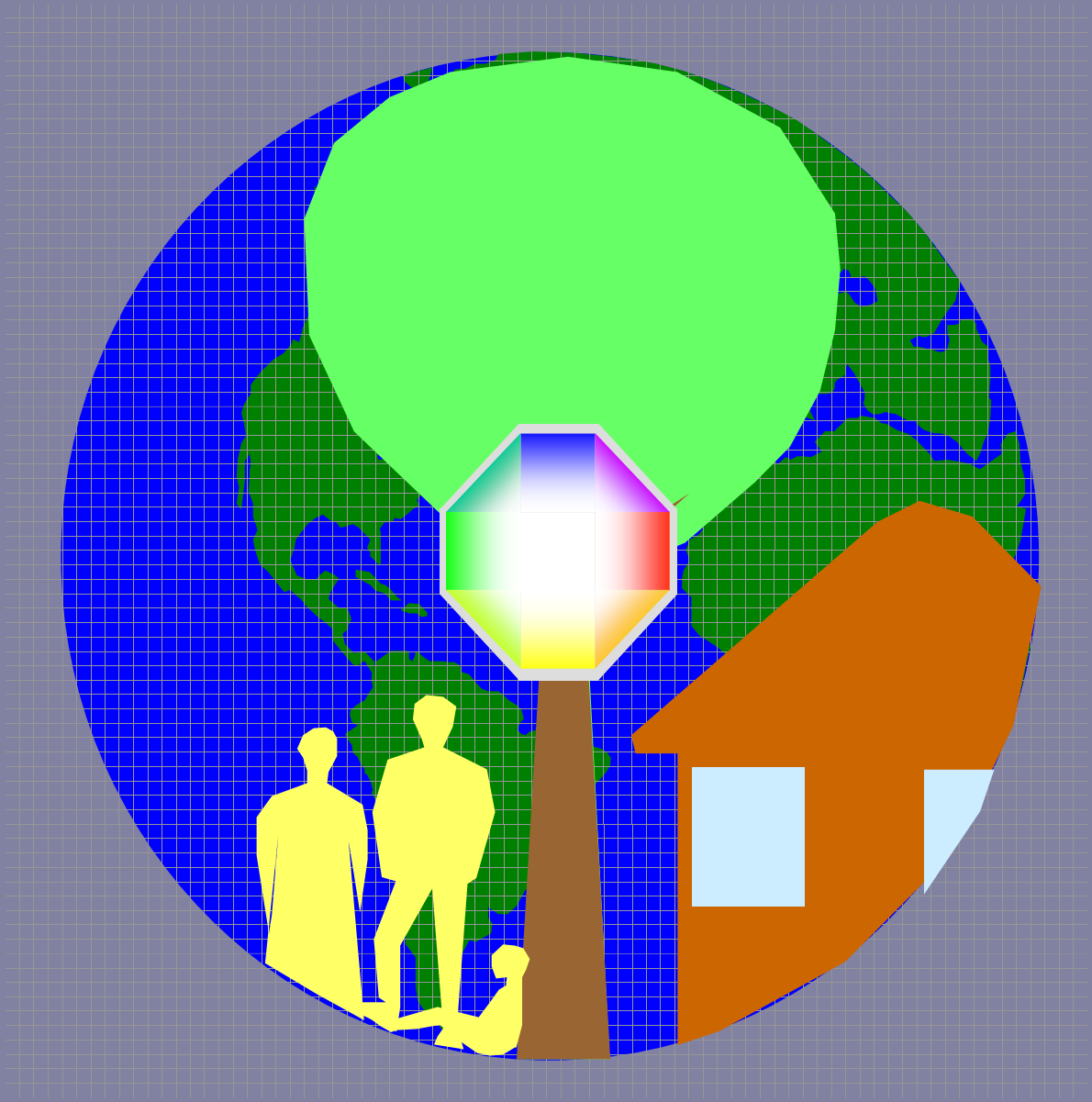
- Resources are **dynamic** and always **changing**
- Each type of resource has internal **functions** and **processes**
- Resources exert **pressure** on each other, eliciting a **response**, and changes in their **state**.
- Resources provide **inputs**/**outputs** (**goods** and **services**) to other resources.

We must understand how these interactions work if we are to manage resources and keep them in balance.

And now for the graphics…

Terraikon – understanding the basics

Visualising your world at its simplest.



You are at the centre,
- body and soul -
represented
by the Octaikon

YOUR OUTER WORLD
HAS THREE
BASIC COMPONENTS:

NATURE …

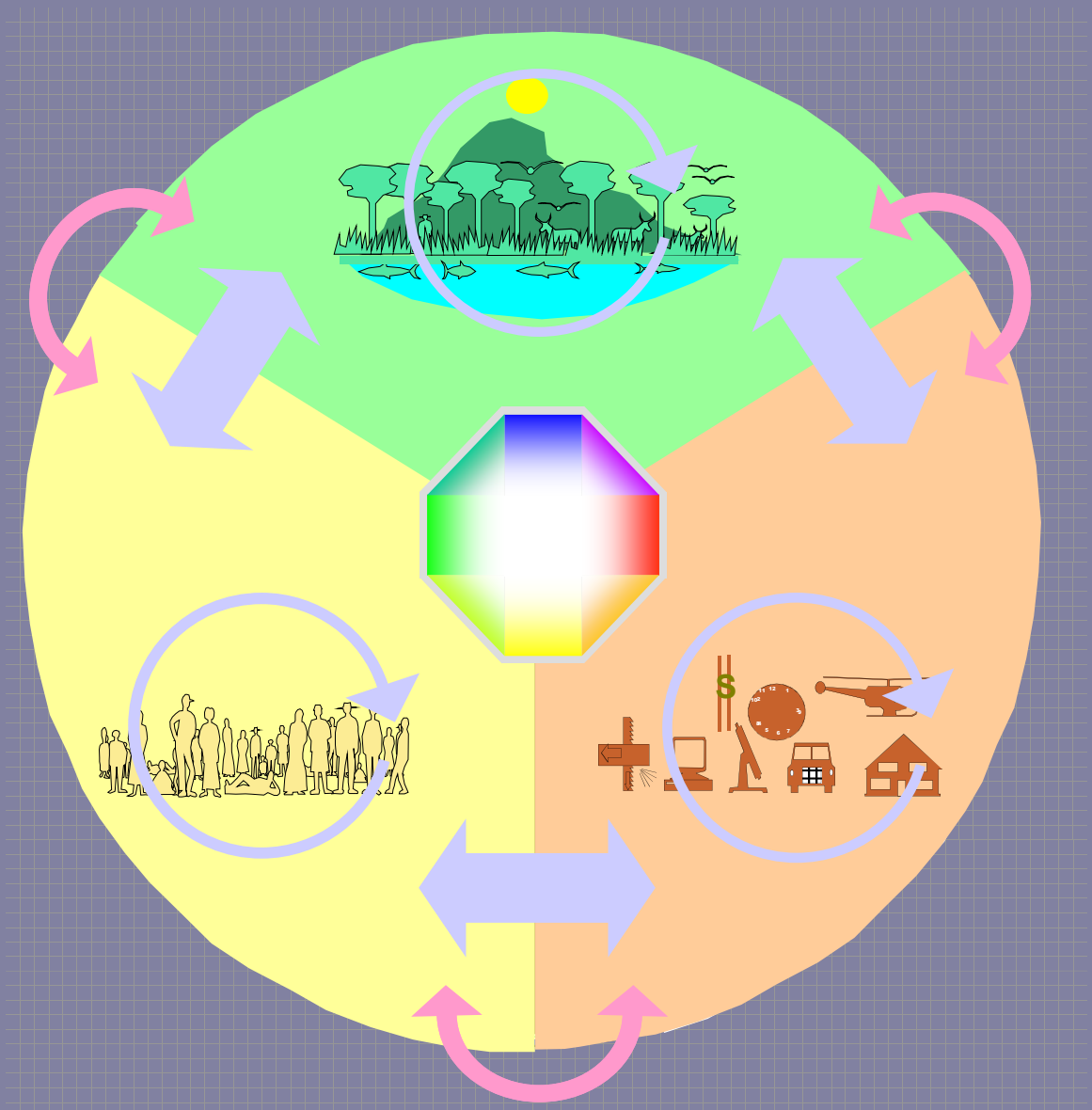
OTHER PEOPLE…

WHAT WE MAKE OF IT

AND THERE IS ALSO A SPIRITUAL DIMENSION

Terraikon - understanding complexity

Visualising resource types and interactions



YOU

NATURAL RESOURCES

HUMAN RESOURCES

PRODUCED RESOURCES

SPIRITUAL RESOURCES

INTERNAL FUNCTIONS & PROCESSES

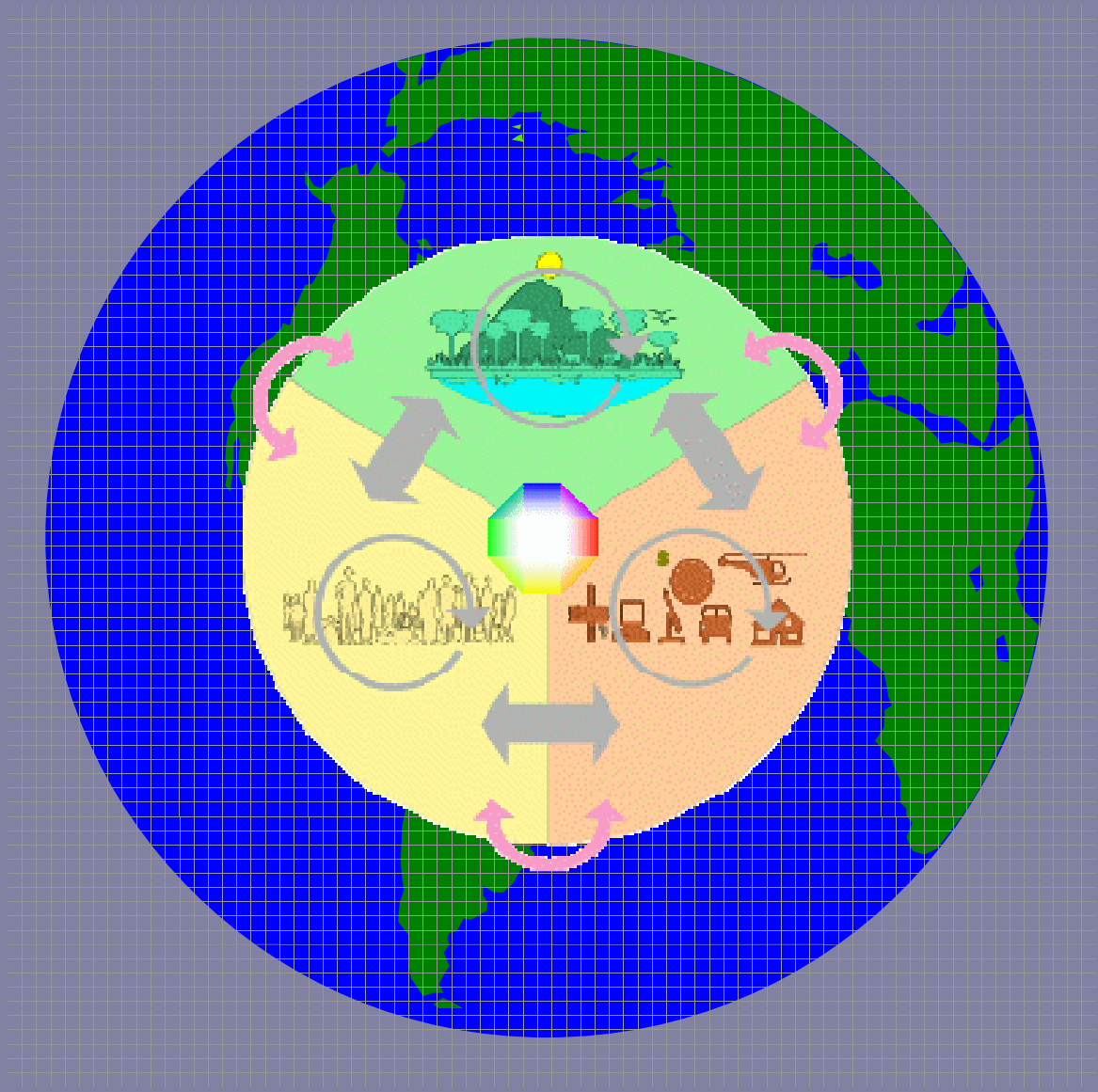
BENEFITS, GOODS & SERVICES, INPUTS & OUTPUTS

PRESSURES & RESPONSES

Terraikon – visualising dynamics

Interactions are complex, changing and evolving.

We and our resources need wise care to keep them ticking along!



YOU

NATURAL RESOURCES

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SPIRITUAL RESOURCES

INTERNAL FUNCTIONS & PROCESSES

BENEFITS, GOODS & SERVICES, INPUTS & OUTPUTS

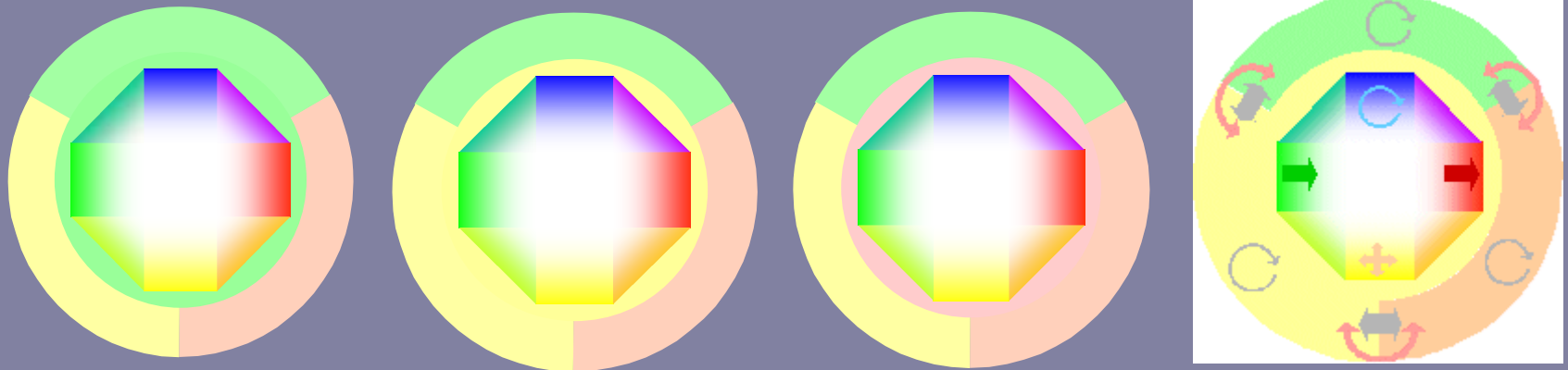
PRESSURES & RESPONSES

Terraikon – relating to the real world

How people interface with the world

This is the most complex aspect of the model!

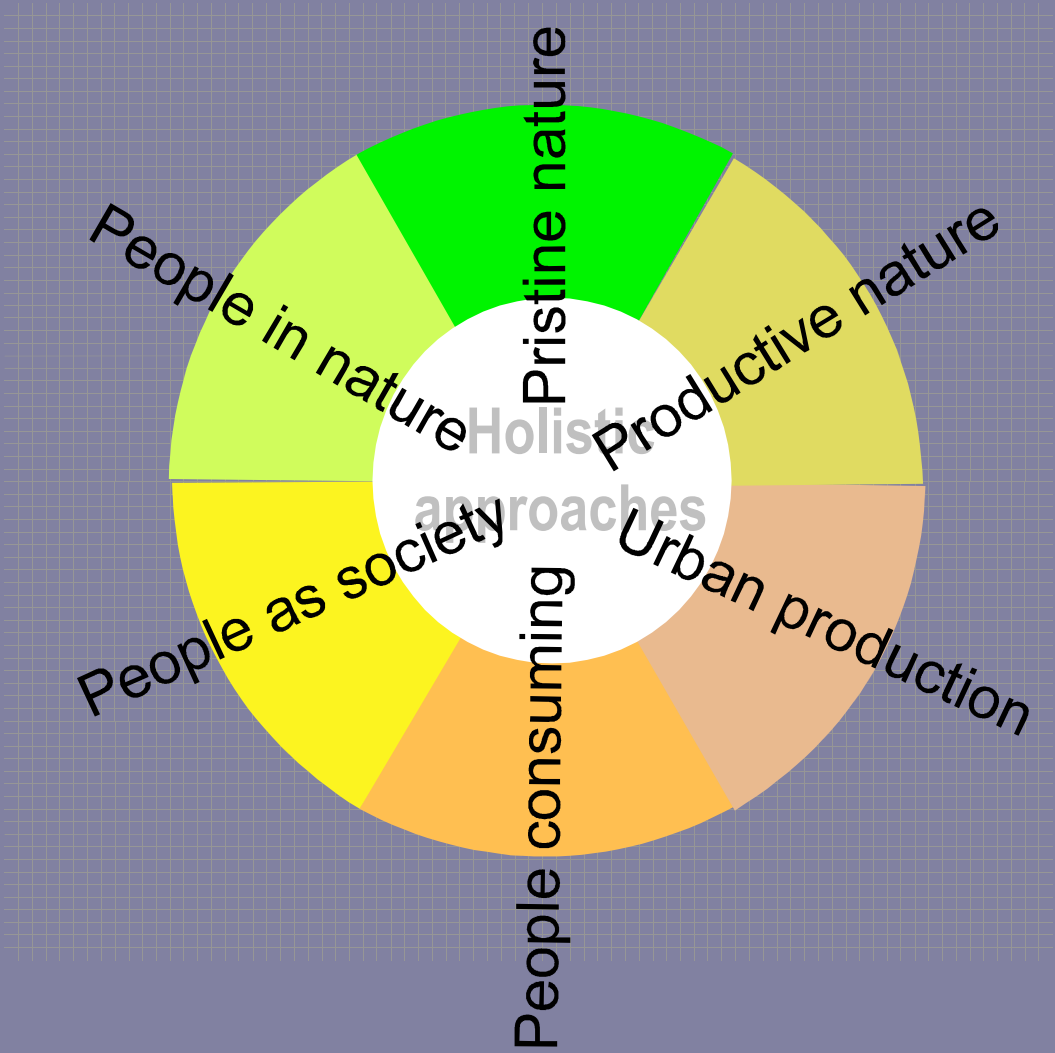
- The interface of the Octaikon model of a person with the Terraikon model of the world needs some explanation.
- Each of our four main faculties interrelate equally with the three material resources.
  We observe, interpret, express and act in relation to our natural, social and economic environments.
- To understand these connexions, see: www.octaikon.co.uk



Terraikon – relating to the real world

Ways in which the resources overlap

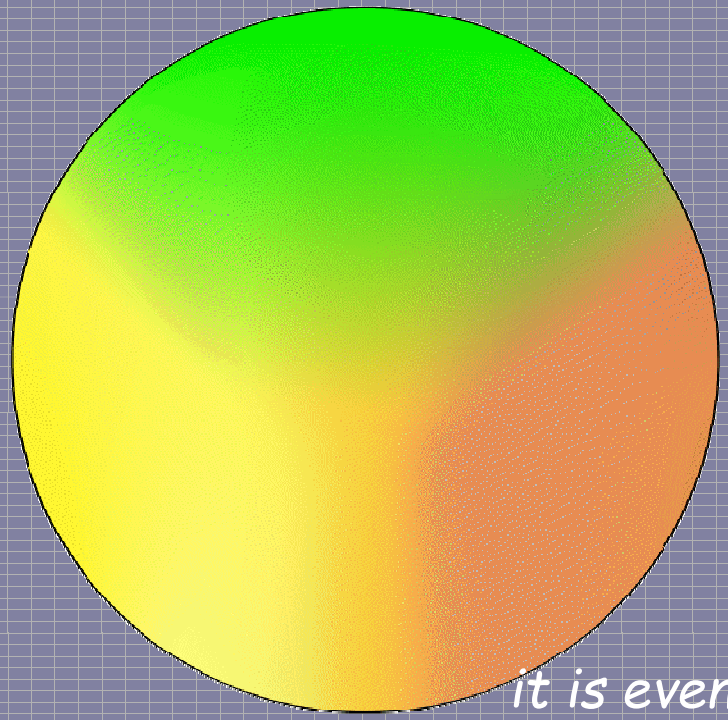
Here are some terms to describe how the resources are combined.



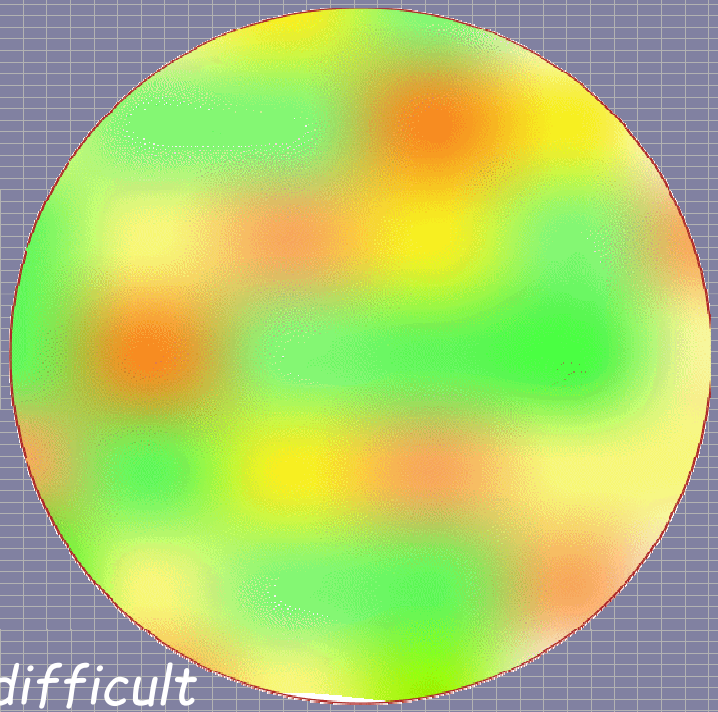
In reality, there are no clear-cut boundaries

Sometimes it is not easy to distinguish between material resources.

The three types overlap and merge…



…and they can form a complex matrix

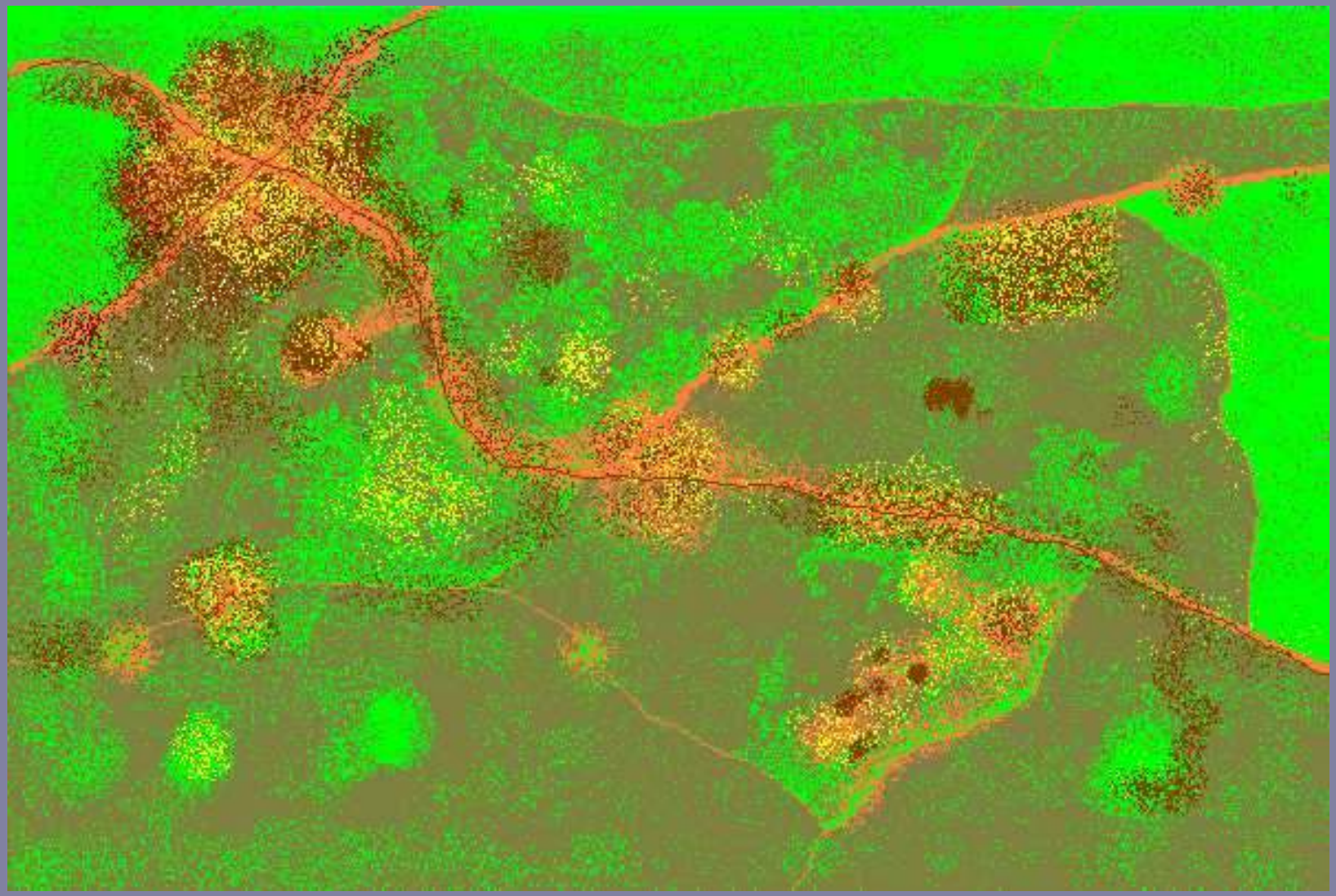


…and it is even more difficult to distinguish between spiritual resources!

Terraikon – relating to the real world

Imagining an aerial view

If we could colour-code our material resources, they might look like this.



Terraikon – relating to the real world

What we really see

Natural resources and what we make of them are most visible from the air.

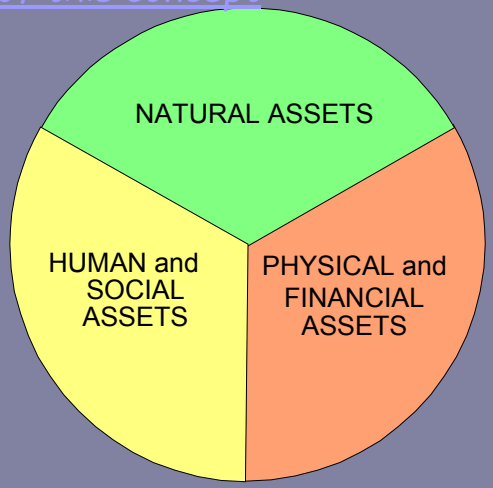
Terraikon – encompassing other ideas

Three concepts used in development

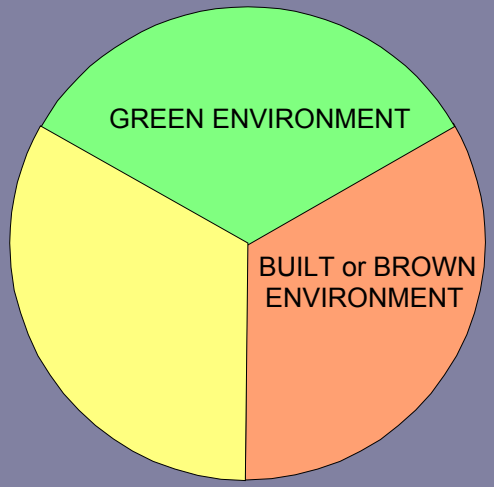
Three pillars of sustainability

Five livelihood capital assets

[Click here for details of this concept]



Two environments



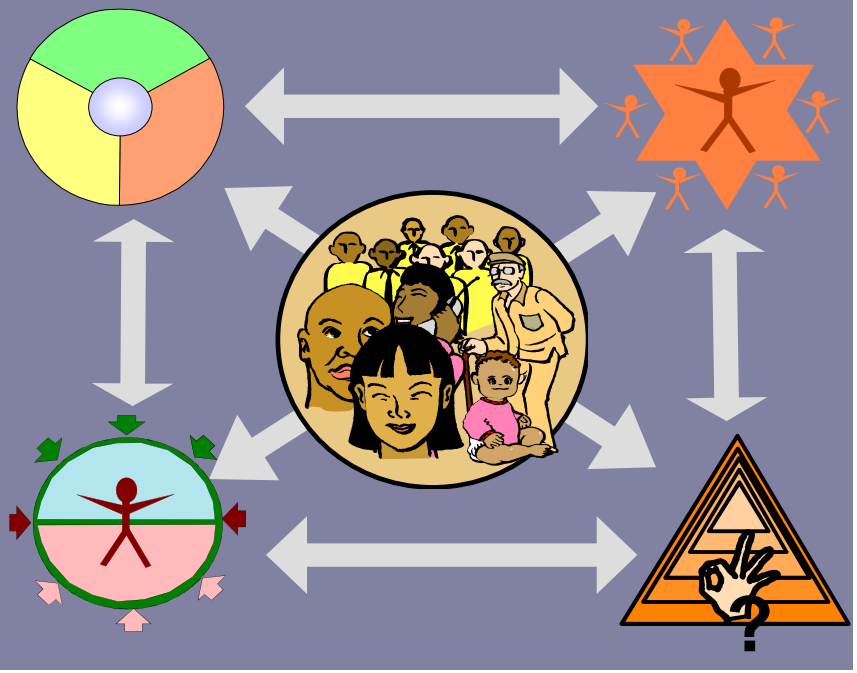
Terraikon – encompassing other ideas

The *Making a Living* model *(Robbins)*

This model is similar to the Livelihoods Approach, but uses the Terraikon resources and components more closely.

It divides the way we make a living into four components:

- the **resources** available for making a living
- the **way** of making a living
- the **situation** in which a living is made
- the **standard** of living achieved

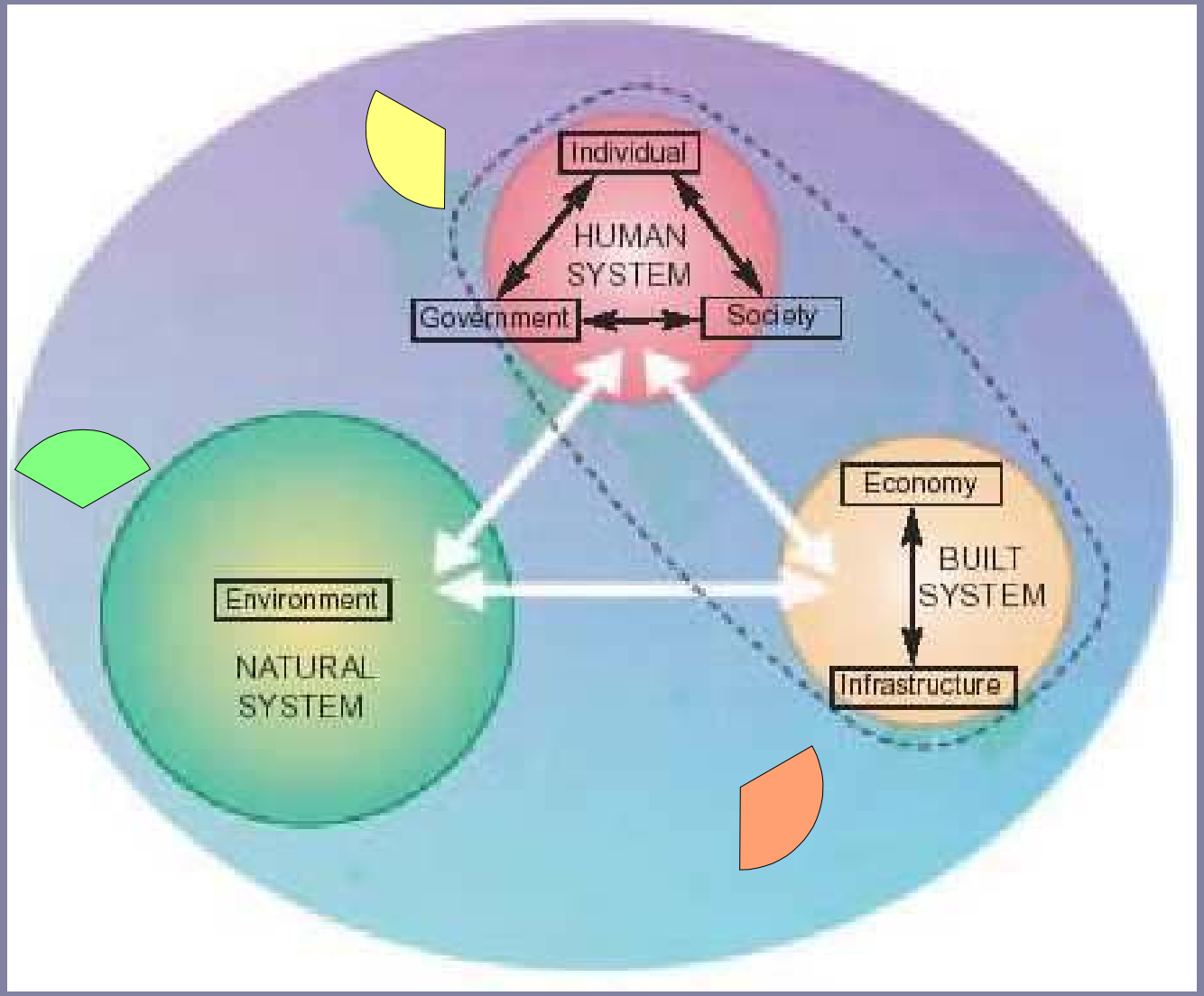


Click here for more details

Terraikon – encompassing other ideas

Encyclopaedia of Life Support Systems (1)

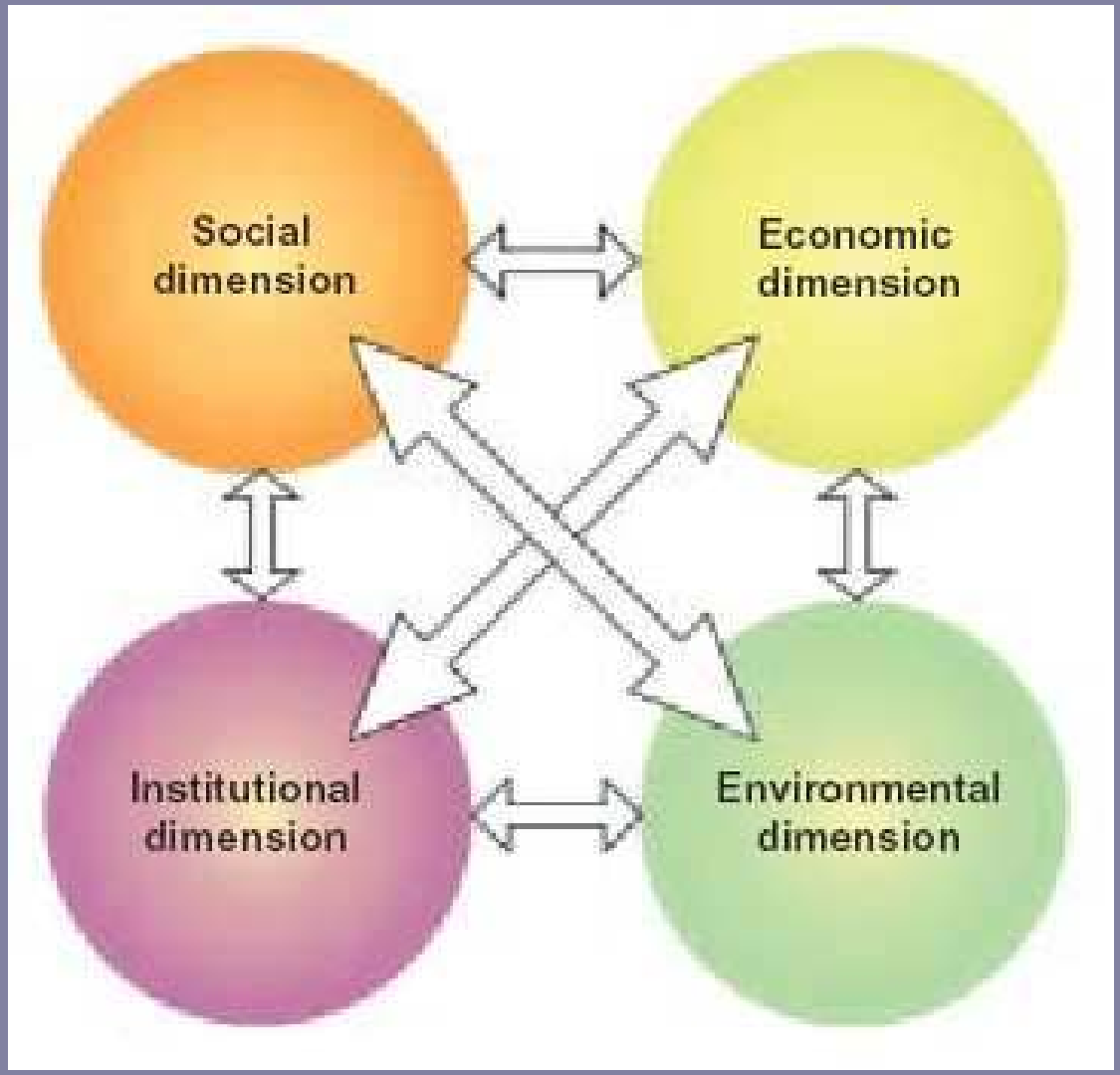
Natural, human and built systems compared



Terraikon – encompassing other ideas

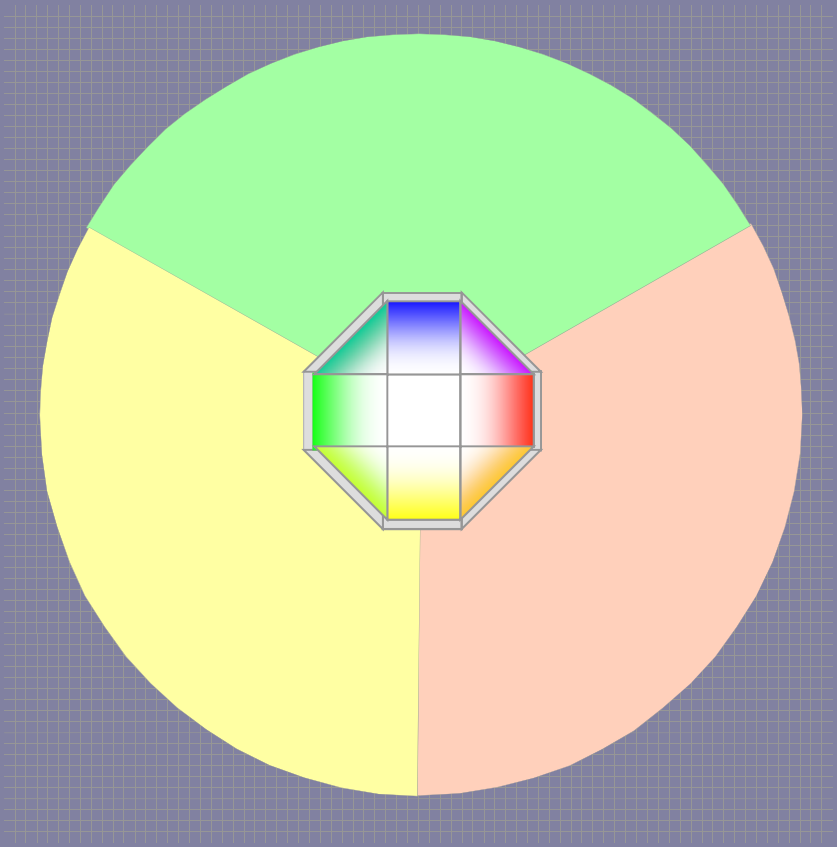
Encyclopaedia of Life Support Systems (2)

Social, economic, institutional and environmental dimensions compared



Terraikon – unfolding its parts.

A classification of resources

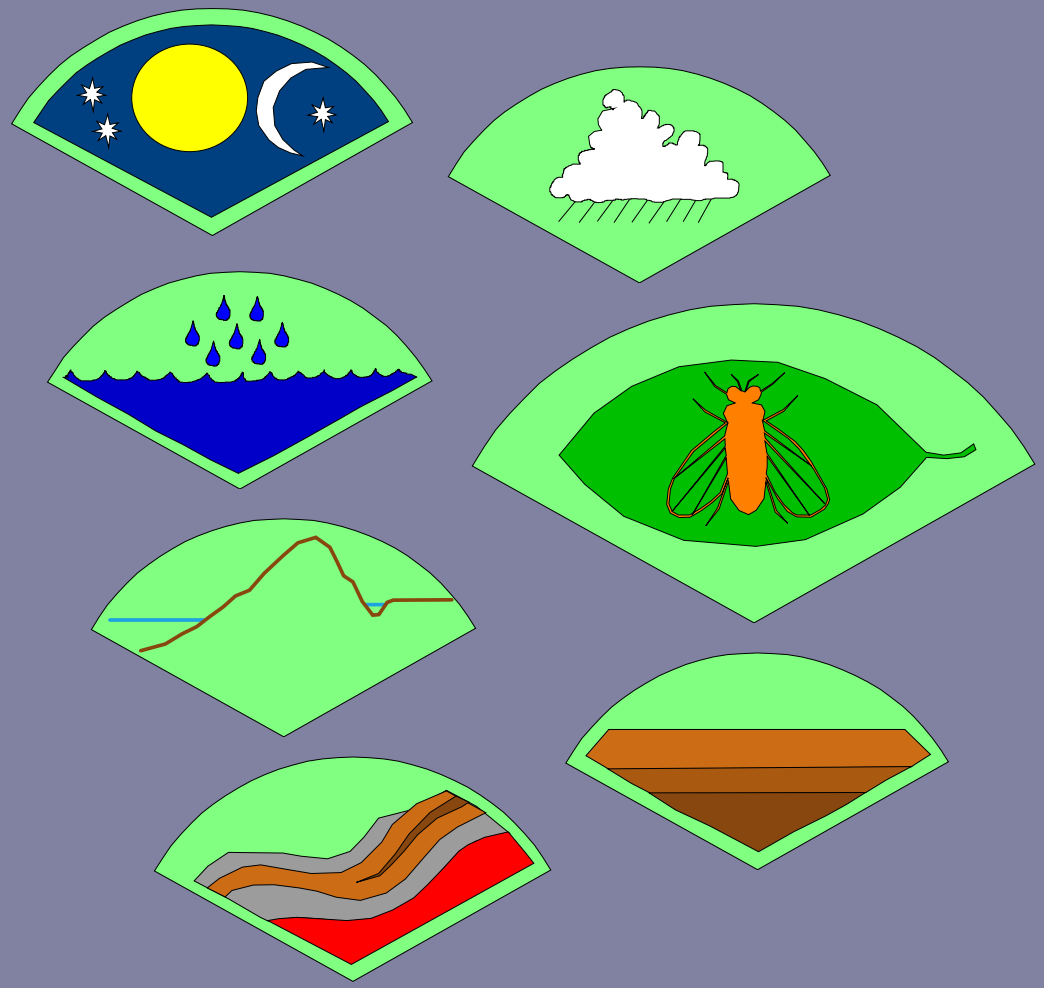


Terraikon – unfolding its parts.

A classification of natural resources

Nature can be classified by location and system

- Extra-terrestrial
- Atmospheric
- Aquatic
- Biological
- Surficial
- Edaphic
- Geological
- Other?…



A classification of human resources

People can be classified into broad groups

- Individual
- SOCIAL GROUPS…
- Family
- Community
- Ethnic
- Cultural
- Organisational
- National
- Global
- Other?

Terraikon – unfolding its parts.

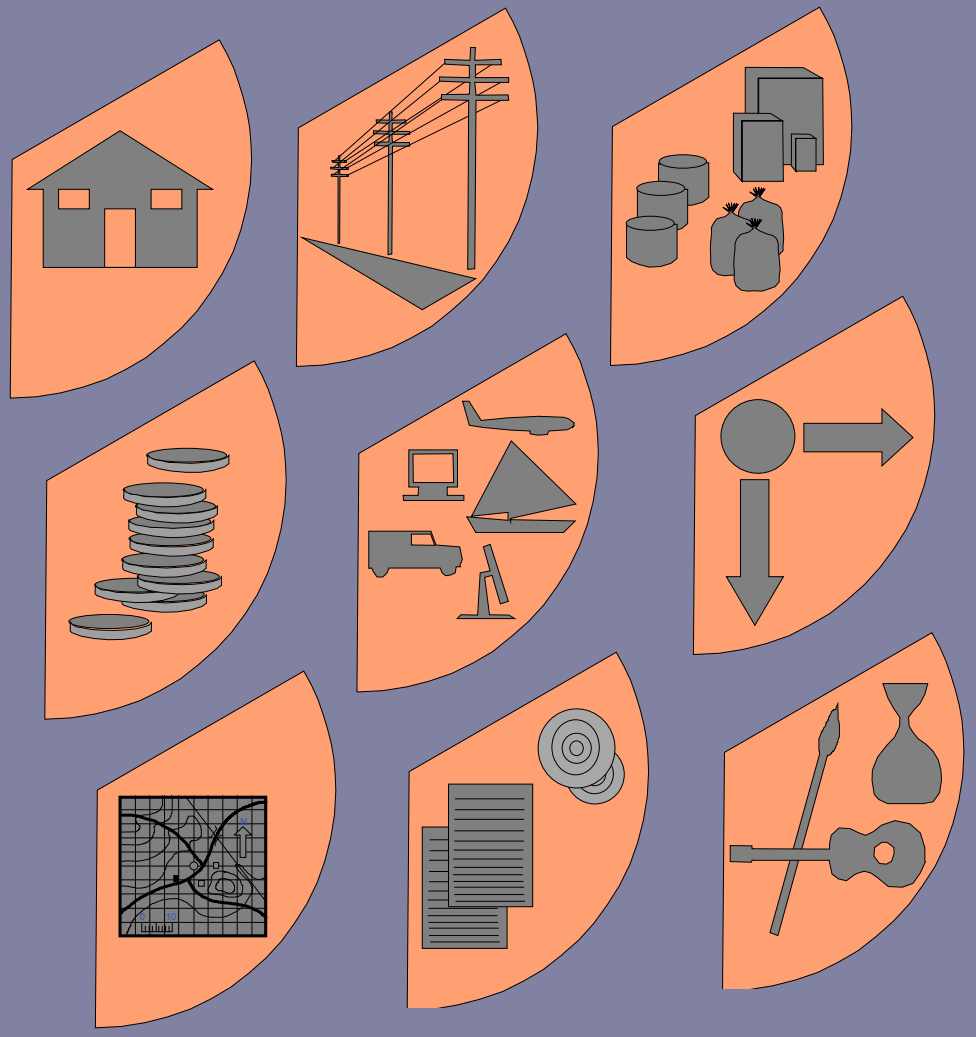
A classification of produced resources

Products can be classified by function or purpose

- Structural
- Infrastructural
- Consumable
- Financial
- Technological
- Technical
- Planning
- Informational

Click here to see issue/action cycle

- Artistic
- Other?



Terraikon – integrating the resources.

Material resources forming sectors

There are many ways combining resources and classifying sectors…

- Agricultural
- Forestry
- Fisheries
- Livestock
- Mining
- Rural
- Urban
- Wilderness
- Others?

Terraikon – unfolding its parts

What on earth are spiritual resources?

In the Terraikon, the spiritual or supernatural dimension is represented by the grid.
Real (not imagined) resources or powers could be:

- Spiritual forces (good and evil)
- Divine intervention (miracles), telekinesis
- Conscience (moral law), intuition
- Prayer (intercession), telepathy
- Life after death, reincarnation
- Others?

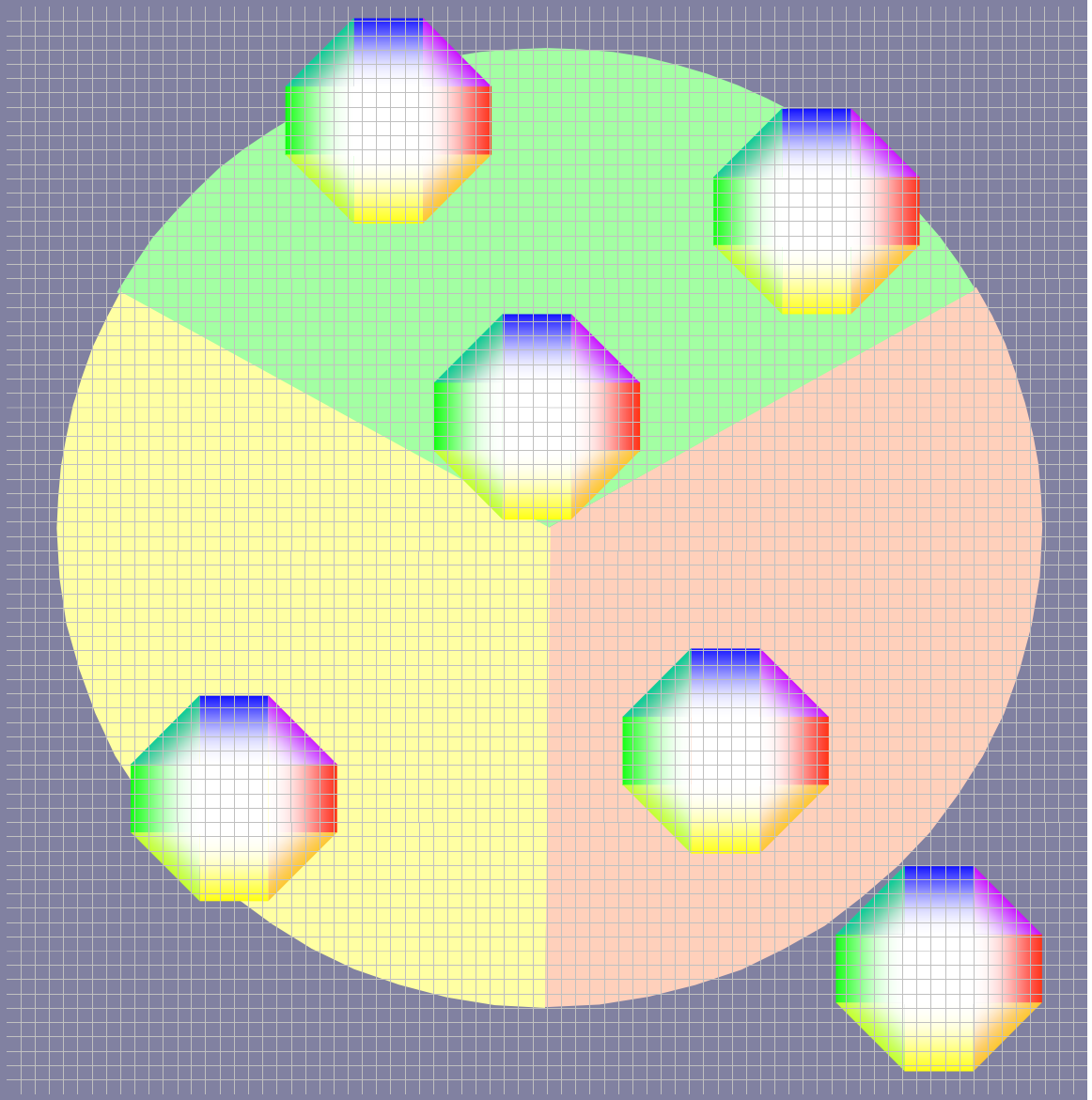
***NOMA**: – **N**on-**O**verlapping **Ma**gisteria…*
is the concept that science and religion must be kept separate – but many people would say you cannot keep them separate.

Terraikon – integrating the resources.

Dynamics of the spiritual resources

The grid shows that spiritual resources are thought of as being present everywhere, connecting everything and everybody. Therefore, there can be causes and effects between people, nature and things, no matter where or in what state they were, are, or will be!

Religious beliefs provide the details of how this all works (or doesn't!)



Spiritual resources forming religions

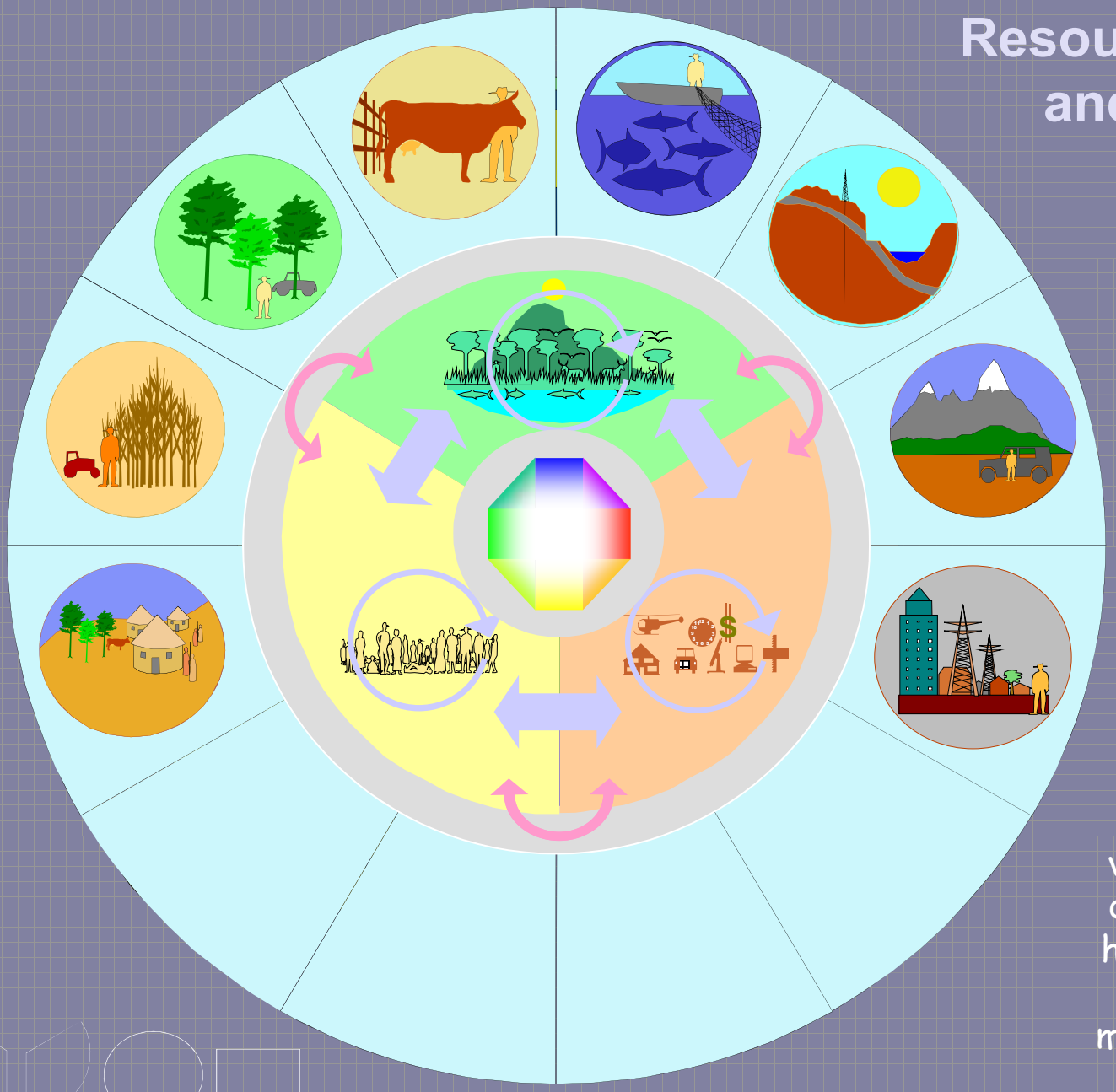
A religion or faith can be defined as:
a system of attitudes, beliefs, and practices
usually relating to supernatural or superhuman beings or forces
that transcend the everyday material world.
There are many ways of classifying religions or faiths...

- Indigenous religions
- Zoroastrian
- Hindu
- Judaism
- Buddhism
- Christianity
  - Orthodox
  - Catholic
  - Protestant
- Islam
  - Sunni
  - Shia
- Mormon
- New Age
- Atheism
- Others?

Terraikon - summarised so far.

Resource types and sectors.

Click once to unfold automatically
Click again to reveal all

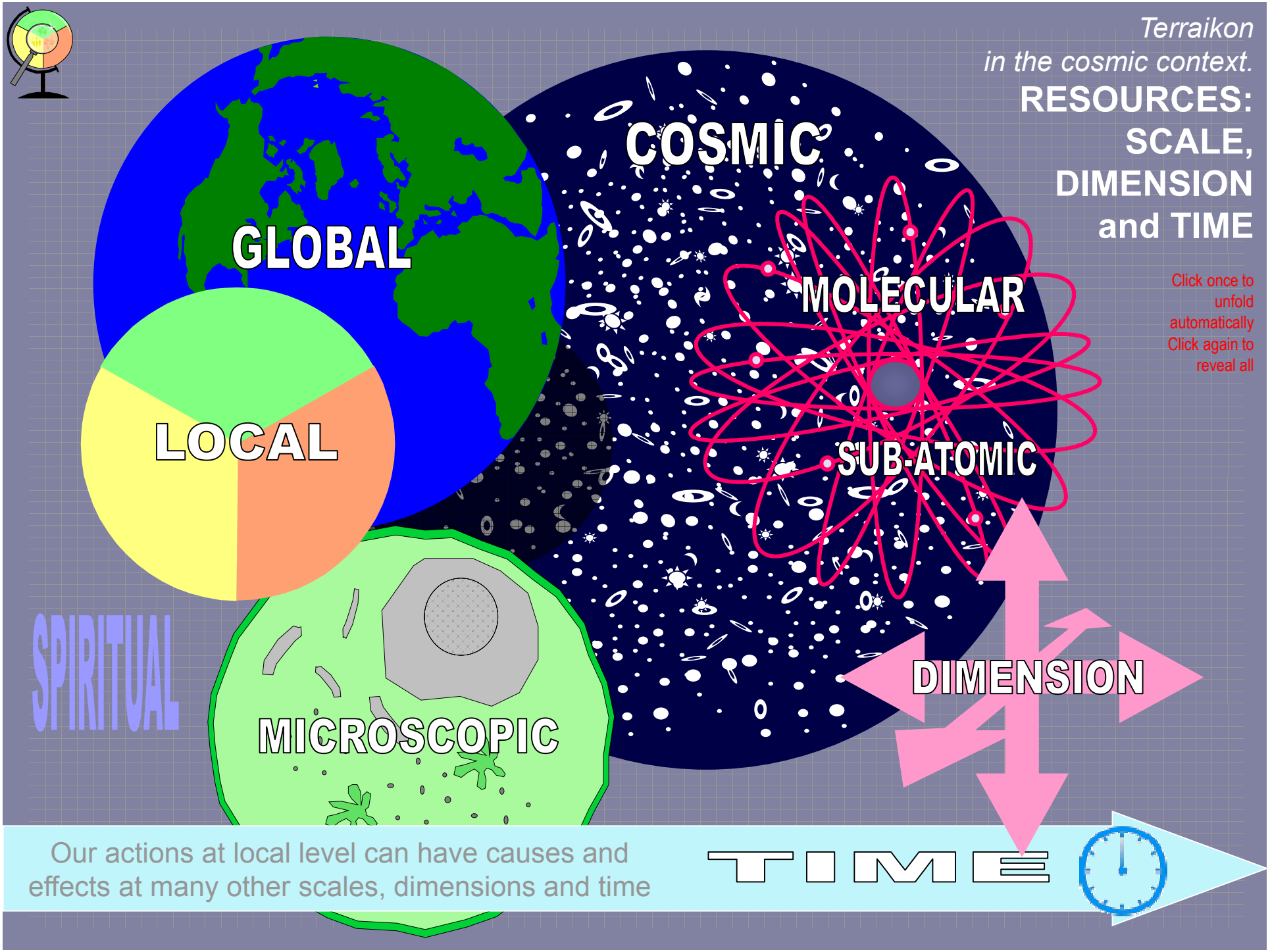


The animated version of this diagram shows how all sectors can include many different types of resource

Terraikon
in the cosmic context.

RESOURCES: SCALE, DIMENSION and TIME

Click once to unfold automatically
Click again to reveal all

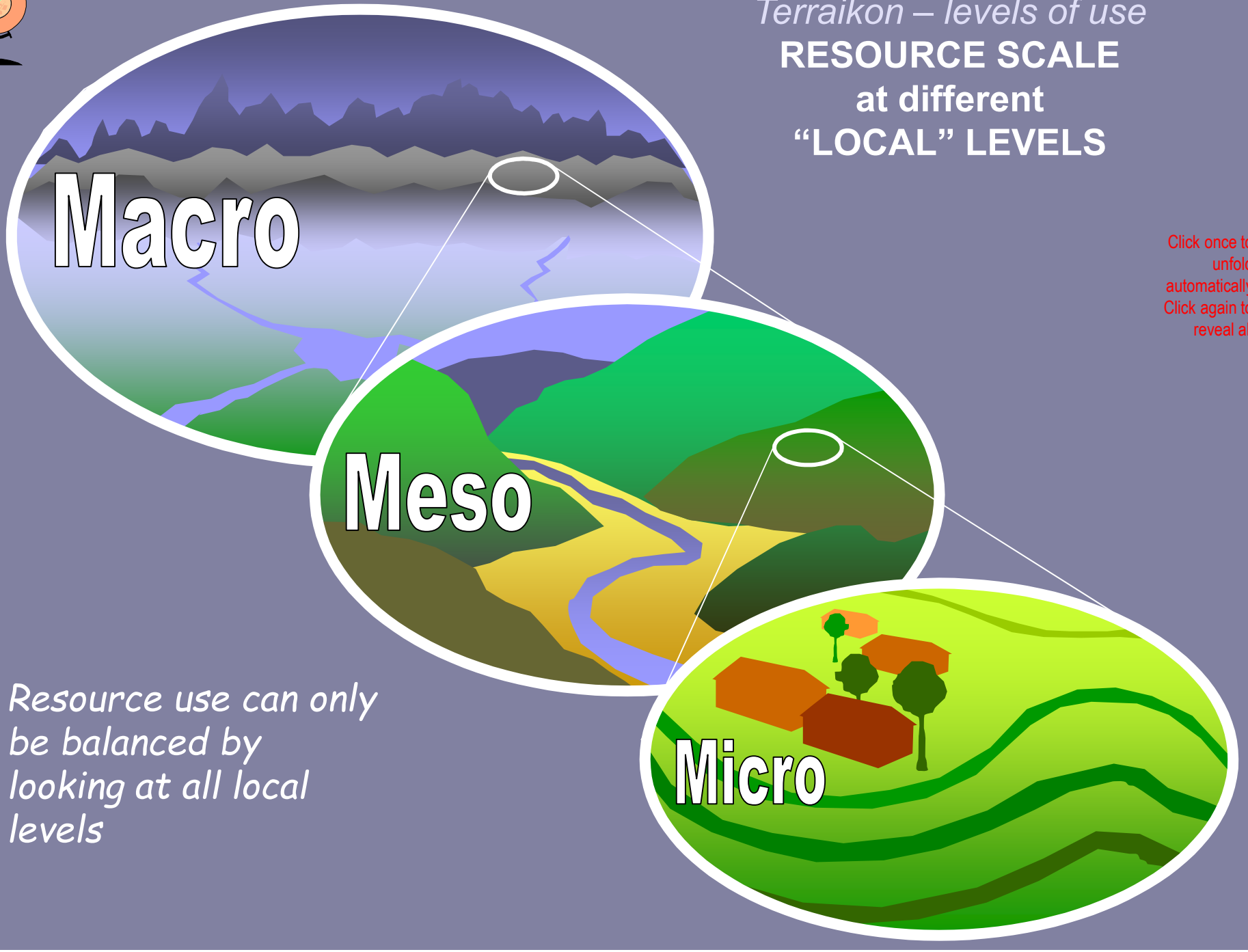


Our actions at local level can have causes and effects at many other scales, dimensions and time

Terraikon – levels of use

RESOURCE SCALE at different "LOCAL" LEVELS

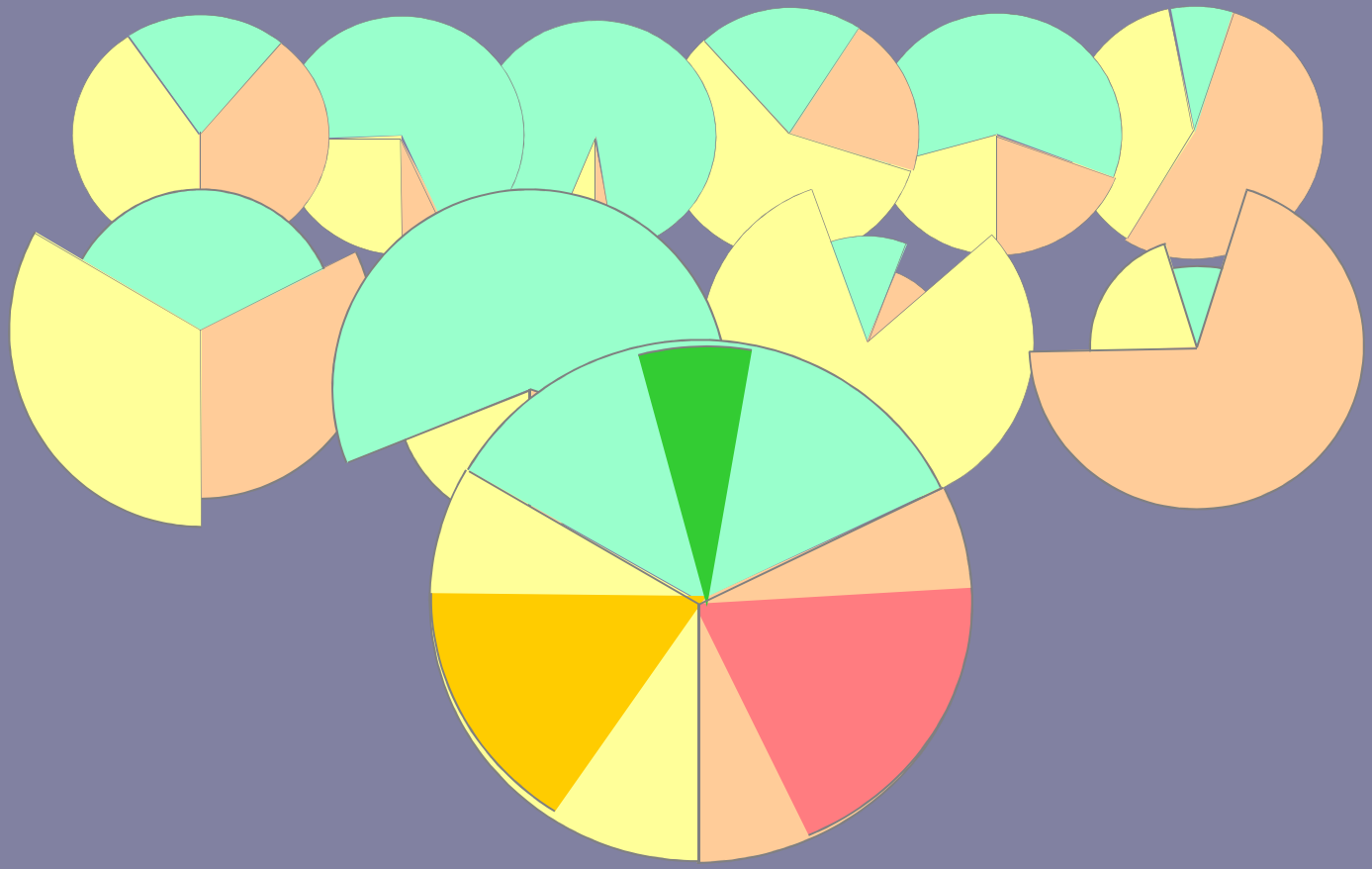
Click once to unfold automatically
Click again to reveal all



Resource use can only be balanced by looking at all local levels

Ways to represent balance of resources (1)

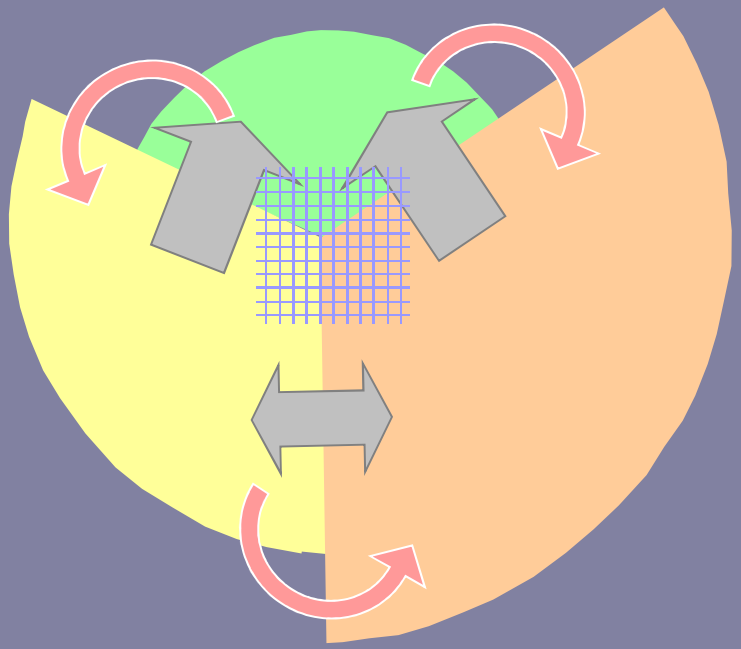
The Terraikon can be used in different ways to show balance of resources, (varying angle, radius, or proportion). The method used will depend on the units measured, and on what type of balance is to be visualised.



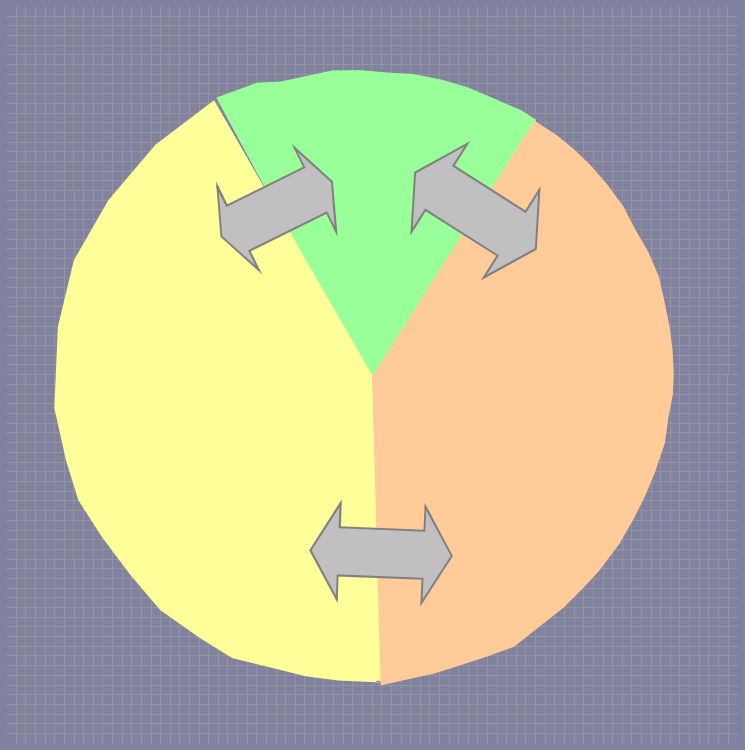
Ways to represent balance of resources (2)

The Terraikon can be used to illustrate unbalanced and balanced dynamics. Here is one way. Maybe spiritual resources help to achieve a balance?

Unbalanced

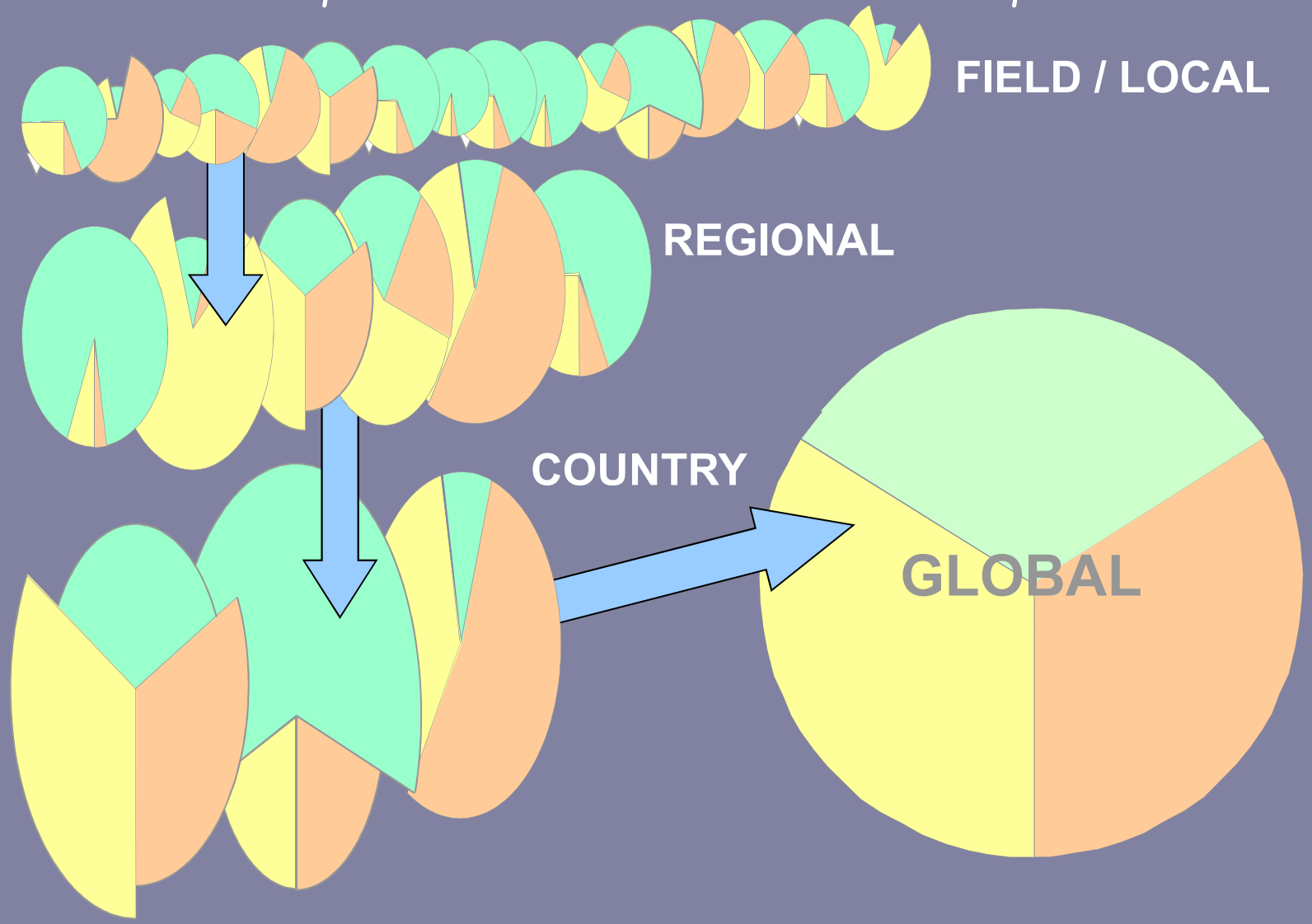


Balanced



Ways to represent balance of resources (3)

Global balance depends on how resource uses add up at lower levels

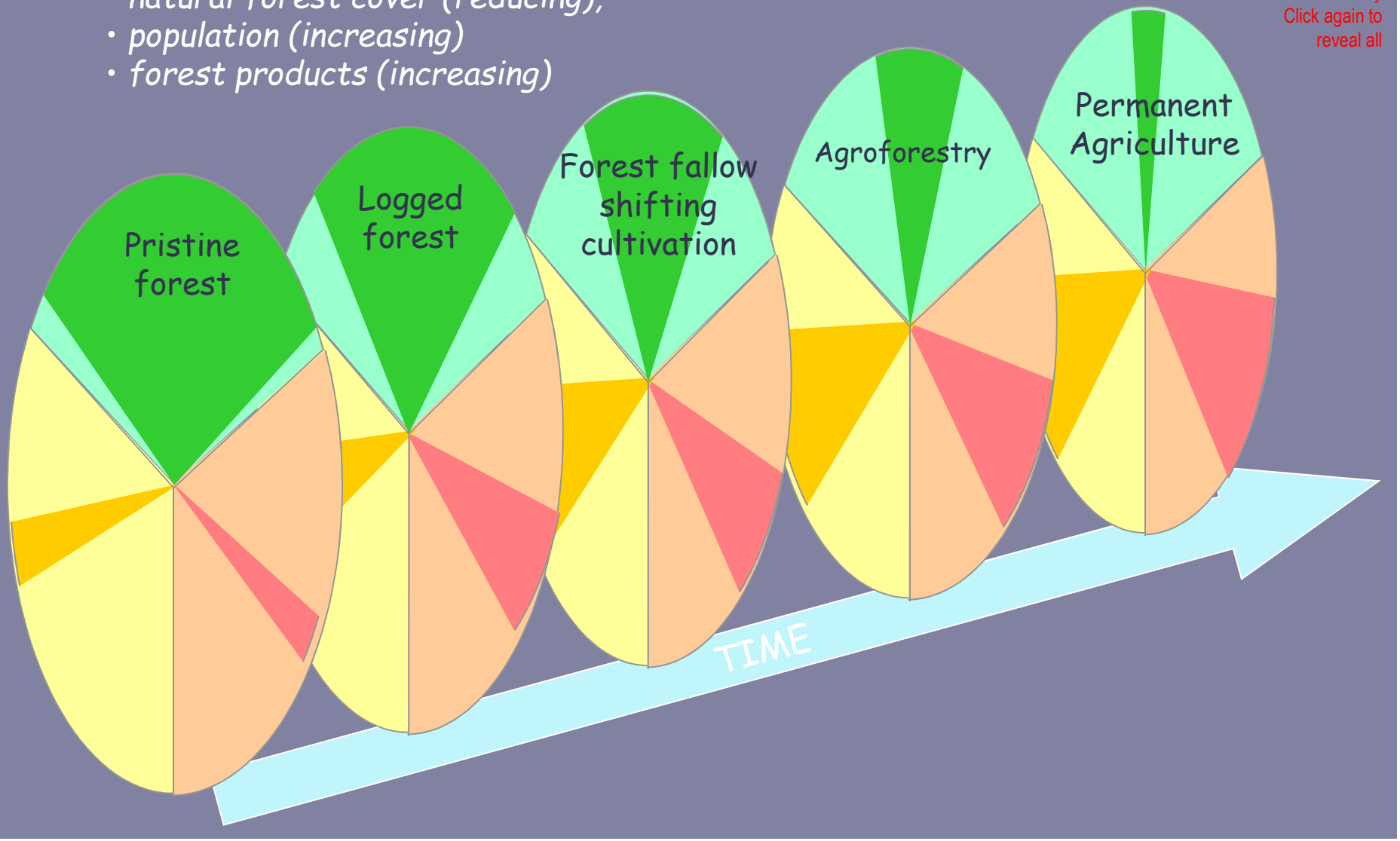


Ways to represent balance of resources (4)

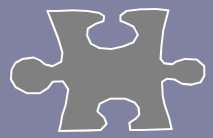
Balance changes over time. Here is an example of how the model can be used to represent possible changes in proportions of:

- *natural forest cover (reducing),*
- *population (increasing)*
- *forest products (increasing)*

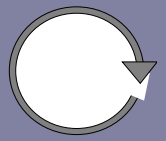
Click once to unfold automatically
Click again to reveal all



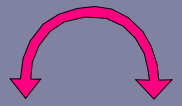
RESOURCE COMPONENT PARTS



- TYPES or SYSTEMS

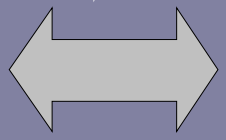


- PROCESSES



- BENEFITS (GOODS/SERVICES)

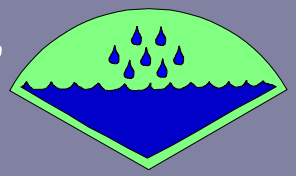
- STATE (ATTRIBUTES or QUALITIES)

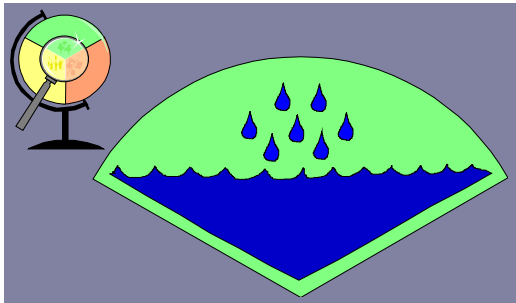


- PRESSURES AND RESPONSES

- KNOWLEDGE BASES

…the following slides give some examples for ***Aquatic Resources…***

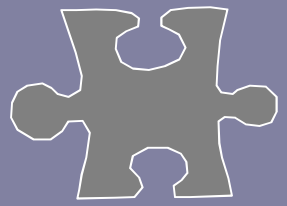




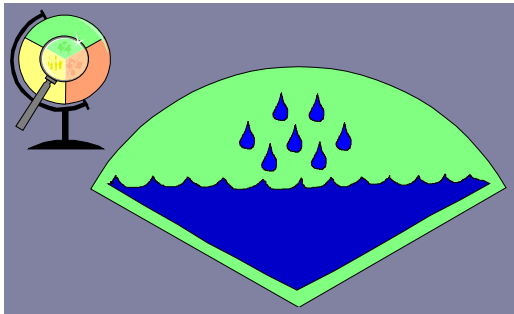
Terraikon – digging deeper.

Aquatic resources

TYPES OR SYSTEMS

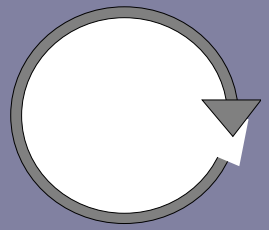


- Ocean
- Lake
- River
- Atmospheric
- Subsurface …

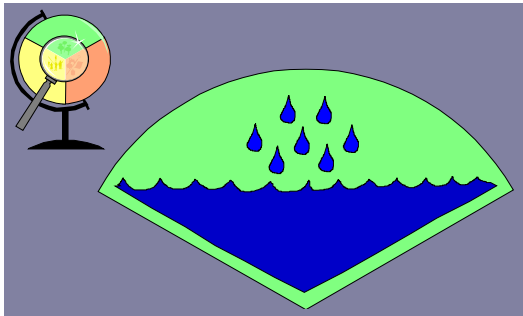


Aquatic resources

PROCESSES



- Nutrient cycle (part)
- Hydrological cycle (part)
- Carbon cycle (part)
- Ocean currents
  - Direction
  - Rate
  - Temperature …



Terraikon – digging deeper.

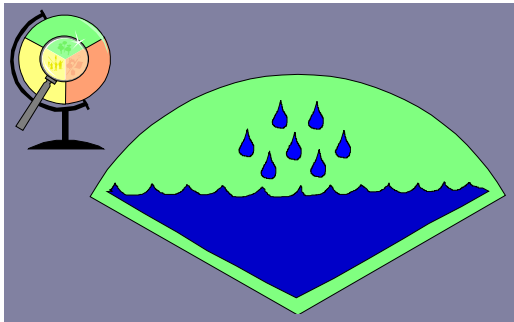
Aquatic resources

GOODS/SERVICES

(or BENEFITS)

- Raw material
- Potable water
- Cooking medium
- Cleaning agent
- Transport medium
- Reaction medium
- Marine habitat
- Freshwater habitat

- Nutrient provision
- Structural element
- Energy source
  - Tidal
  - Wave
  - Gravity
  - Temperature
  - Hydrogen…



Terraikon – digging deeper.

Aquatic resources

STATES

(ATTRIBUTES or QUALITIES)

- Quality
- Quantity
- Movement
- State
- Temperature…

Terraikon – digging deeper.

Aquatic resources - water quality

PRESSURES AND RESPONSES OPPORTUNITES

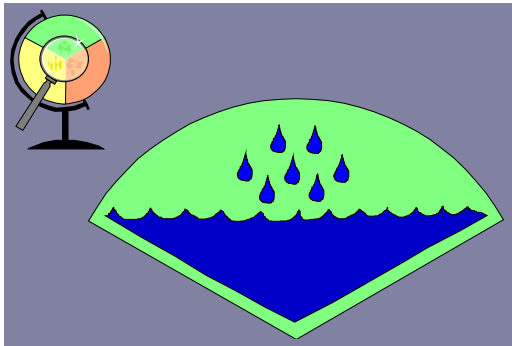
Water quality

Opportunities

- **Purity maintenance**
- **Water treatment**

Problems

- **Contamination**
  - *Causes*
    - **Fertiliser use**
    - **Effluent discharge**
  - *Effects*
    - **Human illnesses**
    - **Unpotable water**
    - **Aquatic habitat degradation**
    - **Algal blooms**
- **Turbidity**
  - *Causes*
    - **Soil erosion**
    - **Shore erosion**
    - **Dredging**
  - *Effects*
    - **Aquatic habitat degradation**
    - **Fish debilitation**
    - **Species change**
    - **Unpotable water**
    - **Siltation**
- **Hypersalinity**
  - *Causes*
    - **Irrigation run-off**
    - **Seawater infiltration**
  - *Effects*
    - **Unpotable water**
    - **Aquatic habitat degradation**



Terraikon – digging deeper.

Aquatic resources

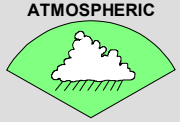
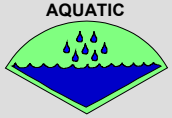
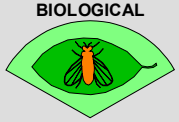
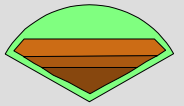
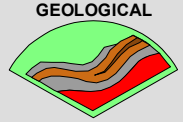
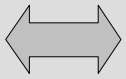
KNOWLEDGE BASES

- Hydrology
- Hydrodynamics
- Meteorology
- Physics
- Chemistry
- Others…

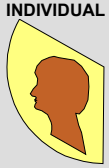
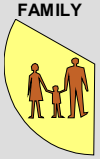
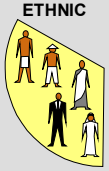
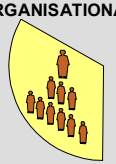
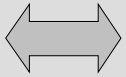
RESOURCE COMPONENT PARTS

The following tables summarise the component parts and characteristics for all three material resources.

Terraikon: natural resource components

Natural Resources COMPONENTS	EXTRA TERRESTIAL 	ATMOSPHERIC 	AQUATIC 	BIOLOGICAL 	SURFICIAL 	EDAPHIC 	GEOLOGICAL 
COMPONENT PARTS 	Sun Planets Moon Asteroids Comets etc. Stars Galaxies	Exosphere Mesosphere Thermosphere Stratosphere Ozone layer Troposphere	Oceans Lakes Rivers Subsurface Airborne Other	Terrestial ecosystems (Tropical, Temperate, Aquatic ecosystems	Plains Mountains Seabeds Coastal zones Watersheds	Incipient soils Temperate soils Tropical soils	Igneous Metamorphic Sedimentary Magma
PROCESSES 	Radiation Solar flares Diurnal cycle Cosmic radiation	Climatic types Weather systems Wind currents Nutrient cycle Hydrological cycle Carbon cycle	Nutrient cycle Hydrological cycle Carbon cycle Ocean currents (Direction, Rate, Temperature)	Ecosystem Nutrient cycle Hydrological cycle Carbon cycle Digestion Respiration Photosynthesis	Wearing down Building up Continental drift Plate movement	Nutrient cycle Hydrological cycle Carbon cycle Respiration Decay Erosion Development	Magma convection Vulcanism Plate tectonics Electromagnetism Gravitional field Erosion
PURPOSE/ BENEFITS INPUTS/OUTPUTS GOODS/SERVICES 	Energy for growth Provision of warmth Psychological support Energy source (Photosynthesis, Photovoltaic, Thermal, Gravitational)	Oxygen provision Temp. regulation Transport medium Greenhouse effect Habitat provision Energy source (Wind, Hydro) Water precipitation	Raw material Potable water Cooking medium Cleaning agent Transport medium Reaction medium Marine habitat Freshwater habitat Nutrient provision Structural element Energy source (Tidal, Wave, Gravity, Temperature, Hydrogen)	Food Drugs Clothing materials Construction material Raw material Aesthetics Sport provision Transport means Other resource maintenance Habitat provision Energy source (Biomass, Draught)	Development area Other benefit source Barrier	Growth medium Construction Raw material Land provision Other resource maintenance Habitat	Construction material Raw materials Energy source (Geothermal, Nuclear)
ATTRIBUTES PRESSURES RESPONSES 	**Ultraviolet radiation** **Infrared radiation** **Visible radiation.** **Cosmic radiation** **Gravity**	**Air composition** **Air moisture** **Air movement** **Air temperature** **Electrical charge**	**Water movement** **Water quality** **Water state** **Water temperature** **Water location**	PLANT **Structure** **Diversity** **Growth** **Regeneration** **Health** **Production** **Combustion** ANIMAL **Diversity** **Reproduction** **Health** **Excretion**	**Land altitude** **Land slope** **Land roughness** **Land exposure** **Land stability** **Water stability**	**Soil structure** **Soil fertility** **Soil texture** **Soil nutrients** **Soil temperature** **Soil aeration** **Subsoil**	**Rock structure** **Rock composition** **Mineral type** **Magma stability** **Subterranean water** **Temperature** **Mantle stability**
KNOWLEDGE MEASUREMENT 	Astronomy	Meteorology	Hydrology Oceanography Meteorology Physics Chemistry	Biology Zoology Botany etc	Topography Oceanography Surveying Cartography Geomorphology Geography	Soil science Chemistry Physics	Geology Chemistry Physics

Terraikon: human resource components

Human Resources COMPONENTS	INDIVIDUAL 	FAMILY 	COMMUNITY 	ETHNIC 	ORGANISATIONAL 	NATIONAL 	GLOBAL 
COMPONENT PARTS TYPES 	Body Mind Soul Type *(Gender, Race Occupation etc)*	Spouses Parents Children Relatives Type *(Nuclear, Extended, Unmarried, Single parent Unconventional)*	Members Leaders Location/purpose *(Rural, Forest, Urban, Suburban, Neighbourhood, Work-place, Market-place, Church, School)*	Members Leaders / elders Structure Origin/type (African, Asian,	Members Leaders Location / type *(Academic, Religious, Political, Security, Media, Health, Service, Business, State government, NGOs, CBOs, Private enterprises, Non-profitmaking units)*	National population Government State types *(Democratic, Monarchy, Federal)* Economy	Countries Inter-governmental structures
PROCESSES 	Sensing Thinking Communicating Working Eating Breathing Excreting Growing Learning	Partnering Reproducing Child rearing Developing Social contribution	Forming Maintaining Disbanding	Mutual supporting Cultural formation	Managing (Planning, Organising, Staffing, Directing, Controlling) Administrating Developing Producing Researching Training	Leading Managing Representing Discussing	
PURPOSE/BENEFITS INPUTS/OUTPUTS GOODS/SERVICES 	Intrinsic - human life Economic contribution Human virtues	Social initiation Social stability Basic education Expression of love Cultural formation Mutual support	Developing relationships Facilitating communication Promoting buying and selling Developing culture Enabling collaboration Enabling cooperation	Maintaining ethnicity Cultural stability Supporting beliefs	Advice, Consultancy, Research, Education, Training, Law, Health enforcement, Defence, Advocacy, Association, Maintenance, Repair Production Public enterprises	Legislation Planning Taxation Welfare Law-enforcement	
QUALITY ATTRIBUTES PRESSURES RESPONSES 	**Age, Personality** **Class , Health** **Abilities, Skills** **Attitudes Beliefs** **IQ, Ethics** **Knowledge** **Rights** **Responsibilities** **Rewards** **Capital assets**	**Stability** **Size** **Location** **Convention** **Social assets** **Produced assets** **Natural assets** **Relationships**	**Purpose** **Structure** **Culture**	**Origin** **Structure** **Culture** **Stability**	**Objectives** **Ownership** **Size** **Structure** **Management style** **Efficiency** **Effectiveness**	**Political** **Leadership** **Transparency** **Democracy** **Justice** **Subsidiarity** **Accountability** **Equity**	Transparency
KNOWLEDGE MEASUREMENT 	Anthropology Psychology Physiology	Social sciences	Cultural anthropology Social sciences		Accountancy Management Business studies Organisational		

Terraikon: produced resource components

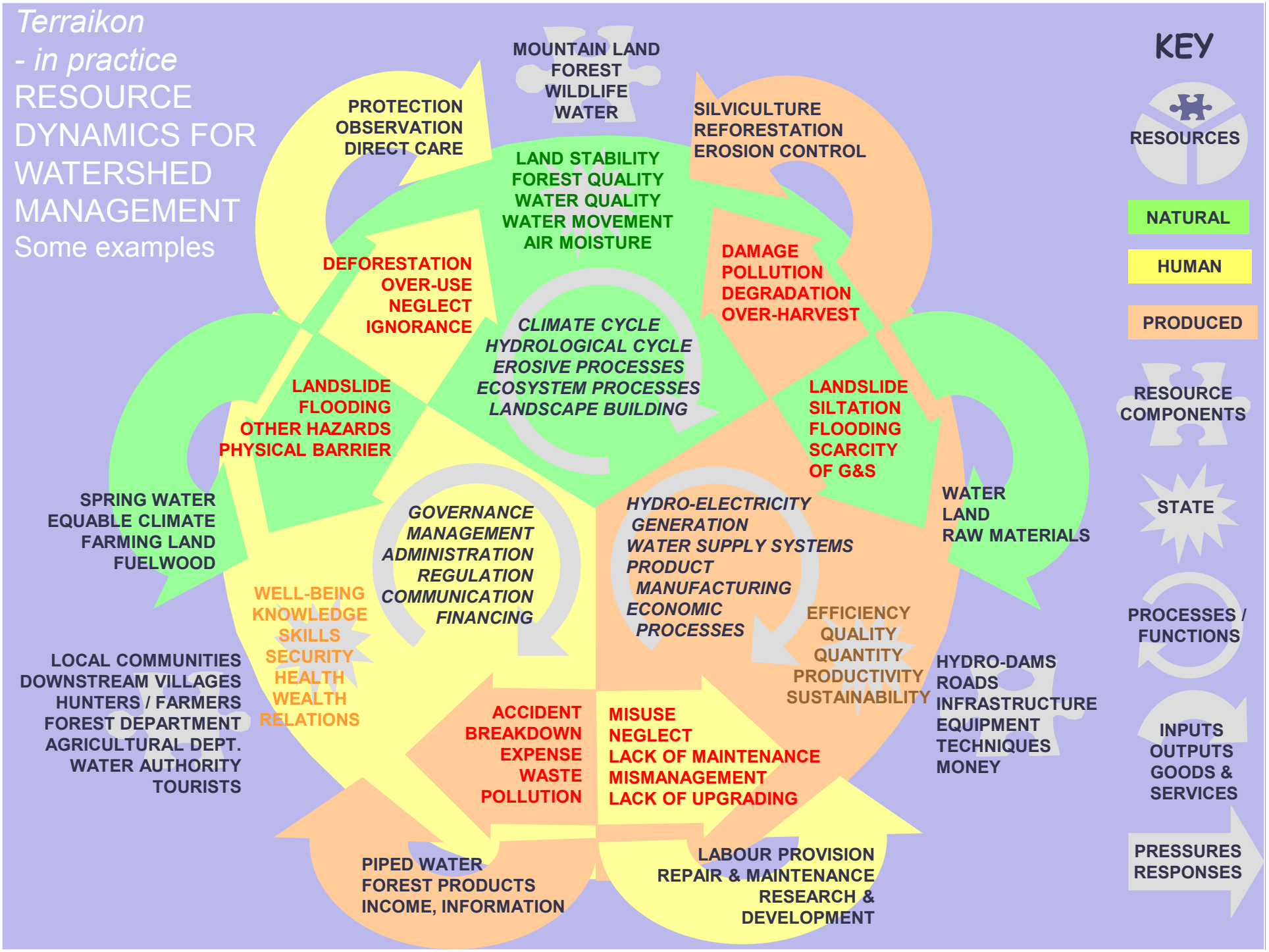
Produced Resources COMPONENTS	STRUCTURAL	INFRA-structural	TECHNO-logical	TECHNICAL	CONSUMABLE	FINANCIAL	PLANNING	INFORMATION	ARTISTIC
COMPONENT PARTS TYPES	Exterior Structure Interior Types (*Residential Business Industry Specialised*)	Transport system *(Road, Rail,, Water, Air)* Utilities provision *(Electricity, Water,Telephone ,Postal, Internet)* Energy generation *(Solar, Hydro, Nuclear, Solar, Coal, Biomass, Wind)* Waste disposal *(Liquid, Solid)*	Parts Tools, Equipment ,Machinery Transport *(Land, Water, Submarine, Air,)* Domestic Industrial	Designs Types *(Manual Mechanical Husbandry)*	Packaging Types *(Food, Timber, Drugs, Paper, Materials, Electricity, Water)*	Currency Types *(Cash, Capital, Shares)*	Purpose Medium Types *(Constitutions, Legislation, Programmes, Policies, Projects)*	Content Medium Types *(Electronic, Paper-based, Verbal)*	Content Medium Type *(Music, Literature, Drama, Sculpture, Painting, Drawing, Dance)*
PROCESSES	Design Construction Marketing Maintenance Decommissioning	Construction Maintenance Upgrading Recycling Wear and Tear Decommissioning	Designing Manufacturing Operating Controlling Energy supply Wear and tearing Maintaining Repairing, Improving Decommissioning Recycling	Designing Developing Testing Applying Improving	Producing Storing Distributing Marketing Deteriorating Selling Consuming	Generating Distributing Investing Selling Valuing	Programming 0Identification Formulation Financing Implementation Monitoring Evaluation Updating	Data gathering Data analysing Disseminating Storing Up-dating Assimilationg	Inspiring Composing Presenting Appreciating Archiving
PURPOSE/BENEFITS INPUTS/OUTPUTS GOODS/SERVICES	Provision of shelter Means of investment	Distribution of goods and services Access	Provision of goods and services	Providing goods and services Improving efficiency	Provision of food Drink, Fuel Mean of making other goods and services	Means of exchange Medium of investment	Transmission of ideas	Transmission of information	Spiritual well-being Physical well-being
QUALITY ATTRIBUTES PRESSURES RESPONSES	**Cost Availability Durability**	**Availability Cost Durability Reliability Efficiency Effectiveness Safety**	**Cost Availability Durability Reliability Appropriateness Efficiency Effectiveness Safety Pollution**	**Cost Availability Sophistication Appropriateness Efficiency**	**Cost Availability Storability Appropriateness**	**Value Borrowing cost Accessibility Interest**	**Cost Objectives Assumptions Costs Inputs and Outputs Effectiveness Efficiency Appropriateness**	**Cost Availability Relevance Readability Storability Retrievability Transmission Clarity**	**Value Accessibility Emotability? Utility**
KNOWLEDGE MEASUREMENT	Engineering Artesanal	Engineering Artesanal	Engineering Economics	Engineering Chemistry Physics Etc.	Engineering Economics	Economics	Management	IT	Arts and crafts

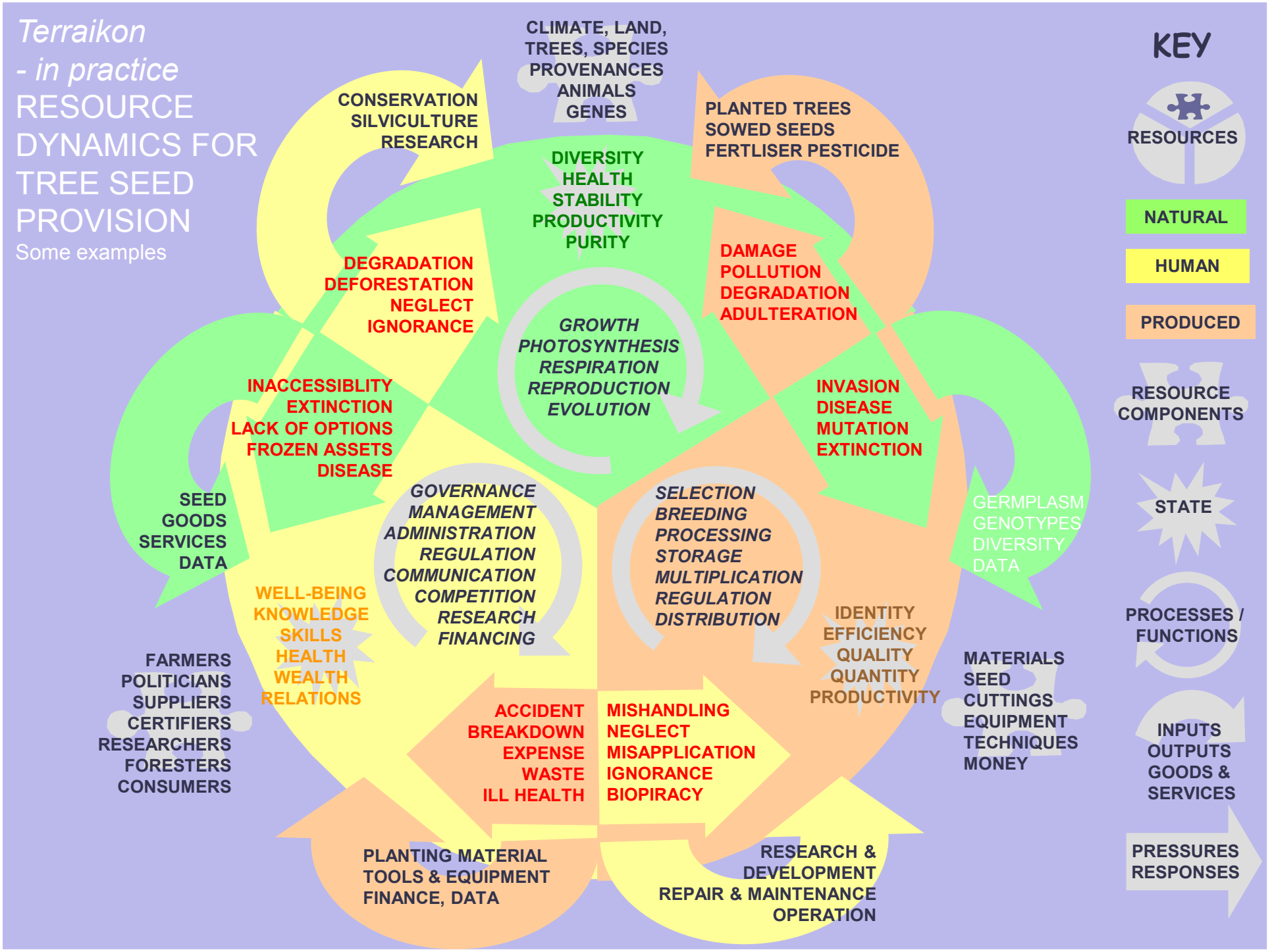
Terraikon – in practice.

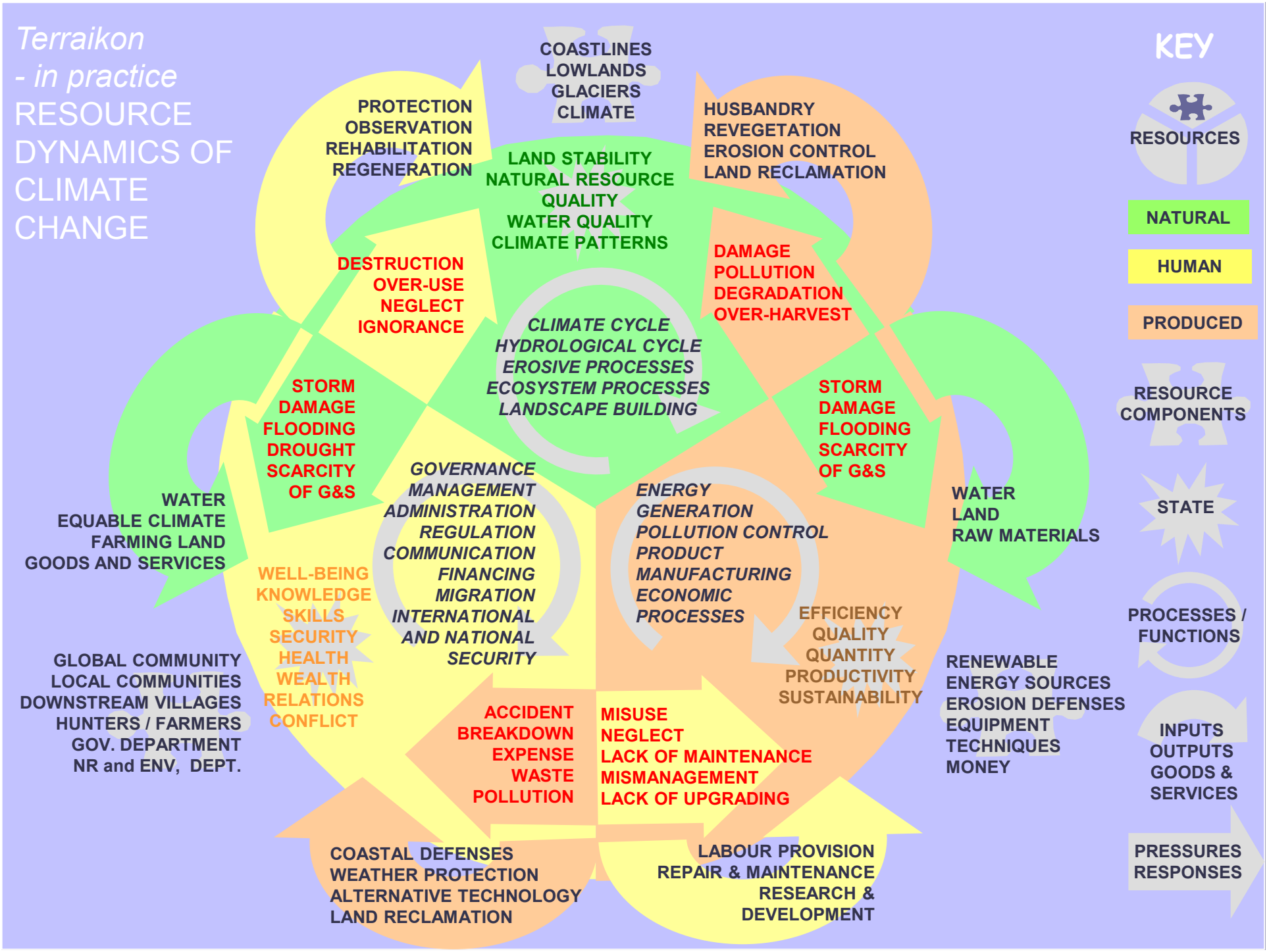
USING THE TERRAIKON

The following slides give examples of how the Terraikon can be used to analyse and classify resource dynamics and possible sources of imbalance for:

- Watersheds
- Seed provision
- Climate change
- *Note: no attempt has been made to include spiritual resources!*


Terraikon
- in practice
RESOURCE DYNAMICS FOR WATERSHED MANAGEMENT
Some examples
MOUNTAIN LAND
FOREST
WILDLIFE
WATER
PROTECTION
OBSERVATION
DIRECT CARE
SILVICULTURE
REFORESTATION
EROSION CONTROL
LAND STABILITY
FOREST QUALITY
WATER QUALITY
WATER MOVEMENT
AIR MOISTURE
DEFORESTATION
OVER-USE
NEGLECT
IGNORANCE
DAMAGE
POLLUTION
DEGRADATION
OVER-HARVEST
CLIMATE CYCLE
HYDROLOGICAL CYCLE
EROSIVE PROCESSES
ECOSYSTEM PROCESSES
LANDSCAPE BUILDING
LANDSLIDE
FLOODING
OTHER HAZARDS
PHYSICAL BARRIER
LANDSLIDE
SILTATION
FLOODING
SCARCITY
OF G&S
SPRING WATER
EQUABLE CLIMATE
FARMING LAND
FUELWOOD
WATER
LAND
RAW MATERIALS
GOVERNANCE
MANAGEMENT
ADMINISTRATION
REGULATION
COMMUNICATION
FINANCING
HYDRO-ELECTRICITY
GENERATION
WATER SUPPLY SYSTEMS
PRODUCT
MANUFACTURING
ECONOMIC
PROCESSES
WELL-BEING
KNOWLEDGE
SKILLS
SECURITY
HEALTH
WEALTH
RELATIONS
EFFICIENCY
QUALITY
QUANTITY
PRODUCTIVITY
SUSTAINABILITY
LOCAL COMMUNITIES
DOWNSTREAM VILLAGES
HUNTERS / FARMERS
FOREST DEPARTMENT
AGRICULTURAL DEPT.
WATER AUTHORITY
TOURISTS
HYDRO-DAMS
ROADS
INFRASTRUCTURE
EQUIPMENT
TECHNIQUES
MONEY
ACCIDENT
BREAKDOWN
EXPENSE
WASTE
POLLUTION
MISUSE
NEGLECT
LACK OF MAINTENANCE
MISMANAGEMENT
LACK OF UPGRADING
PIPED WATER
FOREST PRODUCTS
INCOME, INFORMATION
LABOUR PROVISION
REPAIR & MAINTENANCE
RESEARCH &
DEVELOPMENT
KEY
RESOURCES
NATURAL
HUMAN
PRODUCED
RESOURCE
COMPONENTS
STATE
PROCESSES /
FUNCTIONS
INPUTS
OUTPUTS
GOODS &
SERVICES
PRESSURES
RESPONSES


Terraikon
- in practice
RESOURCE DYNAMICS FOR TREE SEED PROVISION
Some examples
CLIMATE, LAND, TREES, SPECIES PROVENANCES ANIMALS GENES
CONSERVATION SILVICULTURE RESEARCH
PLANTED TREES SOWED SEEDS FERTLISER PESTICIDE
DIVERSITY HEALTH STABILITY PRODUCTIVITY PURITY
DEGRADATION DEFORESTATION NEGLECT IGNORANCE
DAMAGE POLLUTION DEGRADATION ADULTERATION
GROWTH PHOTOSYNTHESIS RESPIRATION REPRODUCTION EVOLUTION
INACCESSIBLITY EXTINCTION LACK OF OPTIONS FROZEN ASSETS DISEASE
INVASION DISEASE MUTATION EXTINCTION
SEED GOODS SERVICES DATA
GOVERNANCE MANAGEMENT ADMINISTRATION REGULATION COMMUNICATION COMPETITION RESEARCH FINANCING
SELECTION BREEDING PROCESSING STORAGE MULTIPLICATION REGULATION DISTRIBUTION
GERMPLASM GENOTYPES DIVERSITY DATA
WELL-BEING KNOWLEDGE SKILLS HEALTH WEALTH RELATIONS
IDENTITY EFFICIENCY QUALITY QUANTITY PRODUCTIVITY
FARMERS POLITICIANS SUPPLIERS CERTIFIERS RESEARCHERS FORESTERS CONSUMERS
MATERIALS SEED CUTTINGS EQUIPMENT TECHNIQUES MONEY
ACCIDENT BREAKDOWN EXPENSE WASTE ILL HEALTH
MISHANDLING NEGLECT MISAPPLICATION IGNORANCE BIOPIRACY
PLANTING MATERIAL TOOLS & EQUIPMENT FINANCE, DATA
RESEARCH & DEVELOPMENT REPAIR & MAINTENANCE OPERATION
KEY
RESOURCES
NATURAL
HUMAN
PRODUCED
RESOURCE COMPONENTS
STATE
PROCESSES / FUNCTIONS
INPUTS OUTPUTS GOODS & SERVICES
PRESSURES RESPONSES


Terraikon
- in practice
RESOURCE DYNAMICS OF CLIMATE CHANGE
COASTLINES
LOWLANDS
GLACIERS
CLIMATE
PROTECTION
OBSERVATION
REHABILITATION
REGENERATION
HUSBANDRY
REVEGETATION
EROSION CONTROL
LAND RECLAMATION
LAND STABILITY
NATURAL RESOURCE QUALITY
WATER QUALITY
CLIMATE PATTERNS
DESTRUCTION
OVER-USE
NEGLECT
IGNORANCE
DAMAGE
POLLUTION
DEGRADATION
OVER-HARVEST
CLIMATE CYCLE
HYDROLOGICAL CYCLE
EROSIVE PROCESSES
ECOSYSTEM PROCESSES
LANDSCAPE BUILDING
STORM
DAMAGE
FLOODING
DROUGHT
SCARCITY
OF G&S
STORM
DAMAGE
FLOODING
SCARCITY
OF G&S
WATER
EQUABLE CLIMATE
FARMING LAND
GOODS AND SERVICES
GOVERNANCE
MANAGEMENT
ADMINISTRATION
REGULATION
COMMUNICATION
FINANCING
MIGRATION
INTERNATIONAL
AND NATIONAL
SECURITY
ENERGY
GENERATION
POLLUTION CONTROL
PRODUCT
MANUFACTURING
ECONOMIC
PROCESSES
WATER
LAND
RAW MATERIALS
WELL-BEING
KNOWLEDGE
SKILLS
SECURITY
HEALTH
WEALTH
RELATIONS
CONFLICT
EFFICIENCY
QUALITY
QUANTITY
PRODUCTIVITY
SUSTAINABILITY
GLOBAL COMMUNITY
LOCAL COMMUNITIES
DOWNSTREAM VILLAGES
HUNTERS / FARMERS
GOV. DEPARTMENT
NR and ENV, DEPT.
ACCIDENT
BREAKDOWN
EXPENSE
WASTE
POLLUTION
MISUSE
NEGLECT
LACK OF MAINTENANCE
MISMANAGEMENT
LACK OF UPGRADING
RENEWABLE
ENERGY SOURCES
EROSION DEFENSES
EQUIPMENT
TECHNIQUES
MONEY
COASTAL DEFENSES
WEATHER PROTECTION
ALTERNATIVE TECHNOLOGY
LAND RECLAMATION
LABOUR PROVISION
REPAIR & MAINTENANCE
RESEARCH &
DEVELOPMENT
KEY
RESOURCES
NATURAL
HUMAN
PRODUCED
RESOURCE
COMPONENTS
STATE
PROCESSES /
FUNCTIONS
INPUTS
OUTPUTS
GOODS &
SERVICES
PRESSURES
RESPONSES

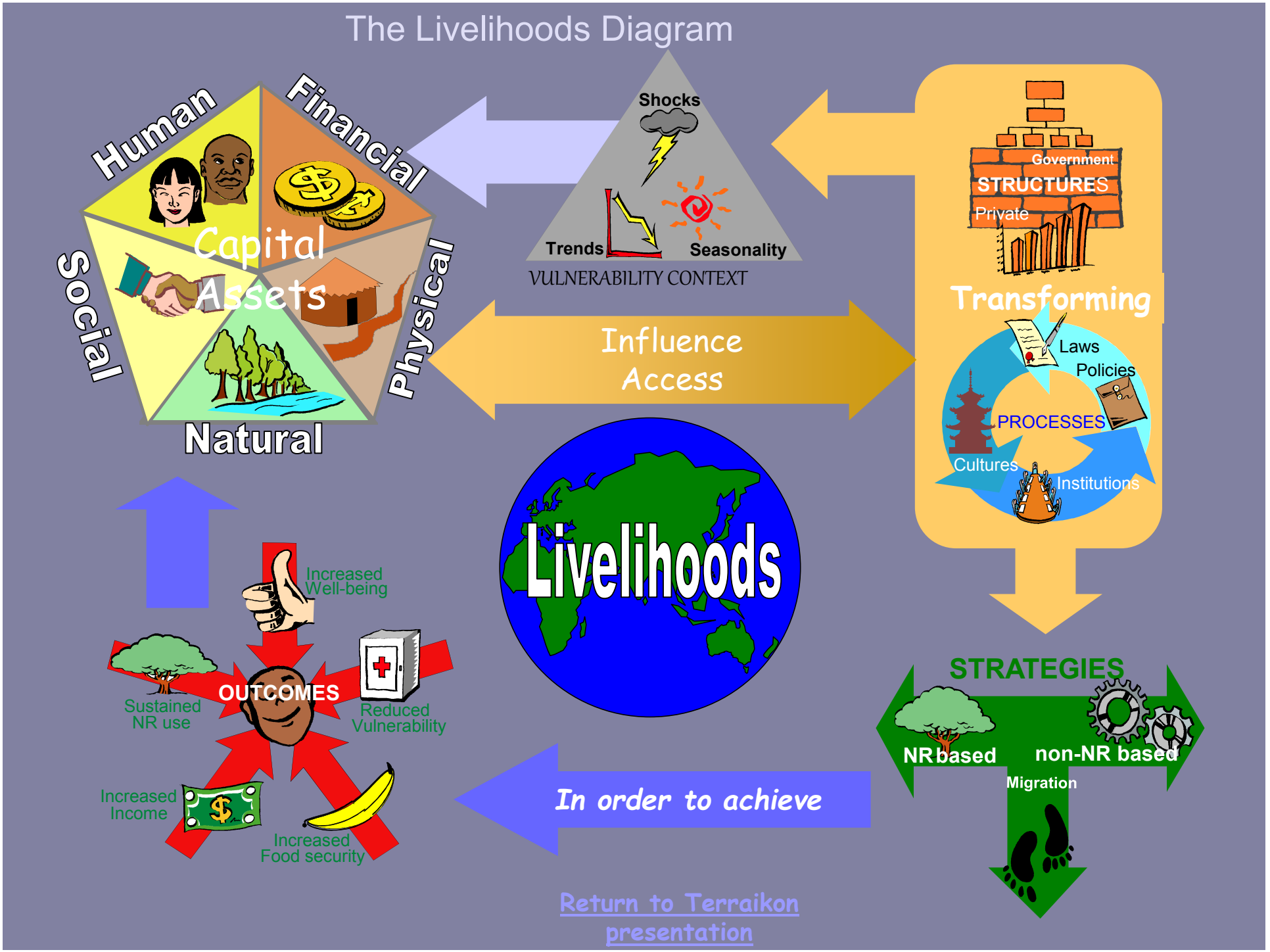
The End

The Livelihoods Approach (as used by DfID)

A new way of visualising it!

(Click once and the diagram will open automatically)

The Livelihoods Diagram

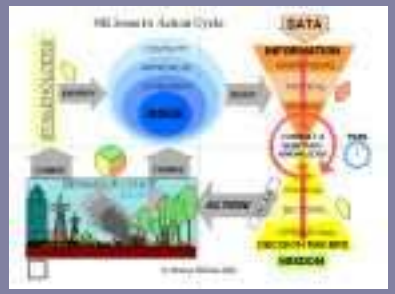


[Return to Terraikon presentation]

Issue - action cycle

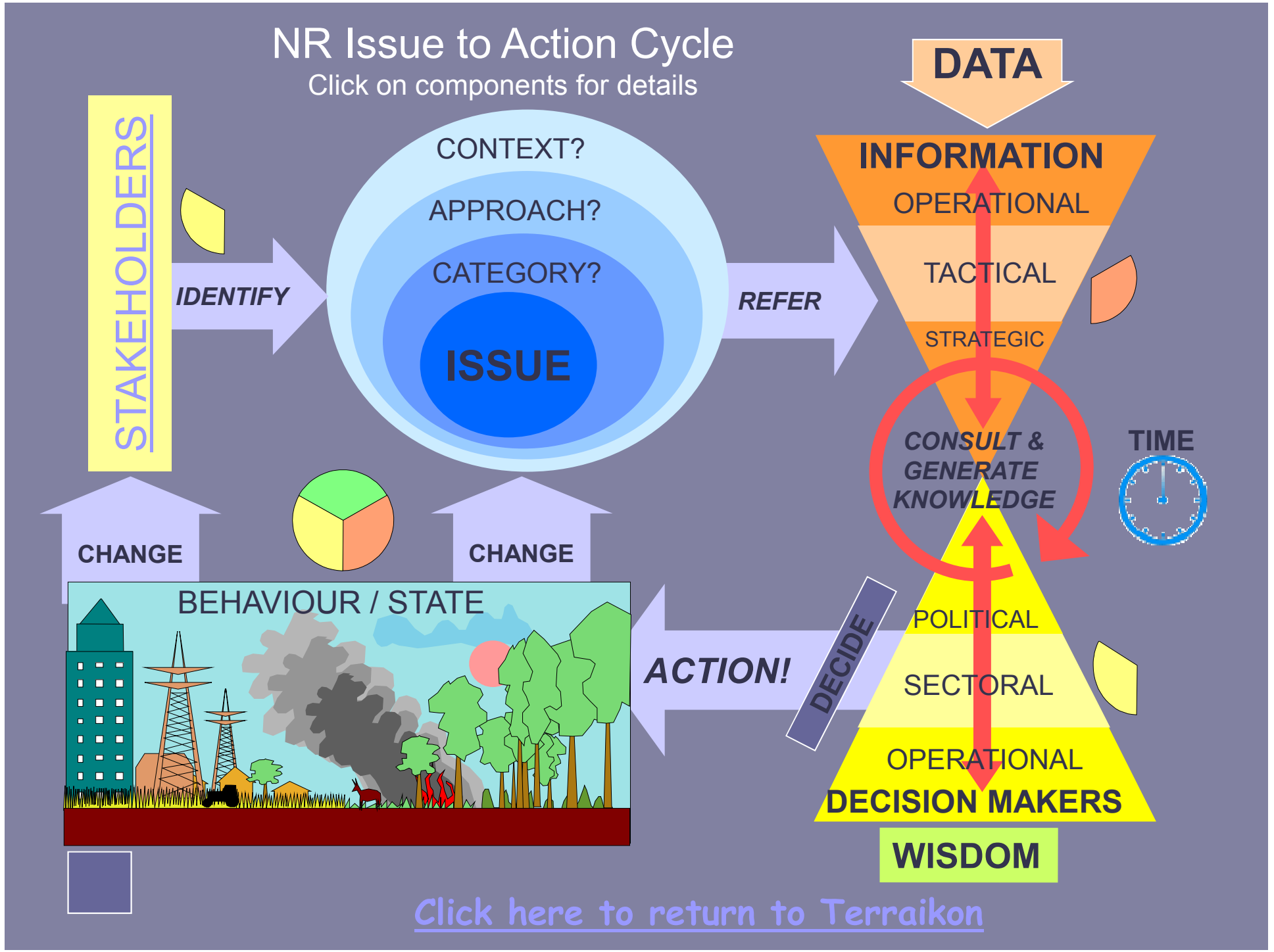
Marcus Robbins 2002

How we move through the cycle
of:
data
information
knowledge
wisdom
action
feedback
data



NR Issue to Action Cycle

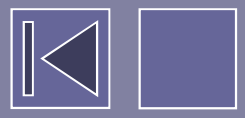
Click on components for details



[Click here to return to Terraikon]

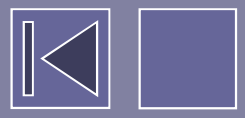
Examples of Stakeholders

- Government
- Civil Society
- Private Sector
- Community
- Media
- Education and Research…



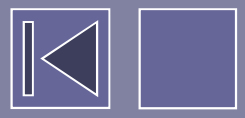
Issues can be:

- Problems and
- Opportunities ...



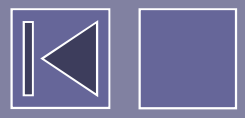
Issues: examples of context

- Ecological systems
- Geographic systems
- Economic Systems ...



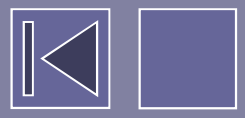
Issues: examples of approach

- Economic and Production
- Policy and Institutions
- Social and Cultural
- Environment and Biodiversity ...



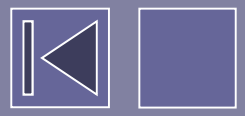
Issues: examples of category

- Degradation of Forests
- Restoration of Forests
- Establishment of Trees And Forests
- Sustainable Management
- Maintenance of Biodiversity
- Forest/agriculture Interface
- Trees and Forests in Support of Livelihoods
- Forest Product Processing
- Timber Trade
- Energy Production ...



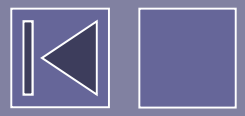
Examples of sources

- Grey literature
- Reports
- Scientific studies
- Textbooks
- Theories
- Models
- Empirical evidence
- Analyses of processes
- Maps
- Syntheses
- Statistics
- Databases ...



Examples of tools

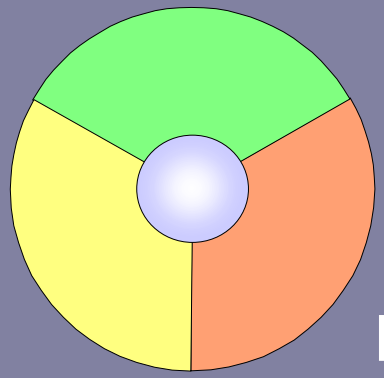
- General principles
- Policy instruments
- Assessments
- Project cycle guidelines
- Modelling
- Mitigation options
- Training
- Participatory techniques
- Silvicultural techniques
- Criteria and indicators ...



Making a Living

Understanding how people go about their daily lives

Marcus Robbins 2002

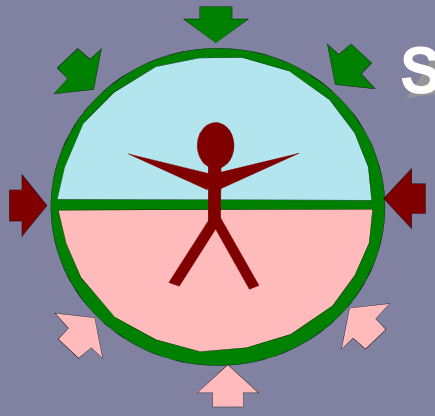


The RESOURCES
AVAILABLE FOR MAKING A LIVING

The WAY
OF MAKING A LIVING

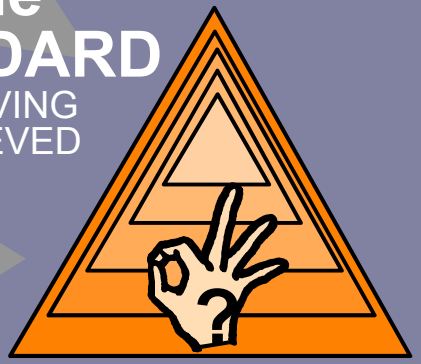
Making a Living

Four interrelated aspects

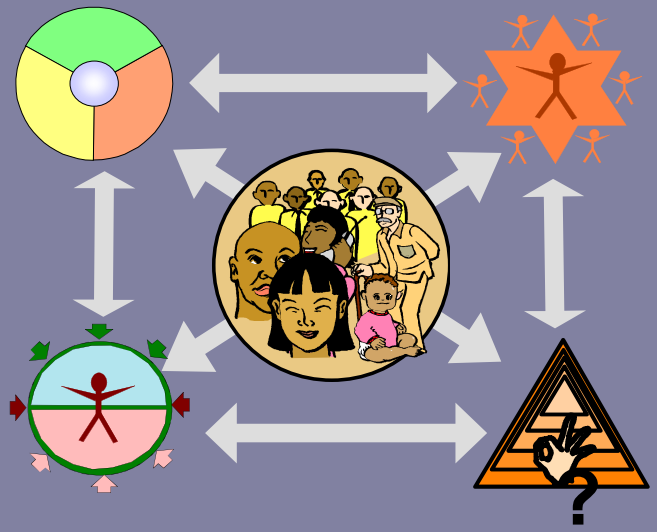


The SITUATION
IN WHICH A LIVING IS MADE

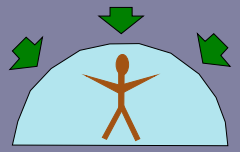
The STANDARD
OF LIVING ACHIEVED

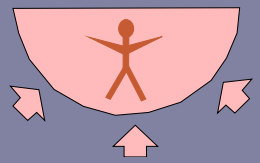


Click here to return to the Terraikon



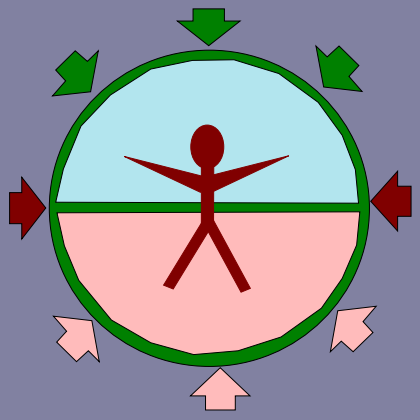
The **situation** *in which we find ourselves…*

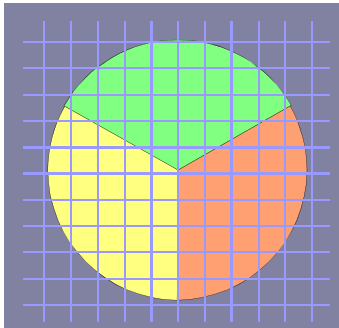




- Environmental
  - Natural
    - Terrestrial
    - Marine
    - Climatic
  - Built
    - Type
  - Benefits
  - Hazards

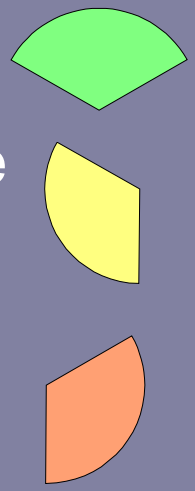
- Socio-economic
  - Aspects
    - Cultural
    - Religious
    - Financial
    - Institutional
    - Political
    - Technological
    - International
    - Global
  - Benefits
  - Hazards

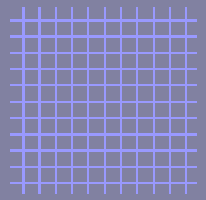




The **resources** *available to us*

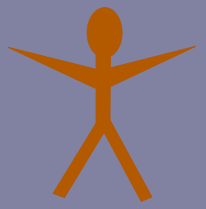
- Type
  - Natural
    - Renewable
    - Non-renewable
  - Human
    - Individual
    - Society
  - Produced
    - Goods
    - Services
    - Financial
  - Spiritual





- Characteristics
  - Access
  - Sustainability
  - Quantity
  - Quality
  - Timing
  - Ownership

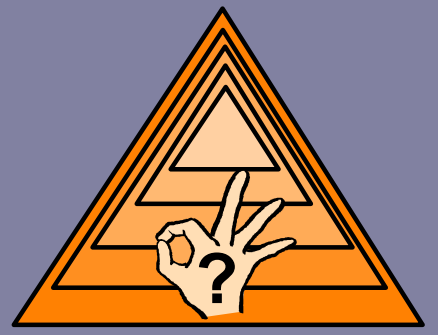
The **way** *we make a living*



- Our occupation
  - Type
  - Characteristics
    - Benefits
    - Hazards
    - Employment
    - Roles
- In society
  - Level
  - Benefit
  - Status
  - Hazard

The **standard** *of living we achieve*

- Roles
  - Rights
  - Responsibilities
  - Relationships
  - Rewards / Revenue
- Needs
  - Spiritual
  - Mental
  - Psychological
  - Physiological
  - Physical
- Level
  - High
  - Medium
  - Low
- Aspects
  - Health
  - Hazard
  - Time
  - Status



International Development Targets (IDTs)

Global goals need local actions at all sorts of people

- A reduction by half in the proportion of people living in extreme poverty by 2015
- Universal primary education in all countries by 2015.
- Gender disparities in primary and secondary education removed by 2005.
- A reduction by two-thirds in the mortality rates for infants and children under 5 and a reduction by three-quarters in maternal mortality by 2015.
- Access through the primary health care system to reproductive health services for all individuals of appropriate ages as soon as possible and no later than 2015.
- To implement national strategies for sustainable development in all countries by 2005, so as to ensure that current trends in the loss of environmental resources are effectively reversed at both global and national levels by 2015.