

4-CERT-ainty!

Alfred PITTERLE
BOKU-Vienna/Austria



SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES KAZAKHSTAN

NATIONAL STRATEGY 
NATIONAL PROGRAM 
START UP PROJECT

**an example for agro-forest-environment management
of entire countries/regions**

PRINCIPLES & TECHNOLOGIES TO BE APPLIED

LIFE

-

in Nature / from Nature / with Nature

VIENNA – 2018

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II The National Development Program (2020 – 2050)

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- 5 The **Initiation** of the National Development Program by a **Start-up Project**

Definitions:

Methodology:	the steps of the process, how to solve a problem
Technology:	techniques used in the different steps
Technical Infrastructure:	hardware necessary to be used by the technologies

A Start-up Project – ↗ to start a National Program – ↗ to implement the National Strategy
2016 – 2020 – 2050

I The **National Strategy** on the Management of Natural Resources of Kazakhstan

1 The **Overall Goal** of the National Strategy on the Management of Natural Resources

The Overall Goal of Kazakhstan National Strategy on the Management of its Natural Resources must be to use all types, quantities and qualities of natural resources in an integrated, sustainable and multiple way in order to become the backbone of a most modern “**Environmental & Social based Free Market Economy**”, and so to serve and guarantee the sustainable development of Kazakhstan concerning the social, economic and political secure governance system as well as to preserve natural values, biodiversity, and the traditional national heritage.

Tradition shall be continued if still identified as “Best Practise”, but changes will be necessary, if “state of the art Science & Research” will guide along with more advanced concepts and technologies.

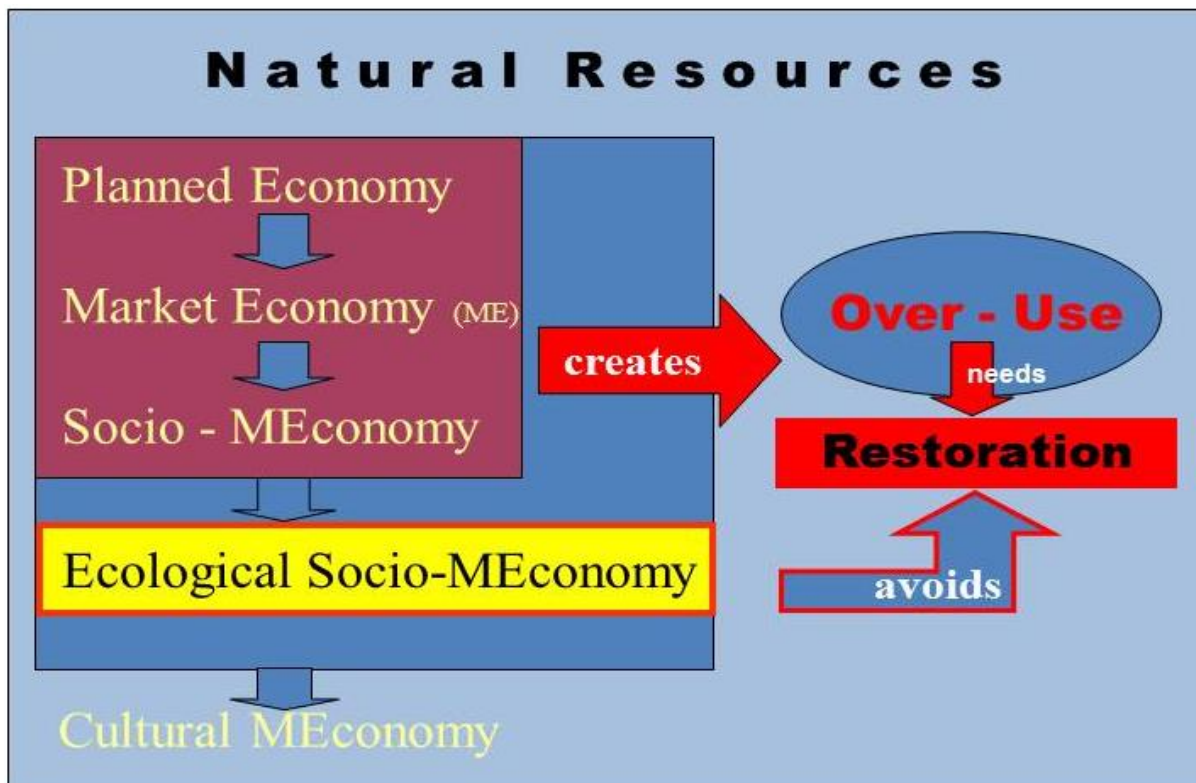


Figure 1: An ecological and social based market-economy avoids over-use, degradation, destruction of natural resources by balancing the human society’s demands with the natural sustainable production & service capacities.

1 The Development of the National Strategy

There are 6 principles, which are defining the national strategy on the management of the natural resources of Kazakhstan:

Principle 1: Natural resources are the basis/backbone of National Economy as well as of Private Economy and therefore have to be under CERTIFICATION acc. to international standards

So the management of natural resources has to serve to the development of both categories of economy finally leading to Public-Private-Partnership (PPP) activities, which may be reflected in projects or business cases, carried out by people (jobs) of private companies (bottom up) in line with public guiding regulations and standards (top down; see figure 2a).

To quantify the capital and the amount of jobs behind natural resources - their **values** have to be identified within national economy; to calculate the capacity of success & risk and to be able to design a management master- and detail- plan within private economy the **potential of use** of the natural resources has to be identified; but the potential of use as well as the value of the natural resources are not known until now as this evaluation is complex and based on a high variety of information and data, which have been not available until now.

Because today new technologies are available, an **inventory of the multiple use capacities of all natural resources** can be carried out everywhere and the results may be certified according to ISO 17065 (EN 45011), in order to qualify them for the economic market trade based on their real value. Only if an **ISO 17065-certificate** for a product or service of any natural resource is available also the management of this natural resource can be qualified/monitored according to international standards (**ISO 9001**: Quality Management; **ISO 14001**: Environmental Tolerance). If the ISO 17065-certificate of the capacity inventory of any natural resource is missing – no ISO 9001 or 14001-certificate can be issued!

Today all technologies and technical tools are available to carry out this natural resource inventory for all kinds, quantities, qualities and locations of land-, water- and atmospheric resources and can be provided by **4-CERT Ltd.** as the leading partner of the **AUSTRIA green&clean** Research and Consultancy Group as they have developed and patented this technologies (see figure 2a and following chapters 3-5).

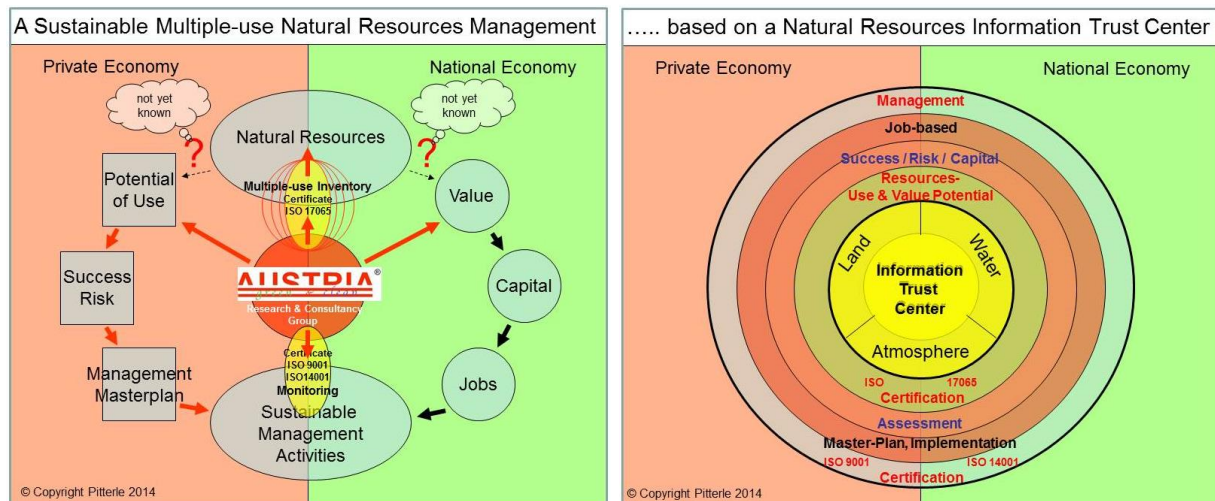


Figure 2a - left: the private and national economy circle; if you want to be able to create jobs within national economy the value of natural resources has to be assessed; if you want to manage natural resources, the potential/capacities of use is to be identified (inventory) at the very first.

Figure 2b - right: to develop a sustainable natural resource optimizing socio-economic system (as shown in figure 2a) a huge amount of data is necessary to be identified, access-code stored, transformed into process-related/specific information and managed within a big single data centre or a data centre-network.

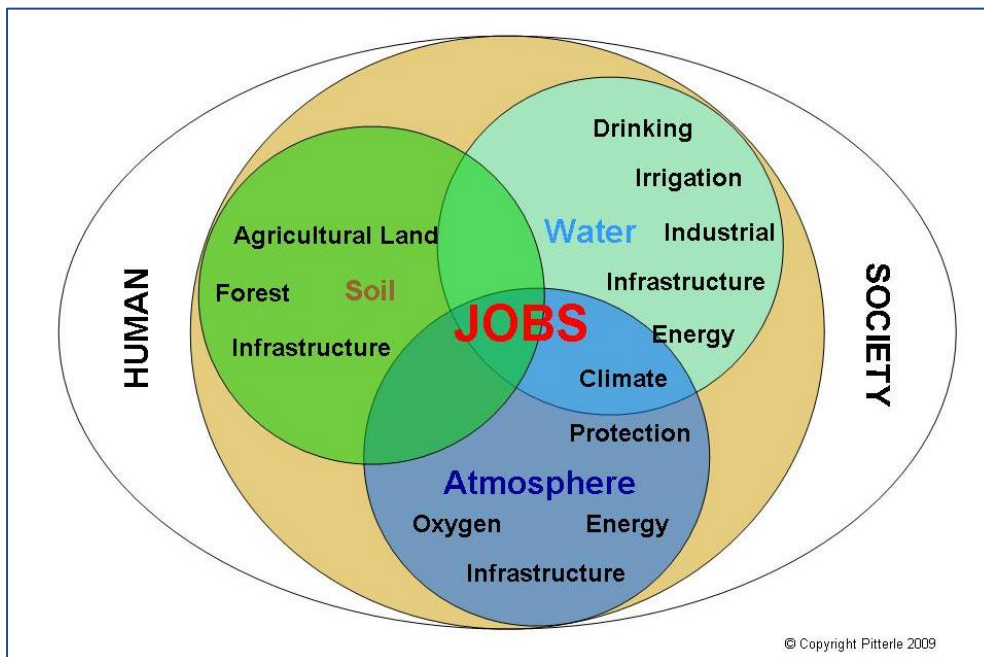
Principle 2: To manage natural resources in an integrated, sustainable and multiple-use way a Data/Information Trust Centre/Warehouse in Kazakhstan is to be established

As natural resources are a public as well as a private source the related data are economically most valuable to verify historical development of the resource related to private as well national economy, concerning the actual situation of type, quantity/intensity and quality of land-use as well as future capacities (potential of multiple-use based on the natural carrying capacity of the local site conditions). To quantify and qualify any natural resource a huge capacity of data based on measurable criteria & indicators needs to be

- measured/identified,
- transformed into certain process-related information,
- well organised/structured,
- stored/archived in a data/information centre, and there
- protected from illegal hacking by security & access coding for authorized persons & institutions only, as well as
- generally managed (e.g. sold to different users according to legal regulation & internal agreement).

See also figure 2b above.

Principle 3: All jobs worldwide - especially in Kazakhstan - in general are based on Natural Resources (Soil, Water, Atmosphere)



In general, **ALL JOBS** worldwide are based on Natural Resources (Soil, Water, Atmosphere). Not only the primary but also the secondary and tertiary sector of economy needs basic materials from natural resources (see figure 3).

Figure 3: The whole life of human society is based on natural resources – so their Integrated, Sustainable Multiple-use Management is the most important task of economy.

Principle 4: Six Rules by International Authorities for the Natural Resource Management in Kazakhstan

Since 1990 different main-authorities worldwide have defined and launched six general demands on management of natural resources: “Protection” faces priority, which should avoid an exploitative use but lead to “Sustainability” by target-oriented management. As every unit of land, water and atmosphere is producing and/or servicing in a “Multi-Purpose” manner, the total variety of natural capacities have to be identified by a multiple inventory. Natural resources also always have to serve to an “Economic Benefit” for the manager – suitable sustainable management models have to be developed. The whole population (as all are being producers or consumers) has to undergo an

- Demand (1): **Protection** of Land / **Biodiversity** (Minist.Conf.PFE STRASSBURG 1990, HELSINKI 1993, LISBOA 1997, VIENNA 2003, FLEGT-EU 2004)
- Demand (2): **Sustainable** Land Management (RIO 1992)
- Demand (3): **Multi-Purpose** Land Management (JOHANNESBURG 02)
- Demand (4): **Economic Benefit** as Basic Target of Sustainable Multi-purpose Land Management (UN-FoF GENEVA 2003)
- Demand (5): **Public Awareness/Information** of Public Society **and Training** of Land Owners/Managers on Possibilities (Land Potentials) and natural **Carrying Capacities** of Land-Management as a Basis of mutual Understanding (FAO/ECE/ILO GENEVA 2003)
- Demand (6): **Measurable, reliable, quantitative Criteria and Indicators** of Land Management as Basis for Decision Makers of Policy and Economy (UN-Forum on Forests GENEVA 2003; FAO/ECE/ILO GENEVA 2003; EU 2003)

“Education and Public Awareness” Program, in order to understand “why” in management “what” is done “how”, “where” and “when” ! Very important is that all management models as well as the management activities are based on measurable Criteria and Indicators (benchmarks) in order to offer reliable information to producers and consumers following international ISO-certification standards (e.g. ISO 17065, ISO 9001, ISO 14001, etc.).

Figure 4: Natural Resource Management has to follow six regulating international demands.

Principle 5: Natural Resource Management Modelling & Management Implementation in Kazakhstan have to be based on Interdisciplinary Research

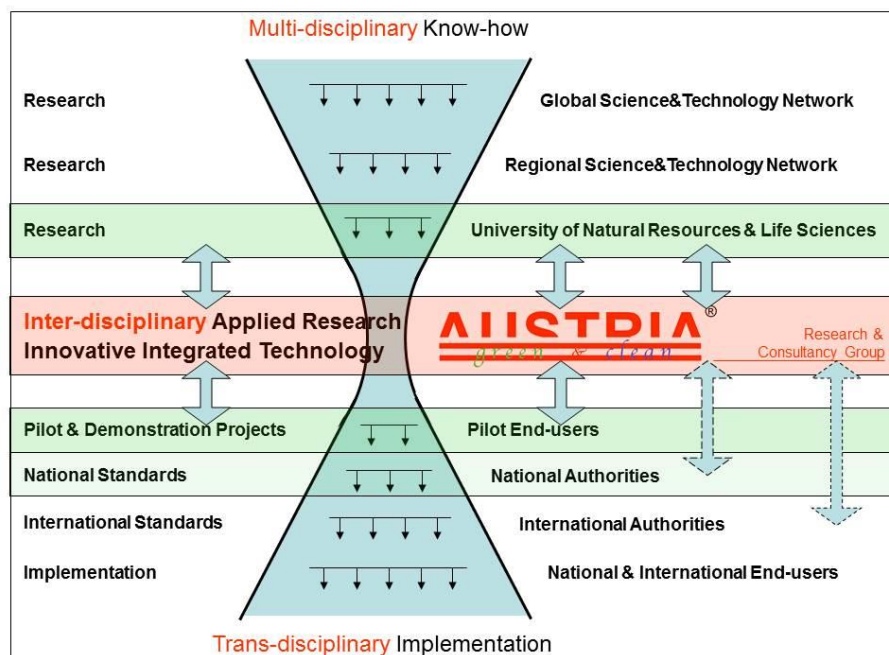
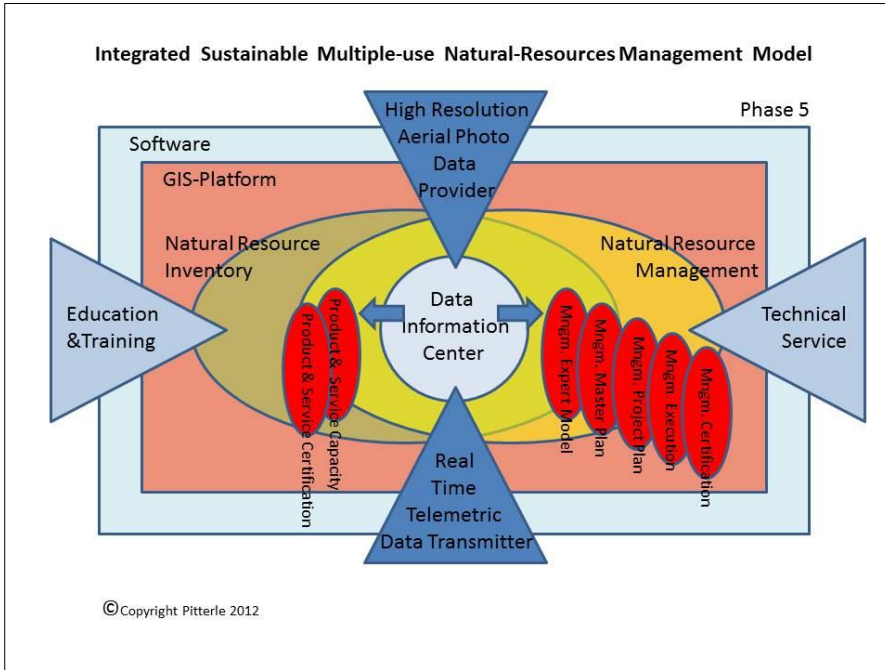


Figure 5: 4-CERT Ltd. uses the special know-how of Multiple Disciplines of the international university & research network in order to develop suitable Inter-Disciplinary innovative technologies on natural resource management strategies, national programs as well as for Trans-Disciplinary project implementation in different regions of the world.

Principle 6: The 4-CERTechnology applied for Kazakhstan’s Management of Natural Resources

To develop Management Models specified for certain processes (crops, products, services), certain regions and certain human societies you need a Software-driven GIS-Platform, where the huge amount of data & information – primarily received, stored and managed in a Data & Information Warehouse – is positioned. From mathematical algorithms of 4-CERTechnology the Natural Resource Inventory (Sustainable Multiple Product & Service Capacity and its ISO 17065-Certificates) as well as



the Sustainable Management Model followed by the Regional Masterplan and Local PPP-Projects can be designed and ISO 9001 and ISO 14001 certified. During and after Management Activities the Management Monitoring & Evaluation can guarantee the management success. Education, Training and Technical Service are assisting the smooth roll-out of the projects on national level.

Figure 6: The 4-CERTechnology Procedure for Sustainable Natural Resources Management

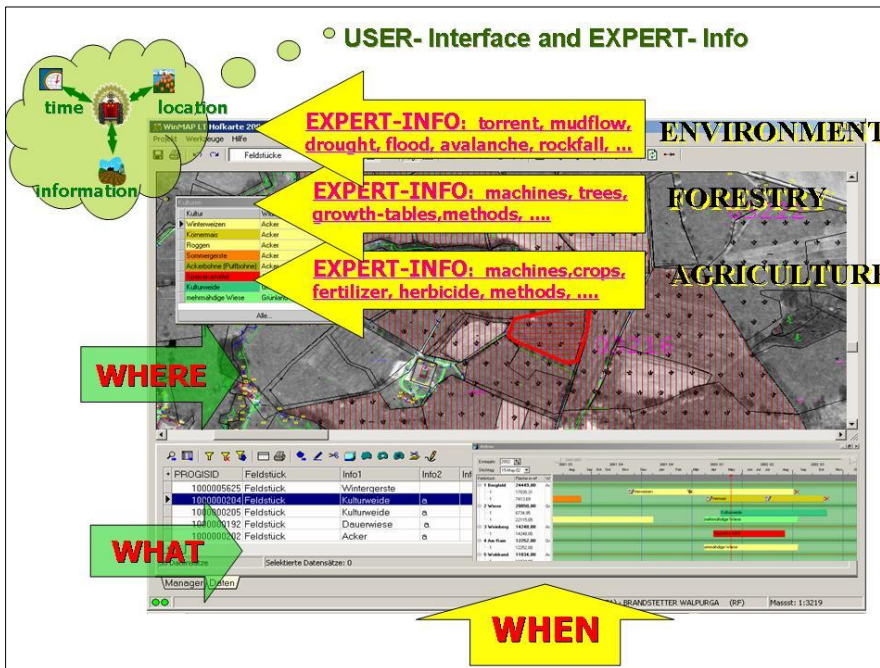


Figure 7: The 4-CERTechnology can be handled easily for planning, during activities implementation as well as during monitoring and evaluation /quality control. It shows in real time "where" "what" (incl. "how" and "why") "when" has to be done. 4-CERTechnology is the measurable basis for any National Strategy, for the National Program as well as for the roll-out of PPP-Projects realising the Integrated Sustainable Multipurpose Management of Natural Resources in Kazakhstan.

Principle 7: The national/country-wise implementation of a national strategy & program

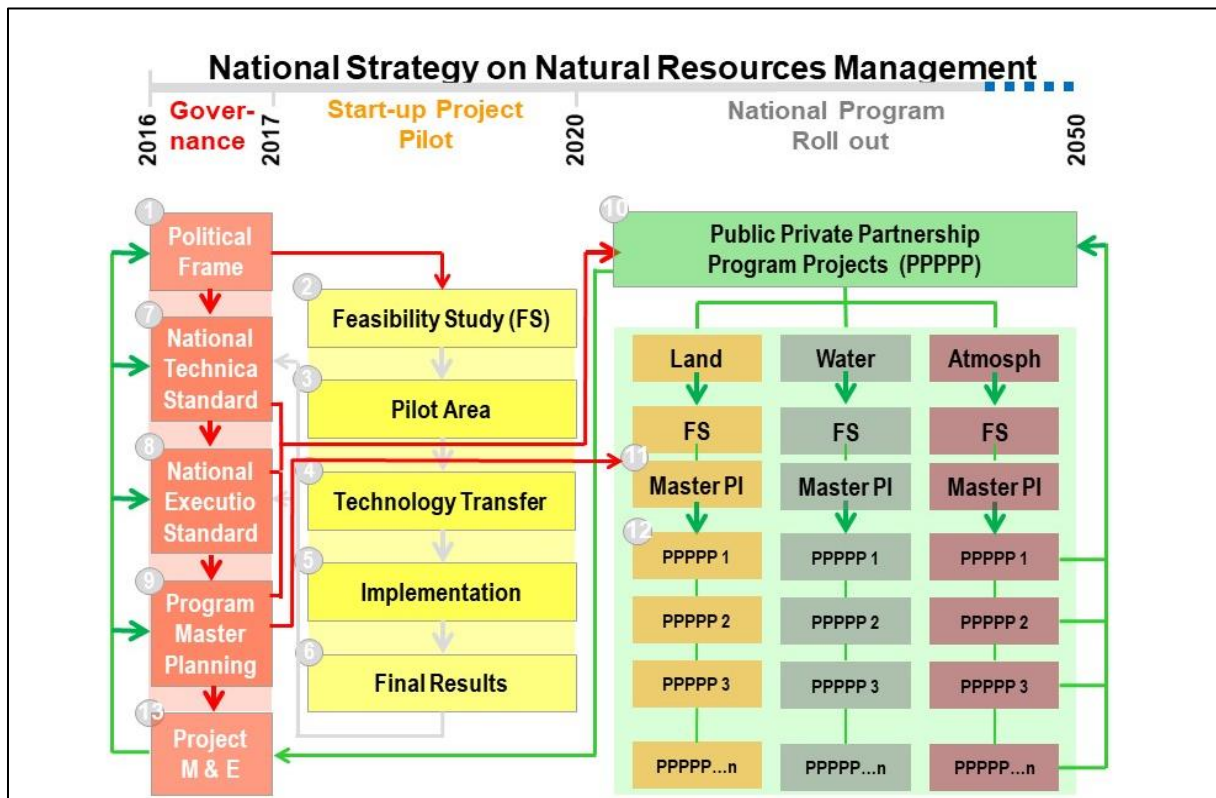


Figure 7: The stepwise procedure of implementation of national strategies and programs concerning natural resources – especially agriculture, forestry, environment, etc..