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Ethics of Systems Thinking

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Systems Thinking

Represented by the pioneering works
of **West E. Churchman, Russel Ackoff,**
Ian Mitroff and others.

Hungarian contributions by **Ludwig von**
Bertalanfy and **Jozsef Kindler**.

Multi-criteria evaluation of complex systems

- (i) the completeness of evaluation criteria,**
- (ii) the measurement of evaluation criteria,**
- (iii) the problem of disqualification.**

The King's City Project

Lake Velence, Hungary

In 2008-2010 a group of American and Israeli investors wanted to develop a huge **gambling** and **holiday complex** called the **King's City** consisted of 5000 apartments in a nearly natural environment, at the the **Lake Velence**. The project was about **USD 2000 000 000** and expected to generate a good return on investment in some years. However, it would **destroy** the nearly natural **ecosystem** and **transform** the **life of local people** with increasing traffic of gamblers and the corresponding criminal activities including drugs and prostitution. The area represents one of the **most vulnerable parts** of Hungary. It is populated by **low income people** and **poor holiday-makers**. The territory is important because of the **historical** and **cultural sites**. Some considered the King's City project as "**raping the soul of Hungary**".

Lake Velence, the place of the King's City project



The Casino looks like this



The lake is used by local people



Modest living in the area



(i) The completeness of evaluation criteria

In the case of a complex system we should consider **all** the important **aspects** of the **system** and create **appropriate evaluation criteria** for them.

If project transforms the local ecosystem and the culture of the local community, it is **not enough** to study the **direct capital investment, job creation and the expected tourists flow** but one should also consider the ecological, social and cultural impacts of the project.

(ii) The measurement of evaluation criteria

Every evaluation criterion should be measured on its own scale. It can be an absolute scale, an interval scale or an ordinal scale.

Influenced by the **economic cost-benefit analysis** today's evaluation practice tends to measure everything in money terms. This is rather **problematic** because it transforms **lower scale** measurements to the **absolute scale** measurement of money.

Higher level (absolute or interval scale) measures can be **transformed** into ordinal scale and can be compared with **lower level** measures. In this way we make justice to the **qualitative aspects** of the decision situation. This is consistent with the philosophy of **social choice** advocated by **Amartya Sen** in his latest book "**The Idea of Justice**" (2009).

(iii) The problem of disqualification

There is **no super system**, that is a system which would be superior to any other system considering all the relevant value dimensions. Every complex system has some **disadvantages** in comparison to other systems. We can calculate the so-called **disqualification coefficient**, which shows in % term that a given system is worse than the other systems in comparison.

We should define a **maximum level for disadvantages**. In the multi-dimensional decision making framework a **system** is **acceptable** only if its **disadvantages** do not **exceed** a certain level.

This logic is very different from the philosophy of **cost-benefit analysis** which says that a system is acceptable if its **advantages** are **greater** than its **disadvantages**.

Whole Systems and the Quality of Life

Systems theory suggests that the **quality of life** can be served by taking the **view of whole systems**. This requires considering all the relevant value dimensions, evaluating the performance of systems on adequate scales of measurement and using disqualification criteria for blocking trade offs among **non-substitutable values**.

Shingkar village, Bhutan



The Richness of Being can be preserved if we take the whole system view and use multidimensional decision making methodologies to evaluate the ecological, social and cultural aspects adequately.