

## DEVELOPMENT POLICY AS ILL-STRUCTURED PROBLEM

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**Abstract.** *The current economic developments and a low controllability level of economies in transition do not allow any conventional formalization or realization of development policy. In line with the new concept of role of the state in economic development, the tendencies and development tempo or particular economic subsystems should be conceived as a result of complex interactions of institutional changes, economic and political interventions, and, above all, modifications within microeconomics behavior of economic subjects. Under such circumstances, a more precise and complex apprehension of developmental decisions and their consequences is required from economic policy creators and the releasers. This assumes the establishment of an entirely new concept of planning system based on soft system methodology in designing the developmental policies. The application of fuzzy theory should enable a proper treatment of uncertainties and fuzziness, which are inherent to subjectivity, imprecise preferences, restrictions and goals.*

### 1. INTRODUCTION

A recovery of development, when the national market is narrow and the economy is in transition, is possible only if there is a transformation and internationalization of the total economy structure. Transformation and internationalization of the economy should be founded on individual microeconomic rational basis, in such a way that property of the company should be connected with the production that satisfies international needs, and with the appropriate marketing to support such business orientation. Main characteristics of such global orientation are flexibility – fast response system to the environment impulses and the quantitative economy. Wise and consistent concept and strategy of the economy restructuring based on this, cannot be formed autonomously and independently from its current performances and economic and system conditions such as:

1. Market restructuring, ownership, organization, human resource, production, technology, etc.) enterprises made in the former economic system in which a great (relatively speaking) capital is captured and which do not derive any profit,

2. Creation of stable political, legal and economical climate for private entrepreneurs and investment, and

3. Modification of macro and mezzo organizational structure and division of labour. Division which should provide braking of the existing rigid organizational structure and formation of long-term interactions between industrial, agronomic, commercial and non-commercial servicing companies and scientific and research organizations of different sizes based on net organizations to serve rational export orientation.

This is the only way to restart the accumulation of wealth on a national level to finance new development cycle. In spite of all that, it is impossible to avoid high cost of this transformation - down a number of enterprises, increasing the percentage of open unemployment, additional fiscal burdening of people, increasing public spending for social transfers, additional money from foreign factors, etc.

The current economic situation and low control ability of (national) economic system do not allow (in terms of modern economic system) formalization and realization of the development policy. That is mostly the result of (objective) difficulties:

- Unclear role of state in regulation of economy,
- Poor quality of automatic feed-backs and information, due to underdeveloped and deformed market, and
- Intensive changes of the elements and the structure of feedback in the economic systems that are moving from mainly administrative to mostly market inducements and limitations.

Negative effects of these factors and subjective elements can be divided in two main groups:

- Low level of knowledge and culture of the creators and proponents of the economic policies realization, and
- The structure of plural interests in which it is impossible to articulate the solutions for overcoming the conflicts that are exemplary for an open society, mostly because of the mechanisms of power which still exist because of the inherited old social and economic system and also because of irregular and institutionally unregulated balance of power.

Dynamism, diversity and low predictability level of results and expenses related to activities of the environmental adaptation, imply (as one of the alternatives for neutralization) use of the planning system based on soft system methodology combined with multicriterial compromise choice of (conditional) favorable goals and mechanisms for their realization, which, to some extent, should represent a vision of dynamic environmental changes.

In the presented observation, the real world is problematic, while process and methodology are systematic. Such approach is primarily based on certain type of culture and a principle of participation, or in another words, wide participation of all factors involved in a problematic situation. This is the area in to be searched for greatest limitations of operative application of this methodology. In addition to that negative

national experience in past related to the system of social consultations and deliberation in which ideas of culture and participation were incorporated as means for neutralization of uncertainties and influence of the environment, the directions and dynamics of their changes in future.

## 2. DEVELOPMENT POLICY MODELING AS ILL-STRUCTURED PROBLEM

Since main problems in modeling development policy are located in decision-making domain, so in the philosophy the concept of functional hierarchy of layers in decision making, has been incorporated. This hierarchy is firmly based on natural principles because it includes three main aspects of decision-making in the situation of uncertainty:

1. The choice of strategy to be used in the process of solution.
2. Reducing and eliminating the uncertainty.
3. Search for desired direction of actions under a priori expectable conditions.

As a base for determination of the dissipated group for the contents of development policy the Checkland's methodology for soft systems was chosen. This methodology, conceptualised as a seven levels analytic process and through appropriate learning system, uses the main mental processes: perception, comparison, proclamation and decision-making, and thus enables the flexible problem solving.

Relying on the presented philosophical basis and principles we will present the analysis of the soft system methodology application as a system approach for determining the contents of the sector multivariation plan group with Checkland's methodology for soft systems.

This methodology is a seven-levels analytical process which through the appropriate system of learning, by using main mental processes: perception, comparison, assertion and decision making, enable flexible solving of the problem

Necessary information are assembled in the first and the second phase through adequate research of economic and key social and political elements, and through appropriate system of learning, and by using the main mental processes: perception, comparison, assertion and decision making, enable flexible solution of the problem.

In the first and the second stage, non-structured problem situation is discovered - in our example: how can the state, i. e. its authorized institutions, via measures and instruments of development, social and educational policy, stimulate the sectors transformation, restructuring the large enterprises and developing small and middle industrial and service enterprises.

In those two phases, the collection of information is carried out, through the relevant research of key economic and social elements of total economic structures and their characteristic interactions and conflicting interests as well as the specific of common economic and social culture and climate. Collected and systematically arranged knowledge should define a picture within which the following relevant topics are to be defined:

1. *Problems* – in the form of a vague assembly: {(Losses) Market sales, (Losses) Market purchases, (Enormous lagging behind competition) Organizations and technology, (Enormous surplus) Manpower, (Little and archaic) Managerial knowledge and entrepreneurs, (High) Costs, (Expensive) A to external finance,}

2. *Actors* – also in the form of a vague assembly {*Politicians, Managers, Entrepreneurs, Workers, Experts, Farmers, Financial markets, Foreign investors, Public institutions (Schools, Social, Public-health and other institutions),*}

3. *Aggregates* – also in the form of a vague assembly {*State administration, State regulation, Public revenues, Public obligation,*}

In the same time, it is necessary to carry out the analysis of cultural and social standards as well as political system. From the picture established, different topic issues, generic relevant standpoints in the form of a relevant (vague) assembly:

$$\{\textit{Problems, Actors, Aggregates}\} = \{\textit{Problems, Actors, Aggregates}\}_1 \cup \{\textit{Problems, Actors, Aggregates}\}_2$$

On the basis of the totality of whole researches presented in the form of vague assembly {*Problems, Actors, Aggregates*}, in the third stage a vague assembly {*Abstract picture – (The FR Yugoslavia) Economy*} is formed giving the original definitions of the problem observed, in the form of refined verbal statements. As a matter of fact, the statements represent idealized comprehension – what a relevant system should be. The basic goal is too precise:

1. What should be done?
2. Why this should be done?
3. Who should do this?
4. Who gains benefits and who disadvantages?
5. What are the limitations imposed by surroundings and which of them cannot be institutionalized and overcome in reality?

In the fourth stage, the transformation of the vague assembly:

$$\{\textit{Abstract picture – (FR Yugoslavia) Economy}\}$$

into main activities is carried out, in the form of the vague assembly:

$$\{\textit{Development of structural adaptation of economy of FR Yugoslavia}\}$$

In our example and according to the general goal:

$$\{\textit{Market restructuring t, organization, management and personnel structure of national enterprises in order to develop intersector production according to the criteria of open market}\}.$$

Because of the specified characteristics of the transiting economies it is necessary to form a few parallel abstract pictures and base them to define a wider activity group (Picture #3) in order to provide for the realization in the ex-ante set boundaries, irrespective of the fact that in denying the application of the wrong abstract picture, or significantly altered circumstances the final result must be a model with the structure that involves the parallel existence of several possible solutions:

$$\begin{aligned} \text{Picture "A"} &= \{\textit{Program of infrastructure revitalization}\} \\ \text{Picture "B"} &= \{\textit{Program of large enterprises revitalization}\} \\ \text{Picture "C"} &= \{\textit{Program of small and middle industrial and services enterprises development}\} \end{aligned}$$

$$\{\textit{Development for structural adaptation of FR Yugoslavia economy}\} = \{\textit{Solution "A"}\} \cup \{\textit{Solution "B"}\} \cup \{\textit{Solution "C"}\}$$

Where:

$$\begin{aligned} \{\textit{Solution "A"}\} &= \{\textit{Goals}\}_A \rightarrow \{\textit{Measures and Instruments}\}_A \\ \{\textit{Solution "B"}\} &= \{\textit{Goals}\}_B \rightarrow \{\textit{Measures and Instruments}\}_B \\ \{\textit{Solution "C"}\} &= \{\textit{Goals}\}_C \rightarrow \{\textit{Measures and Instruments}\}_C \end{aligned}$$

The final result may be the model:

$$\{\textit{Development for structural adaptation the economy of FR Yugoslavia}\}$$

With a structure comprising several parallel levels and the large spectrum of mechanisms for their solution.

In the fifth stage, comparison of the structured model:

$$\{\textit{Development for structural adaptation of FR Yugoslavia economy}\}$$

with reality is made in sense how the chosen structure of the model will behave in future along with the definition of *{Actors}* (in our case, those are the measures and instruments of development, social and education policy) influencing the process of transformation. In the context presented, the transformation of the vague assembly:

$$\{\textit{Multisolutional program for structural adaptation of FR Yugoslavia economy}\}$$

Composed of the combination of measures and instruments of development, social and cultural policy could enable circle of subjects as large as possible.

On the basis of the structure, formed in comparison with reality, in the sixth stage it is necessary to perform the analysis of limitations (i. e. restrictions) as the final framework of changes. In the national example, the following restrictions have particular importance:

- Incompetent state administration,
- Passive and conservative management,
- Insufficient protection of property,
- Anti-development oriented fiscal and monetary policy,
- Developed "gray" and "black" market and
- Destroyed social policy.

Accordingly the vague assembly is formed:

$$\{\textit{Restriction}\} = \{\textit{State administration}\} \cup \{\textit{Management}\} \cup \{\textit{Property protection}\} \cup \{\textit{Fiscal-monetary policy}\} \cup \{\textit{"Gray" and "black" market}\} \cup \{\textit{Social policy}\}$$

On that basis, comparison between desirable and feasible changes can be carried out:

$$\begin{aligned} &\{\textit{Multisolutional program for structural adaptation of FR Yugoslavia economy}\}: \\ \{\textit{Restriction}\} &= \{\textit{Multisolutional program for structural adaptation of FR Yugoslavia economy}\} \end{aligned}$$

The phase of implementation (seventh stage), based upon the large spectrum of measures and instruments of economic policy and adapted to different structures of

restriction should allow the planned (meaning sensible, not ad hoc) actions of the makers of economic, social and educational policy.

Presented methodology is based on the procedure of system observation in finding – what are the best ways to solve the observed problem situations? In which a large number of actors with their partial observations and truths, and a number of fusibility analysis are incorporated. Integration of their ways:

$$\{Actors, Aggregates\} \rightarrow \{Goals\} \rightarrow \{Measures\ and\ mechanism\ development\ (social\ and\ education)\ policy\}$$

enables through the learning process to conduct more robust and flexible structuring of the contents for the realization of the development policy.

### 3. FUZZY APPROACH TO THE INDETERMINATIONS REGARDING THE CONCEPTUALIZATION OF THE DEVELOPMENT POLICY

In order to illustrate this, an attempt to construct a fuzzy model has been made: "Standardization system and its role in support of the individual initiatives for the internal transformation in order to implement the ISO 9000:2000 standards". The general idea is to structure fuzzy model based on the results from the second and third phase of Checkland's soft system methodology, and compose fuzzy rules with a group of the following fuzzy variables described linguistically:

<b>Internal barriers</b>	<b>High, average, low</b>
Business culture:	consumer, organization in dispersion
Technical culture:	high, average, low
Management:	aggressive, moderate, passive
Organization:	flexible, rigid, in dispersion
Personnel (main orientation):	motivated, conservative, obstructive
Knowledge:	modern, average, out-dated
Educational system:	existent, non-existent
Distribution system (main orientation):	result, other criteria
Financial resources:	existent, insufficient, non-existent
Technical resources:	existent, incompetent
<b>External barriers:</b>	<b>High, average, low</b>
Infrastructure for standardization:	developed, incomplete, undeveloped
Public educational system:	developed, average, undeveloped
Funds for financial support:	high, scarce, non-existent
Control system:	developed, average, undeveloped
<b>Support for implementation</b>	<b>Active, passive, non-existent</b>
Financial aid:	non-addressed, selective, non-existent
Technical help:	strong, insufficient, non-existent
Administrative constraint:	strong, passive, non-existent
Moral constraint	strong, passive, non-existent

The application of fuzzy techniques in the presented example is additionally stressed by the following factors. Since all the model variables are described in a linguistic form, experts can measure them only in relative units or degrees end. These variables are also marked by:

- Ambiguity, since the described phenomenon can be interpreted
- Difference, and
- Imprecision due to the incapability to identify different conditions and events exactly and to set borders of different phenomenon.

It is impossible to use statistical methods to process the data because they are not based on historic data and experience. It is also impossible to use the principles of probability theory, so called Bayes theory. Probability is a proportionate coincidence that an event might occur. Fuzziness on the other side, is an extent to which an event occurred. After the event has occurred the whole probability calculation is no longer necessary, while the fuzziness is necessary for the description of the event, which stays (after the correction) at our disposal.

The idea is, (based on fuzzy model and initial values) to form abstract base of the fuzzy knowledge for flexible definition of multivariate plan contents, based on multicriterial approach, which should enable parallel realization of at least two goals:

- Effective and selective support of individual initiatives for internal transformation in order to achieve microstructure and culture which should result in a verification of ISO 9000:2000, and
- The development of administrative and technical infrastructure necessary for the development of constraint and control of gradual and real implementation of ISO 9000 requirements by using combined consultation - constraint principle in as large number of companies as possible.

After defining the variables, we can proceed with the fuzzification, or in other words joining the membership functions to every variable. There is an algorithm for approximate conclusion to be made by experts.

#### 4. CONCLUSION

Soft system methodology provides a valid way for treating indeterminations and fuzziness, which are inherent to the subjective determination of preference, limitations and goals in the environment where there is no science, practice or tradition in respecting formal structures. The achieved results can be used for satisfactory open version of development policy. Its main characteristic is the high level of subjectivity in handling a problematic situation and in creation of the problem solutions. Its effective operationalization depends on the adequate integration of the paradigm "learning" with the fuzzy set of goals on one side, and passive and nonaddressed measures and mechanisms of economic policy on the other side. Concrete direction and development should come as a result of complex interaction of institutional changes, economic and political interventions, and changes in microeconomics behavior of economic subjects.

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**RAZVOJNA POLITIKA KAO SLABO STRUKTUIRANI PROBLEM****Sofija Adžić**

*Tekuća privredna kretanja i niska kontrolabilnost privreda u tranziciji ne dozvoljavaju konvencionalnu formalizaciju i realizaciju razvojne politike. Novi koncept razvojne politike zavisi u prvom redu od uloge države u privrednom razvoju, tendencija razvoja pojedinih sektora i predstavlja rezultantu kompleksnih interakcija institucionalnih promena, ekonomskih i političkih intervencija i, pre svega, promena u mikroekonomskom ponašanju privrednih subjekata. U takvim okolnostima neophodno je kompleksnije i preciznije donošenje odluka i sagledavanje njihovih posledica od strane kreatora i izvršilaca razvojne politike. Jedan od mogućih pristupa je primena metodologije za soft (meke) sisteme u dizajniranju razvojne politike. Aplikacija fazi teorije omogućava pouzdanije tretiranje neizvesnosti i rasplnutosti koja su imanenta subjektivnom i nepreciznom poimanju preferencija, ograničenja i ciljeva.*