

# Study on Decisions of the Government in Ministries Merger by Fuzzy Solution Based on Sustainable Development Model (Case Study: Executive Systems of Subsets in Ministries of Industry, Mine and Business in Iran)

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## ABSTRACT

In this research I have tried to study the government's macro-decisions in merging the ministries with fuzzy approach in order to have a sustainable development model. The variants to study are operation of government in economic, political, social and biological models which are the components of the sustainable development and achieving them is the final aim of merging.

The statistical society in the current research is all of the employees in executive systems which are subsets of the ministry of industry, mine and trade in the northwest of Iran, our statistical society were 2420 people where our sample obtained as 332 people by using of Cochran Formulate. 332 researcher-made questionnaires distributed (which their Cronbach's Alphabet was measured to be about 0.890) that 320 questionnaires were returned. In order to examine the codified hypothesizes, since I have used the fuzzy assumption test, first I have defined fuzzy membership functions using the trapezoid numbers and then I measured the membership degrees of the values.

Since political system of Iran is an inclusive one where it has to use the theory of domesticated official Terms in organizational and directional evolution, the out coming results of the research which have been gained using the membership function and the relations of Mamdani Entailment with fuzzy approach, shows the operations of government have not been strong and good enough and faces the government with a great struggle. Also I have introduced some solutions in order to improve the operations of government.

**KEYWORDS:** merging the ministries, fuzzy logic, miniaturizing, fuzzy approach.

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## INTRODUCTION

Modern Public administration as one of the revolution causer strategies in the government has faced the government with several solutions. Merging the ministries is a solution that has purposed and has been operational to develop administrative system of country within last few years. Operating these processes is implemented in merging the ministries format and new ministries constitution in the government's body and in executive system. Fuzzy management science is application of classic management science in fuzzy space. Using fuzzy management science, methods of classic management science are applied in fuzzy space and can use those in several management jobs included decision, politics and planning.

Fuzzy management science can design models that as well as human possess intelligently ability of qualitative information processing. Fuzzy management, therefore, while making flexibility in model, imports some data like knowledge, experience and human judgment and present entirely applicable responses.

What encourages us to use fuzzy logic is to possess results according to reality. Fuzzy logic has been able to include odds and uncertainties and yields logical results based on nature.

### Stating the issue

Modern Public administration as one of the revolution causer strategies in the government has faced the government with several solutions. Merging the ministries is a solution that has purposed and has been operational to develop administrative system of country within last few years. Operating these processes is implemented in merging the ministries format and new ministries constitution in the government's body and in executive system.

Within last 30 years there were many changes in combination of ministries and based on requirements and demands in some sections some ministries formed and some of them are merged. This discussion introduced in commencement of the third plan seriously. Requirement of principle 44 in constitution to miniaturize the government and developing private sector also was a factor for planners and economists to have special look on this

issue and reminisce as one of executive solutions for issues of efficiency increasing and decreasing in share of the government in economics. Significance of this issue and its role in economical growth was so much that 8<sup>th</sup> parliament opened a new season in miniaturizing of the government by appending to article 55 of bill of fifth plan. Based on appended clause to article 55 of bill of fifth plan of development, the government forced to merge one or more ministries and reduce them to 17 until the end of fifth plan with maintaining their legal authority.

Lack of planning and do not following of special plan and principle by presented mergers are one of the greatest challenges of experts and economists, because it is demonstrated, experimentally, that wrong implementation of designs in Iran and its bad effects archive the main design for several years. Emphasis of fifth plan on decreasing size of the government and seriousness of parliamentarian to realize that is a good opportunity to release economics of Iran from snare of the government and to open entrance gates to world markets to gain to reliable position in the world and region by increasing share of private sector in economics. Therefore by defect in commencing this design cause to lose this golden opportunity and access to goals of panorama document will face with several difficulties.

In discussion of merger many concepts have no clear definition that able us to take precise sets in mathematics for each one and there is no format to arrange these concepts and tools to analyze them. Theory of fuzzy sets, introduced by Professor Lotfi Asgharzadeh, 1965, is a new mathematical format to arrange and analyze these concepts and properties.

1390 (2011-2012) is the most sensitive section in history of Iran in term of economics, 1390 was a gorge which most governments were not to enter it, and the tenth government also should acknowledge most of critical situations that made performance this law essential was due to do not following content of over plans especially forth plan and financial indiscipline of the ninth government, not due to economical necessities of country and heroism of the government.

Economical situations of country in 1389 (2010-2011) entered to an irremediably step anyway, a step which practically the only way to prevent of country economically was performance of subsidy optimization law. Here the most serious warning may was strongly low economical growth of Iran while the government had the most incomparable financial sources of country finance history.

Within five years of ninth and the tenth governments activities annual income average just in petroleum export reached to more than 70 milliard USD, while maximum petroleum income in lasts years rarely were about 20 milliard USD. But how many people feel comfort in ways and means by this increasing in income.

Few days after critical situations of subsidies optimization discussion suddenly merging of four important ministries was introduced, the ministries that should be responder to most of people in optimization issue, and two men in cabinet were fired quickly. While in 53<sup>th</sup> clause of fifth plan assigned about merger plan commencement time that the government has time until the end of second year, and what can be meaning of the government persistence in commencement of merger plan right in the most critical situation?

Political operation alloy and dispersion of political problems to economical arenas can be violent scandal enough which unfortunately the government undertook it in this time, and right these acts can be enough to distrust people on the team whom are currently responsible for economics of country. But the significance point it is that economical crisis results never confine in economics boundaries. Due to vague points in this plan and also many year experiences in merging and splitting ministries and governmental systems, that organization of plan and budget is a clear example which in lasts years had worked as an organization and sometimes as a ministry and then is removed completely, therefore we are intended to evaluate economical, social, political and environmental operations of the government in merging of ministries based on sustainable development model in this study, that ,certainly, the goal is to gain to it to perfect country and to gain to goal of twenty years panorama document.

### **Theoretical format of research**

Sustainable development is not a new discussion conceptually, but as a theoretical format is a new phenomenon. This phrase subjected by Global Commission of Environment and Development (or Brantland Commission) in 1987 report titled as "our common future" and styled in environmental lectures in years. We can join public administration with sustainable development by two ways. We call join Sustainable Development Administration (S.D.A). In other hand SDA can mean as driving sustainable development or finding strategies which by sustainable development goals will be workable.

What should be considered in miniaturization process it is that which consequences are subjected as goal for the government or does really miniaturization or merging ministries can miniaturize the government? And is it possible to merge two ministries without preparation?

Government miniaturization based on constitution and success experience of other countries should be based on 44 principle and personalization of governmental organs and entities. Transference of jobs, which the

government has been trustee for it until now, to private sectors decrease the government duties and transfer the jobs to people. Experiment showed that presence of private sectors in all economical, constructional, cultural and social arenas and other countries jobs have caused to develop and grow mentioned jobs.

Ministries decrease and rogation of this duty in fifth plan law were to merge wasteful ministries which there are no requirements to their work as a ministry.

Evaluation of operation of the government in this issue shows that despite of doing some actions in transferring some jobs, the expected goals are not realized in some ministries and the government organs such as Health Care Ministry, Job and Social Works Ministry, Transportation Ministry, Agricultural Ministry, Educational Ministry, Sport Organization, and Life Improvement Organization, which some reasons for it are as this: lack of tendency in managers to transfer jobs to maintain power, inconsistency in policies and decisions of parliament and cabinet in transferring jobs (for example in education and sport issues) and lack of willing and strong nongovernmental sector to work in these jobs. By this way and with regard to necessity of enforcement control arena of the government and decreasing activity of the government in issues that nongovernment sectors may have effective activities, effective actions are required. In current study according to can take sustainable development management as a subfield of public administration and also as a new pivot that is able to fill vacuum caused by decline of development management and wrong orientation of comparative public administration, evaluation of operation of the government is used to merging the ministries.

### **Fuzzy logic**

The world which paves the progress path with an amazing speed has made the decision making matter very vital and important. A good and correct decision depends on true and exact information. Managers need to the information which shows the facts while being far from guess and surmise. Having the results which are congruous with facts encourages us to use fuzzy logic. Fuzzy logic has been able to apply assumptions and unknown information and according to their nature elicit logic results from them. [12].

“Fuzzy” is defined in Oxford Dictionary as “ambiguous, dumb, inaccurate, dizzy, confused, mixed, and unknown”. By this way some took fuzzy in “Fuzzy Logic” as these definitions and supposed fuzzy logic is an ambiguous, mixed and unknown logic while it seems it does not. In fact fuzzy logic is a modeling technique for systems with special properties that principle of this modeling is inspired by decision mechanism in human [17]. Each proposition, law or role is reliable or unreliable. It is more than two thousand years that Aristotle’s law determine what is right or wrong in term of philosophical. This law of “contemplating” is penetrated in our language, education and thought. Fuzzy logic also is multi valued logic. In this logic there are unlimited shadows from grey between black and white instead of right or wrong, black or white, one or zero. The main difference between fuzzy logic and multi valued logic is that in fuzzy logic even nature and essence of subject can be inexact. In fuzzy logic, we are allowed to express sentences like “it is absolutely right” or “it is some right” and even can use inexact probabilities like “almost impossible”, “occasionally” and “rarely”. Hereby fuzzy logic takes an absolutely flexible system to serve natural language [2].

In fact fuzzy logic is a kind of modeling technique to systems with special properties that principle of this modeling is inspired by decision mechanism in human [17]. Using fuzzy management, we can apply classic management in several duties of management included decision, politics and planning. Fuzzy management science is able to design models which possess ability of qualitative data processing. Therefore fuzzy management science while making flexibility in model, enter some data like knowledge, experience and human judgment in model, which often are inexact and qualitative. Significance and practical application of fuzzy logic encourage us to use this logic in our discussion and can access to more really results.

Fuzzy systems theory acts based on general intelligent information processing in mind. General intelligent information processing in mind is included steps as this:

Retrieval → Recognition → Thought → Judgment → Evaluation → Decision

### **Theoretical bases of new public administration**

Several interpreters in new public administration have emphasized on different aspects of this doctrine and each one has tried to present a clear illustration of principles of new public administration.

We can summarize the principles of administrative reformations of new public administration in these five pivots:

- Further definition of the government duties and differentiating the government from corporation, to concentrate the government on national economics macro management and to present public service.
- Further structuralizing of governmental organizations by optimization of administrative structure, miniaturizing public services, efficiency improvement of running jobs.

- Intellectualizing public jobs running responsibility and decreasing interference of duties in replication format.
- Guiding of governmental organizations running reformation based on economical and social development situation of each region.
- Making legal standard format for jobs running [28].

Considering published reports on new public administration, we can present five principles of this solution as this:

1. Miniaturization: reduction size of the government
2. Tendency to manage: applying the principles of business management in the government
3. Decentralization: close up decisions to the recipients of services
4. Remove bureaucratic: reconstruct the government with an emphasis on results rather than processes
5. Privatization: guiding production of goods and services out of governmental institutes (production of goods and services by nongovernmental companies) [24]

### **Need to reduce chairmanship of the government**

Investigating and studying mergers and establishment of new ministries within few last decades shows that these operations just had short-term effects and were unable to be effective in long-term periods. Within the last years and in all last cabinets, uncomplimentary, what occurred in merger, modification and establishment process of ministries, had no effect in reduction of the size of the government, and the only result of these operations is the effective concentration which has been formed in the cabinet and reduction in parallel works. But due to reduction of the government leadership and delegating authority is not considered in this processes, therefore the effects have been short-time.

### **Merging the ministries**

In the last two decades, waves of reforms in governmental sector, which is often called “New Public Administration”, developed in many of the countries which are the members of OECD (Organization for Economic Co-operation and Development) aiming to implement capitalism models in global economics environments and it was done successfully especially in Britain [22, 23]. Presenting clear measures of performance, decentralization, commitment to miniaturization of the government, cost reduction, market orientation and competitiveness, delegation administrative functions to semi- autonomous units, applying private sector management methods, contracting out and Privatization and other quasi commercial principles are included in properties of this kind of management [20, 27].

Merging the ministries is one of the solutions which have been used to reform government structure, miniaturization and also increasing efficiency in several economical sections, but there have been no success in these sections due to lack of proper planning and no specific executive mechanism.

Based on country economical and social development fifth plan law, which 1390 (2011-2012) was first year of implementation of this five years plan, the government should reduce its size and bring to 17 the number of ministries. Of course the government commenced this work very soon and in second month out of sixty month of development fifth plan and now plans by merging the 6 ministries of Petroleum, Energy, Job, Social Security, Industries and Commercial in 3 ministries, reduce the number of them.

But what should note in this miniaturization process is that what results are subjected as goals for the government or does really miniaturization with merging the ministries can miniature the government? Is it possible to merge two ministries without any preparation? Within last 30 years there have been a lot changes in ministries structure and depend on requirements and demands sometimes some ministries established and some merged. This discussion was subjected since the third plan commencement seriously. Requirement of principle 44 in constitution for government miniaturization and developing private sector also was an operant for planner and economics experts to have a special look at this issue, and call it as an executive solution in efficiency increase and reduction government share in economics. Significance of this issue and its role in economical development of country was as that eighth parliament opened a new line by appending to clause 55 of fifth plan bill.

### **New public administration experience in Iran**

After triumph of Islamic Republic of Iran (I.R.Iran), by pass first bill in 1361 (1982-1983) new public administration nervures showed itself in edit design format and reformation of I.R.Iran macro organization. Third principle of constitution enforcement organization reforms as administrative reformation by expression necessity of favorite administrative creation and elimination of unnecessary organizations. Hereby, investigations show that in last two decades have been proceeded in five sections to edit the design and to reform government macro organizations:

First bill: at 1361 (1982-1983)  
Second bill: at 1362 (1983-1984)  
Third bill: at 1372 (1993-1994)  
Fourth bill: at 1376 (1997-1998)  
Fifth bill: at 1378 (1999-2000)

Based on existent documents, first and second bills adjusted in execution of the law approved by Islamic parliament based on the government requirement to codify "I.R.Iran administrative organization design". As well as the third bill more than above task codified due to requirement by organization of government recruitment (and due to the alteration which have been in public administration macro structure owing to accomplished reformations in constitution of I.R.Iran at 1368 (1989-1999)).

Whit an overview of government operation in execution above bills, it specify that first-third bills were without enough support and collectivity about government role and structure, therefore adjustment duties and authorities of executive organizations often are in format of continuation current procedure. Noteworthy pivots to adjust the mentioned bills are elimination of parallel and repeated tasks and somewhat integrating homogeneous duties in one system and there is no proceeding to government roles and missions, its intermediation limit and circumstance of accomplishment of government duties in governing and mission. Should be mentioned that at 1366 (1987-1988) adjudicated some organization being designed to be according to this law by approbation of human source law modification in governmental organizations.

To set the bills, adopted approach in classification of the government duties was based on "activity issues" and less attention has been paid to nature of the government duties. In 1368 (1989-1990) and before codification of third bill, first economical, social and cultural development plan of I.R.Iran codified according to overall government economy and with regard to facilities, resources and limitations which continued until 1372 (1993-1994).

Some goals and orientations of this plan in reformations, budget and government financial are rationalizing the system of governance in the context of legal obligations and financial sources reduce the cost of government by transferring some duties to nongovernmental sector. As well as in 1372 (1993-1994) reformation issue in organization of some ministries was approved in first plan politics execution, especially in plan and budget organization. The principles of reformation were reinforcement to duties and homogenous and heterogeneous activities in organization and avoid duplication and overlapping responsibilities. In this policy, units that had common activities merged and if their responsibilities were transferable to other units they were dissolved [8].

The law of second economic, social and cultural development plan of I.R.Iran also commenced in 1374 (1995-1996) and expected to end in 1378 (1999-2000). Macro qualitative goals of this plan in administrative reformation were: country regulatory, executive and judicial reform to realization of the goals, balancing cooperative, private, governmental and other economic sectors. In clause 7 of principle policies of second plan law (country regulatory, executive and judicial reform) pointed to twelve clauses which four is related to country administrative reform:

1. Establish administrative discipline, parallel systems eliminate and careful monitoring on operations of organizations, governmental companies, banks and town hall
2. Decentralization , eliminate bureaucracy and use simple methods to do related works and delegate more works to the province
3. Organization and administrative reform by orientation based on delegation related works to private sectors, cooperatives and strengthening provincial centers
4. Codify the responsibilities of government in governance and chairmanship by orientation of enforcement of responder unit for governance and reduce chairmanship responsibilities as needed.

For that matter government executive public policies are defined as:

1. Reduction government size by eliminate some organizations, merge ministries, institute and governmental companies and delegate some activities to private sector and cooperatives by legislate required laws
2. Continuation and acceleration in delegate governmental or covered by government companies to private, cooperative and other sectors
3. Delegate some delegable public service to the municipalities.

As a first step in second plan law and to reform administrative system in dimension of organization, organizing systems and methods and human source management, administrative council composed of president, vice president, plan and budget organization chairman, some ministers (related minister to the issue), chairman of organization of administrative and recruitment issues, two parliament as supervisor and three administrative experts selected by president were responsible to operate second plan law politics in administrative reformation.

In 1378 (1999-2000) according to results of first and second plans of developing country and necessity to establishment a qualified and efficient administrative system in development plan realization, there was a requirement to have a basic review on government in its ideology from problems and specification of interior

strengths and weaknesses and also interior and international opportunities and threats, therefore organization of administrative and recruitment issues codified first plan of strategic evaluation in system in a widespread study to recognize current situation of administrative system, problems, difficulties, strengths and weaknesses of administrative system. After merging two organizations of budget & plan and administrative & recruitment issues of country and establishment organization of management & planning of country in late of spring in 1379 (2000-2001) and on inserted goals and policies in the document called "second step" in the presidential campaign (of Mr. Khatami) in 1380 (2001-2002), administrative reformations were in a different form than in past periods.

By codification of third plan law of economical, social and cultural development of country (1379 (2000-2001) - 1383 (2004-2005)) the reformation became legal and operational. In different cases of third plan law, to reform in management and administrative system assigned some obligations to the government that the main pivot orientations of this obligation are:

1. Reduce responsibilities of government and enforcement governance and supervision of government (articles 1,2 and 64 in third plan law)
2. Prepare a context for public, private sector and cooperative participation for administration (articles 1,2 and 64 in third plan law)
3. Non spreading government organizations by persist on miniaturization and rationalization size of government (articles 1 and 64 in third plan law)
4. Reduce 5% in number of government employees until the end of plan than their number at the plan commencement by codification comprehensive plan of human sources in governmental sectors (article 3 in plan law)
5. Review on interior structure of ministries, interior duties and structure of organizations, governmental companies and their subsidiary companies to creation organizational solidarity and to eliminate parallel, similar and repetitive duties (article 1)

According to article 1 in third plan law of economical, social and cultural development of I.R.Iran to realize inserted goals of policies in the document called "second step" of the president (Mr. Khatami) and based on report of study in plan of strategic evaluation in administrative system, the cabinet in 1381 (2002-2003) approved comprehensive plan of evolution in administrative system of country, that is:

- A. Plan of rationalize government size by determine and differentiate governance and responsibility based on content of article 64 in third plan law of development appropriate size recognition for government by logical definition of government and appropriate facilities to develop activity of nongovernment sector while reduction government responsibilities and so on.
- B. Evolution plan in organizational structure by investigate difficulties of government macro organization, set interior structural terms of governmental organizations, investigate head offices and branches of executive organizations and foreign and interior governmental companies and present necessary suggestions for their survival, breakup, merge, etc.
- C. Evolution plan in management systems: investigate and determine council responsibilities and several decision-making bodies, organize and reform decision-making systems and institutes in structure of government organizations, codify and establish performance evaluation system in executive systems and prepare design of appointment and continuity of manager's works or create meritocratic and stabilize it in managements and others
- D. Evaluation plan in employment systems by investigate and reform regulations of employment contract of government staffs, reform designs to arrange jobs to accord job fields with governmental organization requirements and enforcement experts, investigate and comprehensive review on country employment law, solve problems of salary experts of government headquarters, and others.
- E. Human source education plane by investigate and reform government stuffs evaluation system, revise and reform government stuffs education system, reform regulations to improve employee motivation and livelihoods, and others.
- F. Processes reform plan, procedure and develop administrative technologies by adjustment widespread plan of reformation of common and propriety methods in all executive organizations (first priority is reformation of codification of annual budget execution, reformation process and related procedure to country employment development), codification appropriate software standards to present public service to governmental sector (personnel, administrative, financial, budget, support and construction systems), prepare design of requirements related to administrative discipline, preparing and organizing office spaces and others.
- G. Plan to promote and protect the dignity of people in administrative systems by preparing reverence plan and priority people rights on interests of the system and governmental stuffs, widespread planning to reverence plan and others.

With an overview on first up to third development plans in Iran and results of government operation in administrative reformations, no doubt evaluation plans in administrative systems of country in third plan

development plan was the first comprehensive and integrated administrative reformation plan after triumph of I.R.Iran that according to expected goals in the plans in some areas had some significance successes. According to this documents, lifeline of new public administration in Iran have been based on government miniaturization pivot [8].

### **Positive and negative points in mergers**

Lack of planning and do not following of special plan and principle by presented mergers are one of the greatest challenges of experts and economists, because it is demonstrated, experimentally, that wrong implementation of designs in Iran and its bad effects archive the main design for several years. Emphasis of fifth plan on decreasing size of the government and seriousness of parliamentarian to realize that is a good opportunity to release economics of Iran from snare of the government and to open entrance gates to world markets to gain to reliable position in the world and region by increasing share of private sector in economics. Therefore by defect in commencing this design cause to lose this golden opportunity and access to goals of panorama document will face with several difficulties.

Program and just look at law enforcement, regardless of party affiliation and boundaries, is one concern of parliamentarians and economists. If the merger have no content and logical policy, before implementation of this design bureaucracy will appear with different problems and make more problem than past. But the experts have explained some weaknesses in merging. Experts believe that merging ministry of transportation and housing is lacking of expertise and logical works, and believe that housing is in social group and merge it with ministry of transportation can not help to miniaturize the government. The housing is need to special policies to develop due to it is social and sensitive, according to situation of this section, existence of ministry of housing is needed. One solution that can make decisions and policies more effective is delegation works of this ministry to municipalities.

Our experiments in last decades show that there is no assurance in miniaturization of government by merging ministries. The government will miniaturize if governmental managers reduce their responsibilities. Otherwise by merging ministries, responsibilities of two ministries will transfer to one ministry and finally the government will be cluttered.

### **Research question**

Initial question and main problem of current study is:

Does government operation in merging ministries is evaluated by fuzzy approach?

### **Significance and necessity of research**

Merging ministries reflected in fifth plane and in format of article 53; therefore had to reduce the ministries from 21 to 17. According to sentence of fifth plan that the government should have 17 ministries, now there is one ministry in plan to gain to this sentence. Goal of merging ministries is miniaturization, agile-making and synergistic the government. Investigate and study on mergers and establishment of new ministries within few last decades shows that these operations just had short-term effects and was unable to be effective in long-term. Within last years and in all last cabinets, uncomplimentary, what occurred in merger, modification and establishment process of ministries, had no effect to reduce size of the government, and the only result of these operations is the effective concentrate which have formed in cabinet and reduction in parallel works. But due to reduction of the government leadership and delegating authority is not considered in this processes, therefore the effects have been short-time.

### **Research goals**

Investigate economical decision of government in merging governmental systems

Investigate social decision of government in merging governmental systems

Investigate environmental decision of government in merging governmental systems

All cases have been designed and accomplished based on triple pivots of sustainable development principles according to the OECD method.

### **Research theories**

Due to in fuzzy assumption exam all theories were definable and by rejection of empty theory we are not involved in infinite sets of replacement theories and this exam present of each theories to you and based on we can create an image of investigated set then the theories codify as:

1. Economical operation of government in merging ministries has been good
2. Economical operation of government in merging ministries has been medial
3. Economical operation of government in merging ministries has been weak

4. Social operation of government in merging ministries has been good
5. Social operation of government in merging ministries has been medial
6. Social operation of government in merging ministries has been weak
7. Environmental operation of government in merging ministries has been good
8. Environmental operation of government in merging ministries has been medial
9. Environmental operation of government in merging ministries has been weak
10. Political operation of government in merging ministries has been good
11. Political operation of government in merging ministries has been medial
12. Political operation of government in merging ministries has been weak

**13. Statistical Society and Sample**

The statistical society in the current research is all of the employees in executive systems which are subsets of the ministry of industry, mine and trade in the northwest of Iran that including six provinces: west & East Azarbaijan, Ardebil, Hamedan, Zanjan, Kurdistan, our statistical society were 2420 people where our sample obtained as 332 people by using of Cochran Formulate

$$\left( n = \frac{z^2 pq}{d^2} / \left( 1 + \frac{1}{N} \left( \frac{z^2 pq}{d^2} - 1 \right) \right) \right)$$

332 researcher-made questionnaires distributed (which their Cronbach's Alphabet was measured to be about 0.890) that 320 questionnaires were returned.

**Conceptual definitions of variants**

**Independent variable:**

**Ministry:** according to article 1 in law and civil services, ministry denied as this:  
A special organizational unit that is responsible to one or more government goals and according to law created or will create and run by minister.

**Dependent variable:**

Since 1970 decade, in western socials, there were critical response against one dimensional economical development and its quantitative indicators. For example in spatial planning an idea to use more comprehension and multidimensional criterions is subjected. After propagation of some concepts such as quality of life and sustainable development, using qualitative and sustainable indicators in urban and regional planning became public trends in the world [18].

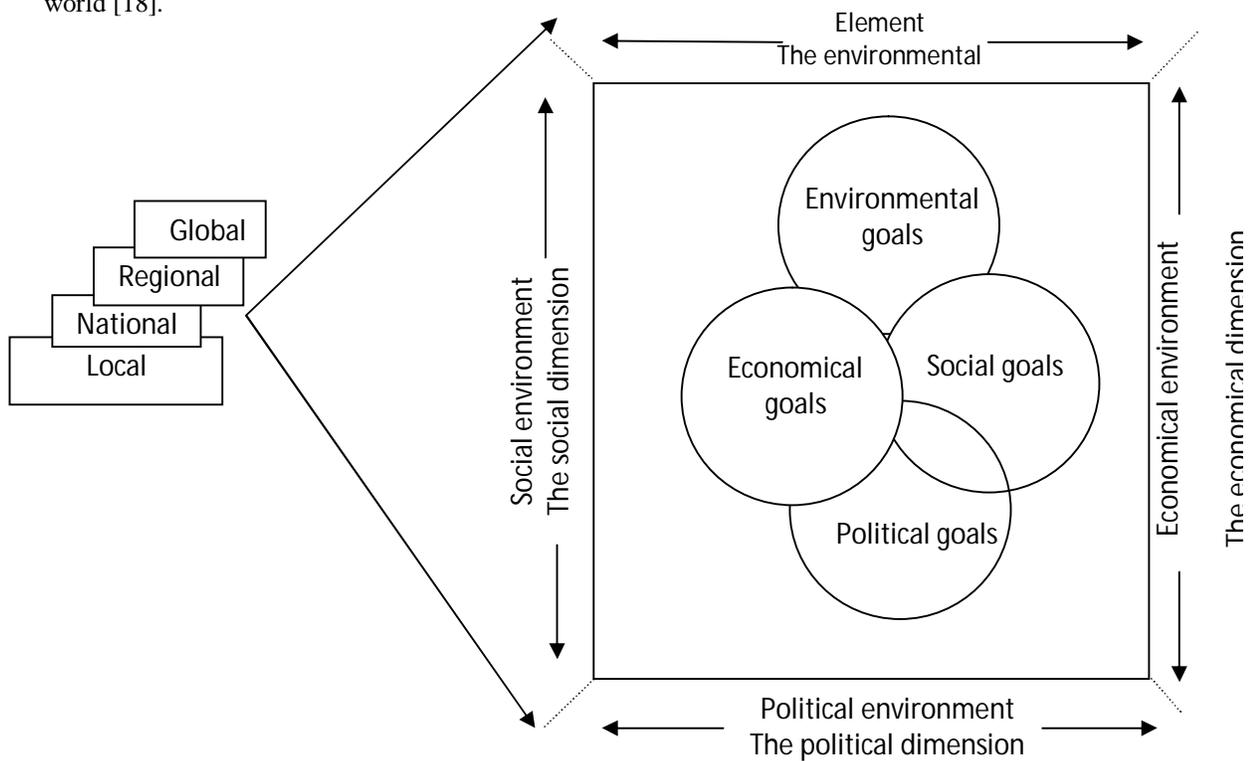


Fig.1: Sustainable Development in OECD view

Sustainable development means compilation economical, social, political and environmental goals to maximize current human welfare without any damage to the ability of future generations to meet their needs [26]. Sustainable development according to the listed definition is a process that assimilates economical, social, political and environmental goals of social by policy and needed and support operation anywhere that is possible, and anywhere that compilation is impossible create exchange relation between them and review and coordinate this exchange. Therefore in sustainable development there are four groups of goals and based on there exist four environments and four main dimensions that are: economical, social, political and natural environments and economical, social, political and environmental dimensions (Shams A., p 22).

### RESEARCH METHOD

Above research is an applicable research based on goal, and is descriptive in term of nature and method which explains the current situations.

In recent years, fuzzy method has used to directly measure macro decisions that cannot be measured directly.

Each fuzzy system has three details: fuzzy roles database, sets of fuzzy input and output and fuzzy inference engine that to design fuzzy systems we should go through below steps.

1. First step to design fuzzy system is determination input and output variants of system. For example in a micro economical system, price is input variant and demand or supply output variant. This economical input-output system is as mathematical form or ostensible linear format.
2. After determination input-output variants, it comes to fuzzy sets. This requires that amplitude or change in any variants be determined. For each element of these sets, it is necessary for their boundaries to be determined based on curves with unit height and triangular, normal and trapezium forms. Usually in practice triangular and normal curves are used that work well.
3. Third step in designing fuzzy systems is achieving a set with fuzzy logical roles, by knowledge of experts or in review area and combination those in a certain format to conclude from set of roles.

#### Method of statistical analysis of data

To analyze achieved data from collected questionnaires descriptive and deductive statistical methods are used. Therefore to describe replies of questionnaires of research we used tables of frequency and reply percentages of each questions in descriptive statistic format. And schematic is used to show some statistic data as visualized, and in descriptive level for theories exam we use fuzzy statistic assumption exam according to nature of theories.

In this section variants of research from collection of questions is expressed as descriptive statistic that are in each research theories in questionnaires to measure the indexes. Due to function of  $\mu$ , that is the match of sample elements with fuzzy theories, defined as:

$$\mu(H, X_i) \rightarrow [0,1] \quad (1)$$

Function of  $\mu$  presents a mapping of sample elements for each theory to [0, 1]. Now we use arithmetic average (or according to our optimistic or pessimistic attitude use other operators) to assimilate the value of sample elements in relation with  $n^{th}$  theory.

$$M_N(D) = \frac{\sum_i \mu_N(x_i)}{\delta} \quad (2)$$

$N = 0, 1, 2, \dots, r$

Where  $\delta$  is an explanation for some of the sample elements which are related to the theory.

#### Deductive analysis:

To start the analysis we should determine fuzzy partitions of in study variants and method of their definition.

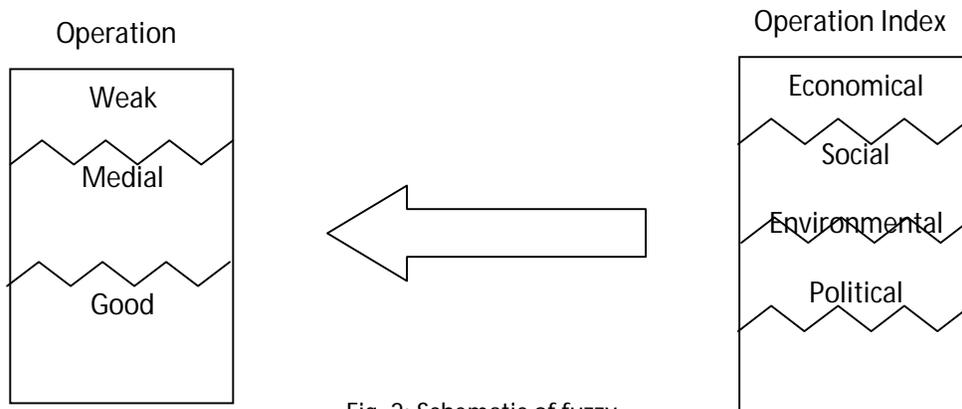


Fig. 2: Schematic of fuzzy

Now we analyze circumstance of transformation of a set of fuzzy norms of «if ... then» to a nonlinear function.

Suppose that our goal is estimation a system with unknown functional relation,  $y = f(x_1, \dots, x_n)$ , and also suppose M norm of fuzzy «if ... then» is:

$R^{ij} = 1, \dots, M$ , if  $x_1$  is in  $F_i^j$  surface and ... and  $x_n$  is in  $F_n^j$  surface, then y is in  $G^j$  surface.

Where  $F_i^j$  is a speech variant for expression estimated amount of  $x_1$  and  $G^j$  is a speech variant to express output variant y.

In fuzzy logic, each norm as  $R^j$  create a fuzzy set in input-output space as:

$$F_1^j \times F_n^j \rightarrow G^j \quad (3)$$

Based on Mamdani necessity of membership function of this role is:

$$\mu_{F_1^j \times \dots \times F_n^j \rightarrow G^j}(x, y) =$$

$$\text{Min} \left[ \mu_{F_1^j \times \dots \times F_n^j \rightarrow G^j}(x), \mu_{G^j}(y) \right] \quad (4)$$

Suppose that fuzzy set  $G^j$  in reminisced fuzzy roles has a center equal to  $\bar{a}$  that is a natural set. A fuzzy system with  $R^j$  role, multiplication inference engine and single fuzzy-making, average defuzzification of centers defines as:

$$f(x) = \frac{\sum_{l=1}^M \bar{a} \left[ \prod_{j=1}^n \mu_{A_i^j}(x_i) \right]}{\sum_{l=1}^M \left[ \prod_{j=1}^n \mu_{A_i^j}(x_i) \right]} \quad (5)$$

Above relation is M converter in «if ... then» fuzzy role to linear function of  $f(t)$ . In fact above fuzzy system is an appropriate approximate to meet any linear or nonlinear functions; therefore instead of directly using and search all role individually, we can use above equation that make possible to study all system.

With a review on fuzzy logic and method of use it in invisible directly concepts, it is necessary to note that operation, inherently, has an ambiguous, indefinite and polyhedral concept; therefore fuzzy logic because of its properties to meet such concept seems to be appropriate to evaluate and measure it.

Membership functions to each economical, social, political and environmental operation define as:

Trapezoidal fuzzy number  $A = (a_1, b_1, b_2, a_2)$  or in brief trapezoidal fuzzy on R define as below that one special case of fuzzy number has section of level.

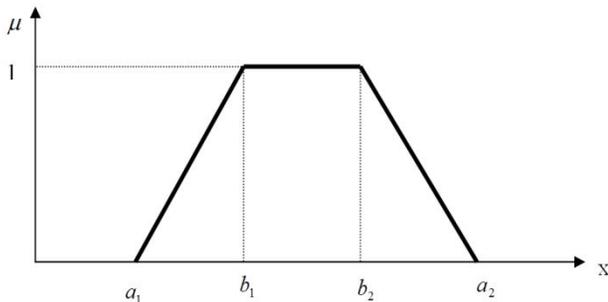


Fig. 3: Schematic of fuzzy numbers

$$A \stackrel{\Delta}{=} \mu_A(x) = \begin{cases} \frac{x - a_1}{b_1 - a_1} & a_1 \leq x \leq b_1 \\ 1 & b_1 \leq x \leq b_2 \\ \frac{x - a_2}{b_2 - a_2} & b_2 \leq x \leq a_2 \\ 0 & \text{other} \end{cases} \quad (6)$$

According to reminisced definitions, we define membership function of “good”, “medial” and “weak” fuzzy sets as this:

$$\text{Weak operation } A = \mu_A(x) = \begin{cases} 1 & 0 \leq x \leq 20 \\ \frac{x - 40}{20 - 40} & 20 \leq x \leq 40 \\ 0 & \text{other} \end{cases} \quad (7)$$

$$\text{Medial operation } A = \mu_A(x) = \begin{cases} \frac{x - 20}{40 - 20} & 20 \leq x \leq 40 \\ 1 & 40 \leq x \leq 60 \\ \frac{x - 80}{60 - 80} & 60 \leq x \leq 80 \\ 0 & \text{other} \end{cases} \quad (8)$$

$$\text{Good operation } A = \mu_A(x) = \begin{cases} \frac{x - 60}{80 - 60} & 60 \leq x \leq 80 \\ 1 & 80 \leq x \leq 100 \\ 0 & \text{other} \end{cases} \quad (9)$$

To define lingual variants like “economical operation, social operation and environmental operation” we use measured valuation in questionnaires by spectrum 10-1.

According to distributed questionnaires, addition scores of questions related to each operation is maximum 100.

Therefore “good”, “medial” and “weak” fuzzy sets for each variant by using trapezoidal fuzzy number define as:

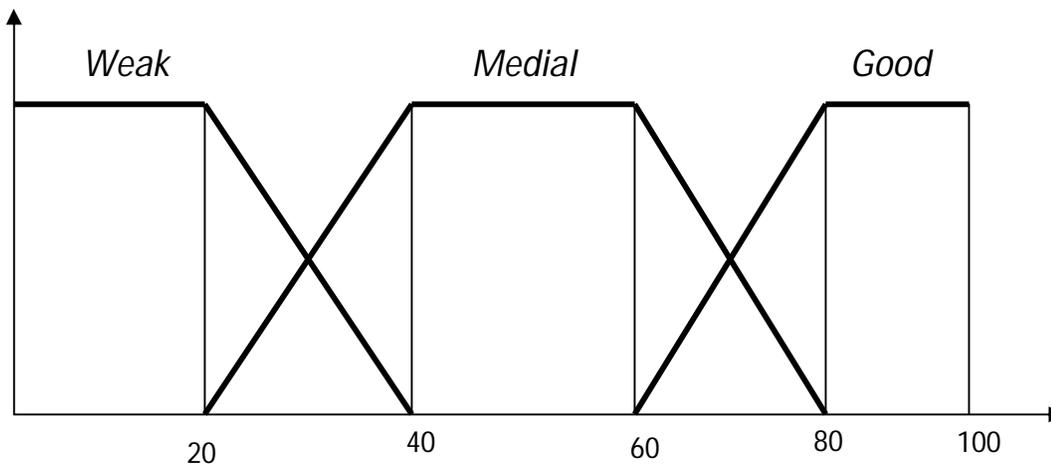


Fig. 4: Schematic of “good”, “medial” and “weak” fuzzy sets

According to first, second and third theories and:

$$\mu_1 + \mu_2 + \mu_3 = 0 + 0.749 + 0.251 = 1 \quad (10)$$

We can conclude that, generally, economical operation of government was 0.251 weak and 0.749 medial and had no good operation in economics.

Now according to fourth, fifth and sixth theories and:

$$\mu_4 + \mu_5 + \mu_6 = 0 + 0.769 + 0.231 = 1 \quad (11)$$

We can conclude that, generally, social operation of government was 0.231 weak and 0.769 medial and had no good operation in social.

Now according to seventh, eighth and ninth theories and:

$$\mu_7 + \mu_8 + \mu_9 = 0 + 0.851 + 0.149 = 1 \quad (12)$$

We can conclude that, generally, environmental operation of government was 0.149 weak and 0.851 medial and had no good operation in environmental.

## Conclusions

Operation	Mean	F(x)	Operation Variant	Lingual	Related Hypothesis	Hypothesis Degree	Accuracy
Economic	34.98	0.494	Good		1	Zero	
			Medial		2	0.749	
			Weak		3	0.251	
Social	35.39	0.494	Good		4	Zero	
			Medial		5	0.769	
			Weak		6	0.231	
Environmental	37.02	0.496	Good		7	Zero	
			Medial		8	0.851	
			Weak		9	0.149	
Political	34.83	0.494	Good		10	Zero	
			Medial		11	0.741	
			Weak		12	0.259	

## Overview of government performance

In this section we present suggestion by results of study:

As regards goal in current study have been to investigate economical, social, political and environmental decisions of government in issue of merging ministries, therefore according to the results theories we suggest that:

1. Government can enhance efficiency of its economics and people's satisfaction from government performance in economical operation by expertise policies in macro level by controlling inflation and unemployment rate and also fixing exchange rate and execution economical evolution design more precise.
2. We suggest that government can enhance people's satisfaction from government performance in social operation by more culture in several social fields, increasing investment and promotion and encourage investors to invest in cultural issues especially in social medias and also extension proceedings to raise life expectancy in people.
3. As well as in environment government can enhance its efficiency to acceptable level in environment by long-term and short-term policies to reform structure, to maintain natural resources and also codification heavy fines to destruction and pollution environment.
4. According to strategic situation of country and current sanctions, government should do some actions to extent its relation with neighbor countries by holding training courses for stuffs, formation provincial joint commission with other countries and codification optimal strategies and policies to benefit technical, executive, financial and other potential.

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