

# THE MAXIMIZATION OF THE BENEFITS FOR POPULATION'S PUBLIC HEALTH THROUGH DECISION MAKING IN PUBLIC INVESTMENTS

Rita Ivone Camana; Nilda Tañski

Universidad Nacional de Misiones

Facultad de Ciencias Económicas

Campus Universitario - Ruta 12 Km. 7½ – C.P: 3304

Miguel Lanús – Misiones - Argentina

Teléfono 54-3752-480006 / Fax 54-3752-480998

E-mail: ritaic@sanepar.com.br

## **SUMMARY**

The objective of this article is to present the necessity to develop a method for support to the decision making, for the public management which considers quantitative and qualitative aspects. The problem of lack of long term actions and strategies integrated between the federated entities within the public administration, engage the effectiveness of the profits of public investments in the sector of basic sanitation for the improvement of life quality and the population's public health. The application of resources in public health is observed, to diminish the effects whose causes would be eliminated, by a conscious administration, which searches for the solution of the causes and the maximization of the profits.

The study of the presented case, carried out the correlation between the indices of collection and treatment of sewage system, in the large Brazilian regions, with the infant mortality rates of these same regions. The results verify the existing correlation and aim towards the necessity of integration of public policies with prevention objective.

**KEY WORDS** Decision Making, Sanitation, Public Health, Investments.

## **INTRODUCTION**

The resources for public investments for the improvement of life quality of the population are scarce in all the public administration sectors. The decision making of where and how to invest it, is the responsibility of the public management, and the election made, must give as a result the maximization of the benefits, with an objective in prevention.

Public management makes decisions that affect all the social levels, but those that most need the public policies are those which have the least spending power.

For the case of fighting against poverty, the greater problem consists of determining what represents the "poverty objective", that determination goes beyond the opinion of the individuals that are in that situation [García P.S. et al., 2004. p. 348. ]<sup>(1)</sup>

In order to help in the decision making, often, the public management uses tools that have as objective to contribute in the election of the best option, that is, that which produces the best profit. These methodologies are of rational character and constructivist, but, the most used is the rational.

The theory of the rational election is normative and directions the actions in such a way, that the objective be reached in the best possible way. The rational approaches estimate the possibility of standard alternatives; the constructivists' approaches, presuppose that it is necessary an integration between the factors of objective and subjective nature.

When a decision affects only an individual, what interests is the alternative that increases its profit. But it is not known, how much that profit is increased. But, when the direction of an action affects many individuals, it will be necessary to know the benefit amount received by each individual, which means that there is necessity of a cardinal benefit scale [García, P.S. et al, 2004. p.349 ]<sup>(2)</sup>

It is possible to observe, through statistical data, that the investments made are not integrated; generating waste of public money, taking into account, the lack of support to the decision, which also considers the influence of the judgment of value, and the conscience of the actors taking part.

In this sense, it is necessary to exhibit an integration between the factors of objective nature and those of subjective nature, to develop models that help the decision making. The presence of the application of resources in public health is observed to minimize the effects whose causes would be eliminated with a conscious administration, which searches for the solution of the problems and the maximization of the profits.

### **Public administration and Decision Making**

The public administration is defined as the ordering, direction and control of the government, at federal, state and municipal levels, in agreement with the rights and morals doctrine, having as its objective everyone's welfare.

The new administrative practices, mainly those based on the on the public management mold, accentuated the difficulties to define and to delimit the public dimension and the frame of the cooperative rational efforts for the production of goods and services.

It is observed that the "existence of the marked differences between the objectives and the administrative structures in the Public Administrations of each country, is a cultural consequence of different political regimes, specific historical formation and differences" [Matias-Pereira, J. 2008, p.2 ](3) Still according to the author, the Public Administration has as a primary target the ascent of a human person and of his-her development. The author also observes that although the public administration is inspired by the private administration, one should primarily look for the social function, which will have to be reached with the greater quality and efficiency in the rendering of services to the citizens.

Still, according to the author, when higher the degrees of citizenship and education, a majority of the population is accustomed to the models of quality of the private services and they do not accept inflexible and bureaucratic answers of the public services, in this sense, with the high degree of exigency and the divulging of the goals, it is expected on behalf of the public administration, the increase of quality and productivity.

"The attention of those demands, facing a situation of fiscal restrictions, sends the public management towards an only alternative: to improve the performance of the public administration and, in that way, to elevate the quality and productivity of public sector"[Matias-Pereira, J. 2008, p.6 ] (4).

Besides performing its function and to make right decisions, the public management needs to pay attention independently of the amount of resources related to the public sector; he must have to apply them in a suitable way. In this sense, the State needs to develop competitiveness in the structuring, implantation and rendering of accounts oriented to public policies under its responsibility. Still, in agreement with the author, the actions for the improvement of the development must facilitate the union between the States and Municipalities, with emphasis in the actions oriented in the administration by results, with monitoring of the priorities of the government and strategic programs, reflecting in this way, on the intention of the governments so that they suitably take care of the demands of the citizens.

The public management makes decisions that affect all the social levels, but those that need the public policies most are those of less spending power.

For the case of the fight against poverty, the greater problem consists of determining what thing represents the " objective poverty ", that determination goes beyond the opinion of the individuals that are in that situation" [García P.S. et al., 2004. P.348 ] (5).

The theory of the decision-making is sometimes a prescriptive theory, sometimes normative, when it refers to try to help the people to make better decisions, taking into account their basic preferences. One can define the theory of the decision, as a set of procedures and methods of analysis that search to assure the coherence and effectiveness of the decisions taken, based on the information available, anticipating possible scenes, using or not mathematical tools [Gomes, L. F., 2006, p.57. ] (6).

The theory of rational election is normative and directions the actions so that the objective is reached in the best possible way. The rational approaches presuppose the possibility of modeling alternatives; the constructivists already estimate that it is necessary that there be integration between the factors of objective nature and those of subjective nature.

The activity of support to the decision becomes present in all the stages of the decision-making, the problem situations need to have a due leveling, and its solution must be obtained in an efficient way. The methodologies allow visualizing the advantages and disadvantages, powder of execution, adjustment and acceptability of each one of the presented solutions, so that it makes it possible to compare them, to make the decision that is judged as the most acceptable.

Decision making consists of the search of the alternatives that present the best performance, the best evaluation and, also, the best alliance between the expectations of those who are in power to decide and their disposition in adopting them.

To decide, for some authors, means to position themselves in relation to the reversion [Gomes, L. F., 2006, P.2] (7) it can also be defined as:

- a) A process to obtain data, to attribute importance to them, later to look for possible alternatives of solution and choose between the alternatives;
- b) Give solutions, to exchange opinions, to make decisions.

It is possible to deduce that in the enterprise atmosphere and a globalized and more and more competitive market, one looks for making quicker, correct, decisions, and which include all. Still according to the author, the decisions, normally, will look for diminishing losses. To maximize profits and to create a situation that makes possible a comparison that the decider judges that there was an elevation between the nature state in which it finds itself and the state in which it will find itself after implementing the decision.

In the case of basic sanitation, there lack long term definitions of public policies, that establish continuity criteria, likewise with changes of ideology of the governments in federal, state or municipal environments, that harms the effectiveness of the benefits and jeopardizes the results of the investments made. In 2007 law 11,445 was published as a Sanitation Regulatory Frame, but for it to be enforced still depends on its regulation.

The public managers are responsible by the decision making, on how and where to prioritize the public investments. It is possible to observe, through statistical data, that the investments made apart from not being integrated, do not have continuity of the political strategies, which generates the commitment of the results and waste of public money.

Environmental sanitation is part of the life of all the beings who live in our planet. Basic sanitation interferes deeply and depends on the environmental quality. According to the World Health Organization, environmental sanitation, in a systemic vision, includes basic sanitation actions and

activities, looking for environmental health as a strategy for improvement of life quality and human health.

The Fourth Ministerial Conference on Environment and Health presents a strong report between the quality of the environment and the population's health, mainly of the children, who are more vulnerable to the effects of the environmental contaminations, reinforcing the necessity to prioritize investments to extend the access to basic sanitation. The effects of degradation of the environment in the health of the children increased greatly; every year, it causes the death of more than 5 million children all over the world [Fourth Ministerial Conference on Environment and Health., 2004. p.6 ] (8).

The main causes of children's death less than five years old, in Latin America and the Caribbean, are the diseases related to acute diarrhea and breathing infections, due to environmental contaminations [Organización Panamericana de la Salud. 2003,p.11 ] (9)

The World Health Organization alerts on the great risk run by children, mainly from poor countries, due to limited access the drinking water and by the lack of gathering and treatment of the domestic sewage systems. In addition to the high costs for public health, it also demonstrated the preoccupation with those children who survive and who, most of the times, present irreversible sequels, becoming adults with limited capacity [World Health Organization, 2004, p. 3. ] (10)

A Brazilian lives, an average of, 59.8 years in a healthy way. The data disclosed in Geneva, teach, among several aspects, that the population loses 13.3% of its years due to unsuitable health conditions. Thus, Brazil occupies the 99<sup>th</sup> place in the ranking, compared to the healthful years of the population, in the universe of 192 governments [Ministério da Saúde – Fundação Nacional de Saúde, 2004, p.16 ] (11).

The rate of infant mortality is considered, universally, as one of the best indicators, not only of infant health but also as the socio- economic level of a population [BIREMA/OPAS/OMS. 2002, p. 5 ] (12).

The presence of application of resources in public health is observed to minimize the effects whose causes would be eliminated with a conscious administration, which looks for the solution of the problems and the maximization of the profits.

This article aims at the necessity of long term public and strategic policies, as well as the necessity to develop a method to help the public managers that consider integration between the quantitative and qualitative factors, that is, of objective and subjective nature.

Brazil has 5,507 municipalities, it is considered a developing country and with serious problems on basic sanitation. Mainly as to the percentage of collection and treatment of the sanitary sewage system, it includes the five great regions according to table 1.

**Table 1 – Condition of sanitary sewage system in Brazil (%)**

<b>Large Regions</b>	<b>Without collection</b>	<b>They only collect</b>	<b>They collect and treat</b>
BRAZIL	47.80	32.00	20.2
North	92.9	3.5	3.6
Northeast	57.1	29.6	13.3
Southeast	7.1	59.8	33.1
South	61.1	17.2	21.7
Center West	82.1	5.6	12.3

**Source:** IBGE, Brazilian Institute of Geography and Statistics. Research Direction, Social Department of Population and Indicators. National Research Basic Sanitation, 1989/2000.

As the coverage of the sanitary sewage system service is reduced and the treatment of the sewage system is not inclusive, the final destination in its pouring in natura in the water sources or the ground. "Of the total of the municipalities that do not treat the collected sewage system, the great majority, 84.6%, throw the sewage system into the rivers, the North and Southeastern regions are those that most use this practice, being 93.8% and 92.3% respectively "[IBGE, 2002, p.43 ] (13). The most updated data, are those of 2000, as the Ministry of Cities and IBGE carried out in 2008 the National Research of Basic Sanitation, but the information of the results of the research must take place in December 2009. [Observatório das Metr6poles, 2008, p.1.] (14)

Through the practice of throwing of sewage in natura the contamination of the springs, takes place, facilitating the propagation of diseases like esquistossomose, cholera, typhoid fever and leptospirosis, these diseases jeopardize the health of the poorest population and contribute to increase

the rate of infant mortality. Among the main causes of complex and multi-causal nature is the lack of basic sanitation. According to table 2: infant mortality is distributed in the large regions:

**Table 2 – Infant Mortality 2000(%)**

<b>Large Regions</b>	<b>1990</b>	<b>2000</b>
BRAZIL	48	29.6
North	45.1	29.2
Northeast	72.9	44.2
Southeast	30.2	20.6
South	28.7	19.7
Center West	31.3	21.2

**Source:** IBGE, Demographic Censuses of 1970 to 1991 and Preliminary Results of the 2000 Demographic Census.

By the parameters of the World Health Organization (WHO), the 29.6% index is high, especially if compared to the developed countries where it reaches less than 10 per thousand. In relation to Latin American countries, it is greater than in Chile, where the rate reaches 10 per thousand [ BIREMA/OPAS/OMS. 2002, p. 5. ]<sup>(15)</sup>

According to IBGE the infant mortality rate dropped for 23.3 thousands born alive in 2008, considered still worrisome and elevated when compared with countries like Argentina (13.40 per thousand), Chile (7.20 per thousand) and Uruguay (13.10 per thousands) [IBGE, 2008, p. 2. ]<sup>(16)</sup>.

But, like in the existing state-of-the-art it is not possible to accurately affirm the degree of improvement of the health state that can be anticipated with the sanitary measures specified.

It is important to highlight that the lack of basic sanitation is among the main causes of infant mortality. In Brazil, the Sanitation Companies, people in charge of the basic sanitation, work by means of concession contracts with the municipalities and coexist with elevated indices of water waste. Brazil wastes an average of 40% of the water captured; this jeopardizes the efficiency of the sanitation companies [Lopes. M., 2000, p. 3. ]<sup>(17)</sup>. That inefficiency results in the loss opportunity of reduction of costs, which prevents the extension of the services and the access to the financial resources to invest, due to the lack of indebtedness capacity.

Due to the shortage of resources for investments, most of the Brazilian houses do not have access to collection and treatment of domestic sewage systems. As a consequence, the municipalities

need to invest to treat their population correctly, as the construction of health centers, medicines, internments and with more hiring of professionals in the health area. Among the main causes of internments of children in SUS (Unified Health System), these are, pneumonia with 27.8%, diarrhea with 19.5% and perinatal affections with 17.2%. In addition to the proliferation of diseases, it reduces life expectation, it jeopardizes the productivity in the work of this infected individual and contaminates the environment, (streams, superficial and underground springs), also causes environmental passivity, jeopardizing self sustainability.

The sector of basic sanitation is directly related to public health; the lack of investments in that sector reflects in infant mortality, the increase of costs in public health, in the economy and the environment. According to the World Health Organization, for each dollar inverted in basic sanitation, other four are saved in public health [Organización Panamericana de la Salud, 2003, p. 17 ] (18).

Evaluating that situation it is possible to affirm that there is no methodology which allows to support the decision of the public managing, considering the continuity of the strategies and the conscience of these, so as to allow the analysis in an integrated way between the federal, state and municipal environments, for the joint definition from where and how to invest to the public resources, to prevent diseases that affect the health of the poorest population, mainly of children; in the same way, the objective of the maximization of these resources is not clear.

## **Results**

When the correlation between the information is made on the conditions or percentage or of attention with basic sanitation and the indices of infant mortality of a certain region, the existing relationship between them can be perceived. The Northeastern region is mentioned as an example, where the index of attention with collection and treatment of sanitary sewage system is 13.3%, the rate of infant mortality of 44.2 per thousand born alive. When the conditions of basic sanitation improve, the conditions of health of that population rise and lower the rates of infant mortality, as it is the case of the Southeastern region with 33.1% with collection and sewage system treatment and the rate of mortality in that region is of 20.6.

In order to make possible the comparison, the same period between 1990 and 2000 was used of the indicators of collection and treatment of sewage system and infant mortality.

In the state of Parana the rate of infant mortality in 2006 was 13.75 per thousand born alive [Sesa,2008, p.5.] <sup>(19)</sup> and the percentage of collection and treatment of sewage system is of 49.6 [Ministério das Cidades, 2006, p.14.] <sup>(20)</sup> " the reduction is related to the extension of the access of the population to the services of health and sanitation and the programs of immunization [... ] ".[IBGE, 2002, p.9] <sup>(21)</sup>

## **CONCLUSIONS**

Each year, the number of inhabitants in the entire world grows, but the natural hydric resources remain constant and contamination increases in an accelerated form. The resources necessary to invest in the sanitation area are high and few; as a result of the lack of sanitation, thousands of people suffer the consequences caused by this problem, and the indices of infant mortality remain high, in spite of all the efforts to reduce them.

The lack of basic sanitation is among the main causes of the diseases of parasitic origin of hydric transport, that affect mainly, the poorest population and demand, annually, from the municipalities, increasing investments in health centers, medicines, hospitals (internments) and an increase in the number of professionals.

Today, in Brazil, all the development action, implantation and extension of the systems of collection and treatment of sewage systems is of state and federal competitiveness. There is no integrated action among the three governmental areas, to prioritize those investments. It is observed that the isolated activities prevent that the causes be attacked.

One notices that the investments and expenses are done without a perspective of solving the problem, only in a corrective way, without long term defined policies, in most cases, nor have they been perceived by the managers, but if they were detached activities of each governmental area, it engages the return of the profits of the public investments for the present and future generations. Although

several actions are made in preventive form by the public organizations and by the organized civil society, it is far from the solution for that procedure in which it refers to the other causes of diseases, which result in the reduction of life expectancy and infant mortality.

One believes that the public managers need a support method to the decision that allows prioritizing the investments in the sanitation sector in an integrated way, within the federal, state and municipal environment, maintaining in life the prevention. That methodology for support to the decision, can have great relevance in the resolution of this problem, as the decision making as to where and how to invest, also depends on the conscience of the public managers.

It is understood that with the present situation, the public managers can be known by the future generations as administrators who invested, but they were not aware of the sustainable development of a people.

## **BIBLIOGRAPHY**

Please refer to articles Spanish bibliography.