

Articel, A Model For Poverty Alleviation Strategies

by Haeruddin Haeruddin

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A Model for Poverty Alleviation Strategies: Decision making management and indicators issues

Haeruddin¹, Edy Budin², PM. Labulan³, and Ummul Hairah⁴

^{1,3}Dept. of Mathematics Education

^{2,4}Dept. of Information and Communications Technology

University of Mulawarman

haeruddin.unmul@gmail.com

Abstract—"End poverty in all its forms everywhere", the main target of the Sustainable Development Goals (SDGs), which became a commitment that will be achieved in 2030, a model as one approach to management decision-making strategy in overcoming the problem of poverty alleviation which is still a major issue in the definition, measurement, data collection, and determination of poverty criteria and indicators. The proposed data management model focuses on decentralized management at the district level as a local government that serves directly with citizen. This research aims to produce a model of integration of poverty data management, and multi criteria decision making (MCDM) methods in a management system framework that can manage data criteria and indicators, source data, poverty alleviation program data, and citizen data. The conceptual approach to decision-making methods using MCDM in determining the best alternative citizens who become recommendations and eligible to get program assistance from the government. The database models required as part of efforts to ensure the accuracy of the distribution of subsidies granted by the government to the poor. In the context of the audit program, database models can be used as a means to verify the correctness of information poverty, a reference in the preparation of the poverty database required as part of efforts to ensure the accuracy.

Index Terms—Poverty; Multi-criteria-decision-making; database; Indicator; Criterion.

I. INTRODUCTION

Poverty is a phenomenon that occurred a long time and is a problem for countries in the whole world [1]. In the perspective of global demand has become an issues [2], a concern of the international community, "End poverty in all its forms everywhere", has become a global commitments contained in the sustainable development goals (SDGs) as the form of the sustainable declaration is the result of an agreement heads of state and representatives more than 190 countries of the United Nations (UN), in the form of 17-point goal to be achieved by 2030 [3].

Efforts to achieve the target of SDGs, efforts and strategies to be undertaken by each country, but there are still problems differences definitions of the discussion [1], [4-5], i.e. the problem of the poverty line, how is poverty measured? how to measure poverty are accurate and precise? how would they know whether their efforts have an impact? This question is

important because there are various approaches to measuring poverty [5-8] and no one is perfect and could become the standard general conditions. Not necessarily world standards appropriate for each country, where the economic situation is quite diverse societies and cultures [1-2].

The global poverty is also a fundamental issue in Indonesia, Indonesia, with a large population, the geography, and area, various cultural and other factors, making the government must make efforts to find the precise strategy to overcoming the problem of poverty [9].

The government has launched efforts to reduce poverty from year to year, various poverty reduction policy has been produced with a level of intensity and magnitude different. As a result, aside from there are several of poverty reduction programs have been quite successful, there are also many poverty policies that fail to achieve its objectives, and the decline in the number of poor people in Indonesia are still not significant, a decline in numbers, but slowly [10-11].

In general, the main problems in poverty reduction in Indonesia are the differences in definition, poverty indicators, and data collection. During this time, the determination of the poverty measure used Indonesia is very diverse, based on the study of literature [12-13] there are more than five government agencies that issued the poverty criterion, 2 independent or civil society organizations, and plus the 33 provinces in Indonesia which also use local criteria based on the needs of each local government, this shows that the lack of forms of institutional coordination in poverty reduction in an integrated and comprehensive among these institutions.

The multi-respective, definitions, source, criteria-indicators of poverty to show that poverty is a multidimensional phenomenon [14-15]. This phenomenon makes the measurement of poverty is not easy. however, poverty must be measured as an overview and base material for policy making into poverty reductions, there must be standard indicators used to measure of the poverty, if there is just a little change in measuring used, then would lead changes in the number of the poor people which is quite significant [1], [16].

Inequalities of data ultimately it will affect the measurement of poverty, due to differences in poverty measurement tool has implications for the quantification of poverty is different. Data discrepancies eventually led to a different priority to poverty reductions programs implemented. We cannot judge what is right or wrong, this issue is not just to counting the poor, but it

is also related to the measure of poverty used, measure of poverty is not just a technical or methodological issue, but contains policies in the decisions selection made in face of opportunity, a certain situation, and even politics [17-19].

Thus, many of the problems related to poverty indicator because it is not clear where the poor people whom should be ideal or precise being targeted for poverty reduction programs. because it was necessary to make adjustments in order to determine the poverty indicators of poor families are not misplaced. There need to be strategic steps to collect data poverty indicators in a management model that can be used as a data source or a reference in the decision making on poverty reduction programs.

II. LITERATURE REVIEW

A. Multi-criteria Decision Making (MCDM)

Reference [20] explained that the multi criteria decision making is the most well-known branch of decision making. It is a model which deal with decision problems under the presence of a number of decision criteria, and very often known by the name multi criteria decision making or MCDM and multi-attribute decision making or MADM.

There are many techniques in the MADM method, some of the techniques described in [21-25], and in relation to the selection of decision-making poverty data as shown in Figure 2 have explained the selection process and the best indicators used as indicators of poverty alleviation programs, the MCDM method will select best among other indicators.

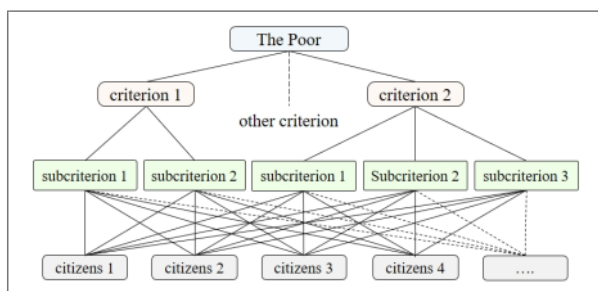


Figure 1. MCDM methods for selection of criteria-indicator

B. Profile of Poverty Data in Indonesia

The Poverty and inequality are problems encountered by each local government and any country well. These conditions make the poverty reduction target into the main targets in the Sustainable Development Goals (SDGs). Many countries have issued substantial funds for poverty reduction but did not give a significant effect on poverty reduction in countries, such as Indonesia, has distributed substantial funds to reduce poverty, but not comparable to the size of the budget in distributed. As reported in [26], whose achievements incline to be slowly.

Based on [26-27] poverty profile, although in terms of the amount of poverty in rural areas declined, but the percentage of poor people increased. The effort and strategies have been implemented the government of Indonesia for the alleviation of poverty, such as providing assistance to the poor in a program, some programs are described in [28-29], a series of

these programs have the same goal for the poverty reductions.

However, these programs have not yielded optimal results, as expected, these programs have not been able to solve existing problems, until now there are many poor families who cannot access various government services program because in general they are not registered as poor as they were considered not fit the criteria or indicators that have been determined. This shows that the indicators were not able to include them as poor. In this issue at the root of the problem are data. The role of poverty data become very important in the successful implementation of the programs [30].

III. OBJECTIVES

The main issue discussed is the poverty alleviation strategy, for which a management model approach is proposed in the form of a framework and system architecture that can integrate:

- Poverty data; Which includes indicators-criteria data, resource data and poverty reduction program implementers, as well as data on potential recipients and beneficiaries of poverty assistance.
- Decision-making methods; Which includes several multi-criteria decision-making (MCDM) techniques.

IV. RESEARCH METHODOLOGY

A. Methodology for Management Poverty Data

1) Data Sources and Collection Methods

Data sources consists of primary data and secondary data. And which will be managed in the discussion of this paper are secondary data, consisting of data on criteria-indicators, data on poverty alleviation programs, and citizen data of potential poor. Data collection methods using literature studies and field studies of data sources.

Table 1
Criteria-Indicators and Sources

Sources	Indicators
National Socio-economic Survey (SUSENAS)	Approach to the basic needs of food (equivalent to 2100 calories per capita per day) and non-food, the determination of households characteristics approach by using 14 qualitative explanatory variables of poverty.
Indonesia, Central Bureau of Statistics (BPS)	Uses the concept of the ability to meet basic needs (basic needs approach). The method used is to calculate the poverty line, which consists of two components, Food Poverty Line and Non-Food Poverty Line.
National Development Planning Agency (BAPPENAS)	Use a rights-based approach, defining poverty as the non-fulfillment of certain basic rights, 5-11 criteria.
National Population and Family Planning Board (BKKBN) - Indonesia	Targeting poor families who were divided into 5 categories of welfare: disadvantaged families (Pre-KS), prosperous family 1 (KS1), prosperous family 2 (KS2), prosperous family 3 (KS3), family welfare 3 plus (KS3 Plus), in the determination of family welfare, uses 23 indicators.
Ministry of Social, Indonesia	11 indicators contained in the Decree of Social Minister: No. 146 / HUK / 2013.
Local Government	Based on the indicators typical of the region (local wisdom in the region)

1) **Criteria-indicators Data and Source:** the government agencies have its own criteria-indicators in determining the poor, which is the reference criteria and guidelines on poverty reduction programs in Indonesia. Some agencies and the indicator can be seen in Table 1.

2) **Data of Poverty alleviation programs:** Various approaches method and strategy of the Indonesia government's do in the effort to alleviate poverty, including by implementing various programs that are of direct assistance or subsidy to the poor. Several types of poverty alleviation programs are presented in Table 2.

Table 2
Poverty Alleviation Programs

Poverty Alleviation Programs in Indonesia	
Card Family Welfare (KKS)	Family Hope Programme (PKH)
Smart Indonesia Cards (KIP)	School Operational Assistance (BOS)
Healthy Indonesia Cards (KIS)	Cash transfers for poor students (BSM)
Saves Family Welfare Program (PSKS)	Social Health Insurance programme (JAMKESMAS)
Healthcare Insurance (BPJS)	Rice for the poor (RASKIN)
National Community Empowerment Program	National Community Empowerment Program In Urban Areas
Social Welfare Problems (PMKS)	National Community Empowerment Program In Rural Areas
National Health Insurance (JKN)	Smallholder Agribusiness Development Initiative (SADI)
Peoples Business Credit (KUR)	Expansion And Development Of Employment / Labor-Intensive Productive
Credit Joint Venture (KUBE)	Water Supply and Sanitation Community Based (PAMSIMAS)
Productive Economic Business (UEP)	Remote Indigenous Community (KAT)

2) Management of Poverty Data

Database Management Systems (DBMS) are used in organizing (create, update, insert, delete), using, managing, and maintaining poverty data. The entity relational diagram model for poverty data management is presented in Figure 2.

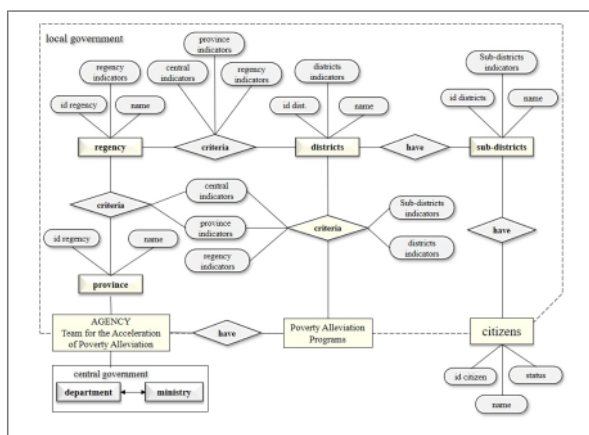


Figure 2. Entity relationship diagram model for management of poverty data

In Figure 2 is an example of an entity relationship diagram (ERD) model in integrating indicator data derived from of the local or central government (entities) as a source of criteria.

Since decentralization and regional autonomy (OTDA) have been implemented in Indonesia have given the local governments the power and the greatest opportunity to create, organize, manage and define their own poverty criteria according to the conditions of their communities and regions. This is very important because each region has different community characteristics, customary, cultural, local wisdom, geographical and other factors that cannot be applied in general the same criteria among regions.

The concept of data integration management model of poverty criteria is built so that all existing criterion data from various source agencies is collected in a database management system, into a data criteria bank, a reference source for stakeholders in terms of planning, implementation of a poverty alleviation program.

B. Methodology for Decision Making Methods

Utilization of MADM methods in decision-making systems in the determination of poor people eligible for previous poverty alleviation programs has been reviewed by [21] using the AHP method, [22] using the PROMETHEE method, [23] using the ELECTRE method, [24] using the TOPSIS method, and [25] using the SAW method. [21-25] concludes that the application of MCDM methods to citizen determination indicates that the program performs well in terms of data accuracy, accuracy of community and program determination, the accuracy of planning, implementation, monitoring and evaluation, target achievement, and sustainability.

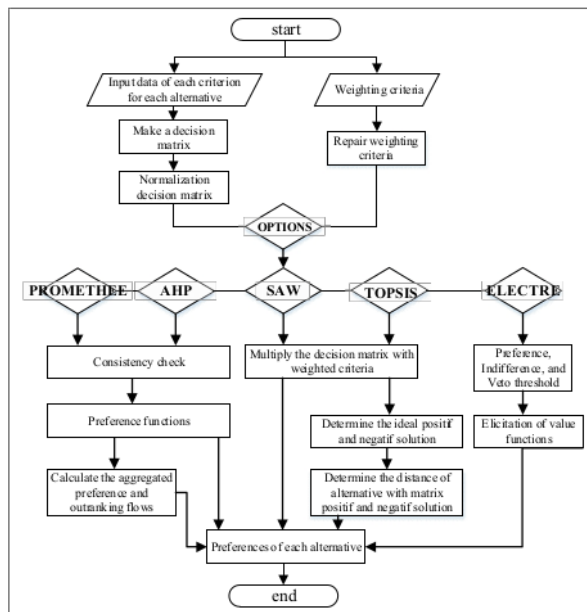


Figure 3: Flowchart diagram for integrate of various MCDM methods

Implementation in the determination of the poor, can solve the problem of decision making by using many MCDM methods and the user can choose one method or other method to compare the results. Flowchart diagram for integrate of MCDM methods presented in Figure 3.

V. TESTING AND ANALYSIS

A. Integrate Multi-Criteria Decision and Poverty Data

The general, the architects model of integration model of poverty data managements and multi-criteria decision-making methods is presented in Figure 4 and Figure 5, In its implementation, the database management system is a system that serves to store internal data and MCDM methods as a tools for decision-making supports system.

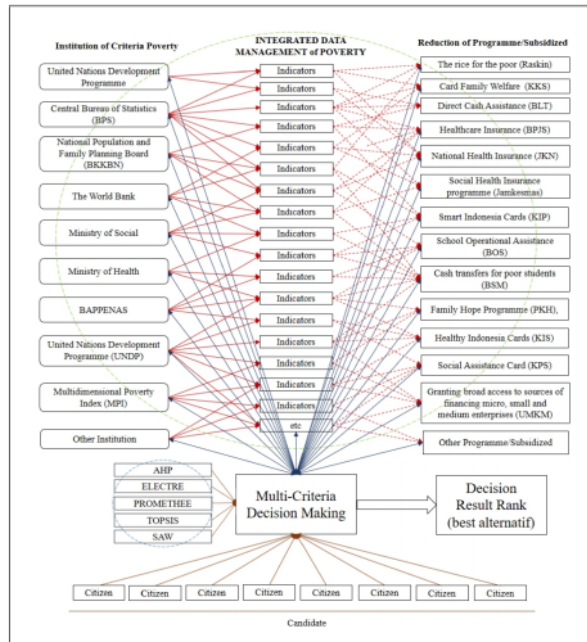


Figure 4. Decision relationship diagram for management of poverty data

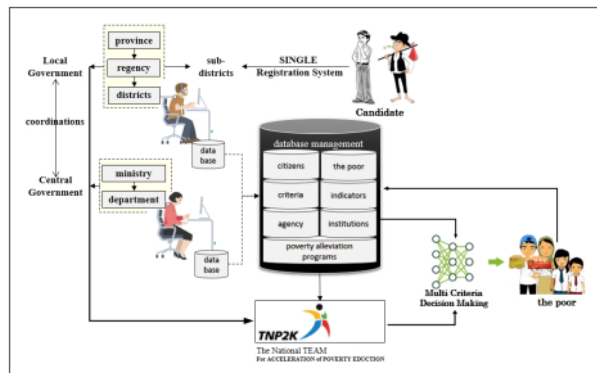


Figure 5: Integration of multi-criteria decision making and poverty data

Framework of system integration is a series of data management activities and decision-making methods. The accuracy problem of the attribute of citizen data as input in the system greatly determines the output results. Work stages based on the Figure 5 as follows:

- The data of citizens as candidates for poverty alleviation program will be registered with one ID identification, (the identity card number)
- The poverty data managed by the local government and central government are mutually integrated, where the common criteria data are set by each ministry and department in accordance with the vision and targets of their respective fields of work. For the criteria set by the regional government (provinces, districts, sub-districts) are given autonomy authority in creating, compiling, regulating, and determining the criteria themselves according to the needs of each region.
- The decision-making process of selecting citizen data provides a variety of MCDM methods that can be selected, in this paper presents 5 techniques i.e. AHP, PROMETHEE, ELECTRE, TOPSIS, and SAW which each technique we can compare the results to find the best alternative from the data of citizens Ideal, appropriate, and truly targeted program. The accuracy of the results in the determination of the poor will be presented in order in the form of ranking list. Making it easier for managers to control the number of potential recipients based on the capacity and budget capabilities of the program. Recommendation of the list of candidates for the name of the recipient of the program already exists, the final decision by the policy maker.

VI. RESULTS AND DISCUSSIONS

Poverty is a multidimensional problem that makes multi-perspectives among the various community, is still the main issue for individuals, communities, governments and even the world organization. It is evident from the outcome document transforming our world: The 2030 Agenda for Sustainable Development (SDGs), with regards to "End Poverty in All its Forms Everywhere".

A framework of management decision-making is proposed as an alternative support model for policy makers in the process of managing poverty alleviation programs in Indonesia, data models and methods are integrated multi-decisions that can manage poverty data. In particular, provides:

- The availability of data criteria in a database management system will be a collection of data and make various choices of data criteria that can be used in accordance with the targets and objectives of any poverty alleviation program, because during this failure on a program caused by the criteria used are not appropriate.
- The architecture of the poverty data management model as the basis for compilation of databases that can be used as poverty data storage and decision-making management that integrate data on multi-criteria and poverty decision-making methods.

An implementation of the integrated poverty database in the future be required as part of efforts to ensure the accuracy of the distribution of aid. Also to avoid any overlap and accumulation of funds in the hands of a particular group,

"Particular groups" that make the poor a source of exploitation for program budgets, and they often move from one institution to another, from one program to another. Therefore, the availability of an integrated database, problems like this will be eliminated.

For the government, it is known who the beneficiaries so that it can be integrated with the government's poverty alleviation program to another. In the context of the audit program, this database can be used as a means to verify that the information of the agencies.

An additional mind, that poverty alleviation programs in Indonesia, which have tended to focus on the distribution of social assistance for the poor, efforts such as this will be difficult to resolve the problem of poverty because the nature of the aid is not to empowerment, it can even lead to dependence.

Assistance programs oriented government's generosity can actually exacerbate the poor morals and behaviour, the aid program for the poor should be more focused to foster productive economic culture and capable of liberating dependence permanent residents. On the other hand, social assistance programs could also cause corruption in the distribution.

VII. CONCLUSION

Utilization of MCDM method as decision making in determining best solution to choose best alternative. In the context of poverty data management, the adoption of MCDM methods is used to determine the poor who are eligible for poverty alleviation programs.

The importance of integration of poverty data management and decision-making system in the effort to utilize and distribute all aid of poverty alleviation program. Integration of poverty databases is required as part of efforts to ensure the accuracy of program delivery. Also to avoid any overlapping and stacking program budgets in the hands of "particular groups" that make the poor a source of exploitation for program budgets, and they often move from one institution to another, from one program to another.

The poverty data managed by the local government and central government are mutually integrated, where the common criteria data are set by each ministry and department in accordance with the vision and targets of their respective fields of work. For the criteria set by the local government (provinces, districts, sub-districts) are given autonomy authority in creating, compiling, regulating, and determining the criteria themselves according to the needs of each region.

This is very important because each region has different community characteristics, customary, cultural, local wisdom, geographical and other factors that cannot be applied in general the same criteria among regions.

The concept of data integration management model of poverty criterion is built so that all existing criterion data from various source agencies is collected in a database management system, becoming a data bank as a reference source of criteria data for stakeholders in planning, implementing a poverty alleviation program.

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