

# Nickel Mining Policy Model Post Reform in Indonesia

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**Abstract:** *The nickel mining policy has not yet prospered, there have been conflicts, land speculation, imbalanced negotiations, environmental destruction, and licensing that is a requirement for corruption. This research explains and analyzes: 1) Direction of nickel mining policy reform; 2) The model of nickel mining policy post-reform. The study used a qualitative approach, literature review, policy review, secondary data collection, interviews with resource persons and analyzed it descriptively. Conclusions: 1) Reform of nickel mining policies is directed at increasing added value, competitiveness, legal certainty, justice, participation, transparency, accountability, sustainability and environmental insight to increase the income of the people, regions and countries, and create jobs; 2) The model of nickel mining policy after the reformation applied a rational approach, it can be seen from the principles and objectives of nickel mine management that it is clearer, referring to all aspects, considering profit and loss, paying attention to the potential for the benefit of the State and society; The nickel mining policy as a cycle, starting from formulation, implementation and evaluation is characteristic of the incremental model. The role of government institutions, the private sector and the public in advocating post-reform mining policies as a feature of the institutional model in the implementation of public policy.*

**Keywords:** Reform, Policy Model, Nickel Mine

## 1. Introduction

The mine of local minerals in the form of nickel is one of the metal elements originating from the bowels of the earth, which existence is scarce only in certain regions. In the list of types of commodities of economic value, nickel is one of the metal mineral mining materials with the symbol of the element Ni, which can be used for various industrial purposes. Because of limited availability, nickel is a mining product that assesses high economy, and becomes a commodity needed by humanity along with the development of science and technology, especially in the field of industry, nickel management increasingly requires regulations, regulations or policies that lead to efficient, economical use, benefits, added value and attention to environmental aspects and in each processing. According to TauliCorpuz, at.,all (2015) and Devi (2013) in (Mustafa, Alam and Bake; 2016) that mineral mining including nickel has become the most important economic activity in the mining producing country.

The demand for nickel mining is increasing because of the unique nature of this metal which is unique chemically. According to Pardiarto (2013) the element of Ni is very reactive with oxygen so that the presence of nickel in nature is in the form of compounds. Although nickel is reactive to oxygen, it does not corrode, so it has an important role in the steel industry. A mixture of nickel with chrome and iron produces stainless steel which is commonly called stainless steel. Indonesia is a leading producer of minerals in the world, especially nickel with the largest nickel potential distribution in the eastern part of Indonesia, namely Sulawesi, Papua, West Kalimantan, Maluku and surrounding areas. Based on geologinesia.com data (2016) there are currently 15 nickel mining companies operating in Indonesia. No research has found a definite number of

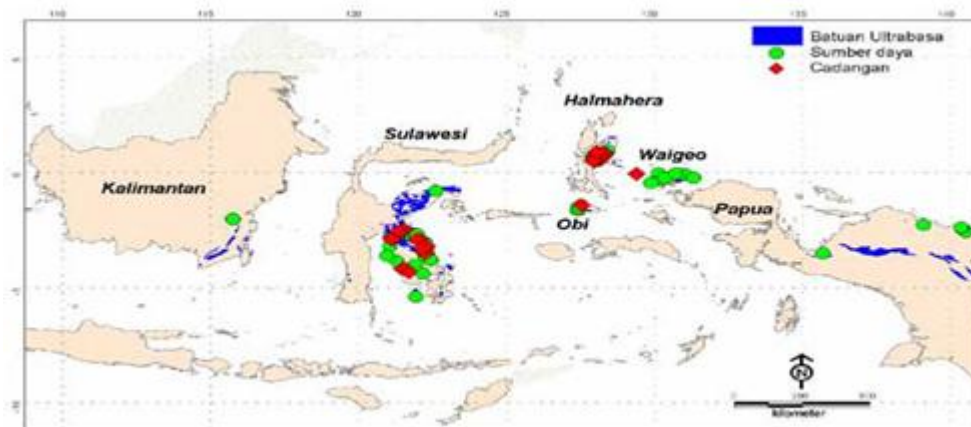
deposits of nickel reserves in Indonesia. The survey results only find location points containing nickel by relying on satellite photos, aerial photography or exploration at locations that naturally contain nickel reserves with varying yields from one region to another (Ministry of Mines and Energy, Republic of Indonesia, 2016).

Five activities that describe the stages of mining operations according to the International Financial Reporting Standards (2007), namely exploration, evaluation, development, production, closure and rehabilitation. Exploration is a search for resources that are feasible for commercial exploitation. Evaluation is intended to determine the technical and commercial feasibility of mineral resources. The development stage is the laying of access and the provision of facilities for extracting and transporting production. The production business is carried out to obtain products that are worth selling from mineral supplies. The closure was carried out after the mining operation stopped, including the restoration and rehabilitation of the site, a former nickel mining processing area.

Van Bemmelen (1949) in (Pardiarto; 2013) placed nickel as a second class mine from three other groups. First is the organic mineral class consisting of petroleum, natural gas, coal and asphalt; The two groups of metal seeds are tin, gold, silver, bauxite, nickel, manganese, copper, zinc and platinum; Third, groups of inorganic minerals not metal ore, such as phosphate, sulfur (sulfur), iodine, limestone and mercury. Nickel is one of the metal mineral mining materials with the symbol of the element Ni. Ni is very reactive with oxygen so that the presence of nickel in nature is a compound. Although nickel is reactive to oxygen, it does not corrode, so it has an important role in the steel industry. Nickel as one of the metal mineral mining materials with the symbol of the element Ni. Ni is very reactive with oxygen so

that the presence of nickel in nature is a compound. Although nickel is reactive to oxygen, it does not corrode, so it has an important role in the steel industry. A mixture of nickel with chrome and iron produces stainless steel which is commonly called stainless steel. Nickel (Ni) is a metal that has physical properties such as shiny white, very hard, does not rust and is resistant to dilute acids. Because of that, continued Pardiarto (2013), are mostly intended to coat items made of iron, copper and steel because nickel has hardness, corrosion resistance and is easily shiny when rubbed. In addition, nickel is also used to make stainless steel and alloys or nickel with copper mixtures or some other important metals for industry. Some examples of alloys are Monel, which is a mixture of nickel with copper and iron (Ni, Cu, Fe) used to make electrical transmission instruments, Nicrom (Ni, Fe, Cr) is used as heating wire, and Alnico (Al, Ni, Fe, Co) used to make magnets. Nickel is

also used to make Palinit and Invar, nickel alloys which have the same expansion coefficient as glass, used as electrical wires planted in glass, for example in incandescent light bulbs. Nickel powder is used as a catalyst for example hydrogenation (compaction) of coconut oil and also in kerosene processing. The largest percentage of this allocation is for stainless steel, reaching 67%. Whereas the use of ferronickel only for alloy steel and stainless steel reached 98% (Pardiarto; 2013). Mining as an economic activity, starting from the process or extraction of minerals from the earth (Indecon International Economic Consultants, 2013). Mining efforts are carried out to provide the basic material needed to develop and expand humanitarian living standards. Mining provides raw resources that are filtered into every product, service and luxury in modern society (Hoffman, 2013).

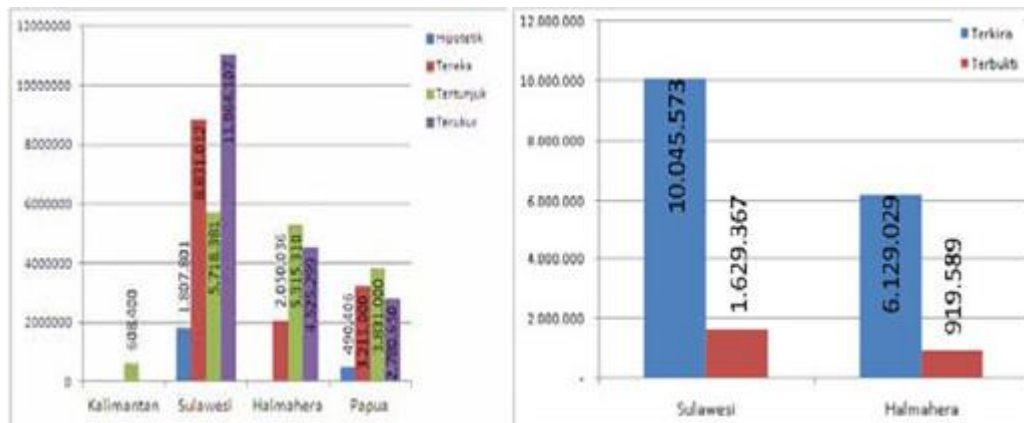


**Figure 1:** Map of the distribution of nickel potential in Indonesia

Source: Geology Agency, 2011

According to Pardiarto (2013), the condition of the tropical regions of Indonesia with high rainfall and sunlight throughout the day, plays an important role in the weathering process and the dissolution of elements found in the original rock strongly supports the formation of laterite nickel deposits. Changes in temperature are large enough to assist in the occurrence of mechanical weathering with the formation of fractures in rocks that will facilitate the process or chemical reaction in rocks. The speed and intensity of chemical weathering will be helped by the existence of reliefs in the form of gentle slopes with slopes between 10-30°. In gentle slope morphology, rainwater can move more slowly so that it has the chance to seep through rock cracks or pores. In the soil, CO<sub>2</sub> contained in ground water plays an important role in the chemical weathering process. Laterite nickel deposits in Indonesia follow the distribution of base and ultrabasic rocks, found in the Meratus Mountains and the Borneo Sea Island, the eastern arm of Sulawesi Island. In North Maluku, it is located on Obi Island, Gebe and Halmahera Islands, and in Papua on Gag Island, Waige

Island, Cyclops Mountains and Central Papua Mountains. The total resources of laterite nickel ore in Indonesia are based on data from the Mineral Resource Balance from the Center for Geological Resources, Geology Agency in 2012 it was 3,398,269,997 tons, and the total reserves were 18,723,558 tons. The average cutoff grade of nickel ore mined is ± 0.8%. The highest level of nickel can reach above 10%. Nickel resources in 2011 and the largest nickel reserves in 2001 in Sulawesi and North Maluku. On Sulawesi Island, the provinces of South Sulawesi, Central Sulawesi and Southeast Sulawesi have the largest potential for nickel ore in Indonesia, with total resources of 27,421,301 tons and total reserves of 11,674,940 tons. The Halmahera area has a total resource of 11,890,645 tons and a total reserve of 7,048,618 tons. In Papua nickel laterite deposits are spread in the Waigeo Islands and the Cyclops Mountains area with a total resource of 10,313,056 tons, while in Kalimantan data on nickel ore resources is only found in the Gunung Nuih area of 608,400 tons (Pardiarto; 2013).



**Figure 2:** Graph of ferronickel production growth according to producing regions, in Indonesia  
Source: Pardiarto (2013)

Ferro nickel production and nickel ore in Indonesia 2005 - 2010 (in tons). Fluctuating production of ferro nickel and nickel ore from year to year. The period of 2005 to 2010 the highest ferronickel production in 2010 amounted to 18,688 tons, while the highest nickel ore production in 2008 amounted to 10,634,452 tons (Directorate General of Mineral and Coal, Ministry of Mines and Energy of the Republic of Indonesia). The nickel mine management policy is intended to overcome mineral processing conflicts, provide protection and legalize the processing of natural resources so that they are beneficial to the State and the progress of the area where mining products are obtained. Dewey (1927) in Mustafa, Alam and Bake (2016) asserted that every policy of the authority owner is intended to solve public problems (public policy focuses on 'the public and its problems'). Despite the fact, the potential of mineral mines that are abundant in many developing countries, including in Indonesia has not been able to bring blessings to its citizens in real terms. Mining in some developing countries according to the World Bank (2002) in Mustafa, Alam and Bake (2016), precisely supports the Mining is Bad hypothesis, a story about a country that does not get better despite having abundant mineral potential due to errors in resource management policies the mining and due to the weaknesses of the institutions that developed it.

In Indonesia, the nickel mining policy is legally administered, included in the mineral mining regulations. Mineral mine arrangements have changed since 1999 in line with the decentralization of authority from the central government to the regions within the framework of regional autonomy. Efforts to optimize mineral mining management for regional progress and citizen welfare began in 2009, through the Law of the Republic of Indonesia Number 4 of 2009 concerning Mineral and Coal Mining. The law covers the regulation of the Mining Business Permit (IUP) area as a rationalization of previous policies which are considered not to contribute to regional development and the welfare of the community in theregion. The legal basis for the management of mineral mines in Indonesia, was born since the Indonesian Shrimp Law No. 11 of 1967 concerning the Basic Provisions of Mining known as the Basic Mining Law. In the law, it was stated that minerals including nickel. Republic of Indonesia Government Regulation No. 27 of 1980 concerning Classification of Excavated Materials specifically states that nickel is categorized as a group of

strategic or class A excavators, in addition to coal, petroleum, natural gas, uranium and tin. Therefore, every policy related to the management of nickel mines can ideally provide guarantees to improve the welfare of the people, avoid conflicts, contribute to foreign exchange, provide employment, be managed responsibly and provide benefits to the regions and surrounding communities. But empirically, these expectations have not yet been realized, even the opposite is true. This can be seen from a number of facts including:

First, since the identification phase of mine potential, there have been pros and cons that have triggered the seeds of division in the community, related to land ownership, issues of road damage, limited electricity, resistance of local communities to foreign cultural intervention with the development of mineral mining industrialization;

Second, the impartiality of the government, especially the local government in terms of land acquisition, even a lot of land speculation has occurred (the case of the Nickel Mine in North Konawe Southeast Sulawesi), including unequal negotiations between land owners and investors, to intimidation of power to local people who own land or ulayakland (case in Bombana, and Konawe Selatan, Southeast Sulawesi);

Third, there is a conflict in the management of the mine, with the conflict as follows: a) Conflict among fellow citizens, including the case in Bombana, Southeast Sulawesi; b) conflicts between the government and employers, including cases of conflict between PT TimahTbk and the government of the Bangka Belitung district, in Tin Mining in the Bangka Belitung Islands, Sumatra); c) Conflicts between companies, including conflicts between PT Indo Multi Niaga and PT Intrepid Mines Limited in managing mines at TumpangPitu, in Banyuwangi Regency (Central Java Province). Fourth, mountain destruction, forest, river and sea destruction and agricultural irrigation water sources include (the case of nickel mines in Bombana, North Konawe and North Kolaka, Southeast Sulawesi); Fifth, scientists and experts who tend to be able to buy credibility that supports capitalism by producing recommendations for analysis of the environmental impacts of the mining industry that are not in accordance with the facts and tend to benefit investors, for example of PT AdidayaTangguh's nickel



mining exploration in Ternate and the Sula Islands in North Maluku, and nickel mines on Kabaena Island, Bombana, Southeast Sulawesi;

Sixth, open employment in the management of mineral mines is actually used by foreign workers (including from China) who work for Chinese companies that invest in the mining processing industry in Indonesia, (the case in Morowali (Central Sulawesi), Morosi and Bombana (Southeast Sulawesi)); Seventh, the process of administering the establishment of a mining company, land acquisition and the granting of nickel mining business licenses is done improperly, there are illegal levies, and corruption by local officials. Examples include the case of BuchariMatta as Regent in Kolaka Regency, and NurAlam, as Governor of Southeast Sulawesi for the 2013-2018 period.

On the other hand, populist mining management is assumed by the community to be able to process the potential of nickel mines, unable to operate due to limited capital and technology, inability to manage mines in a professional manner which has an impact on environmental damage that is difficult to control, creates horizontal conflicts, and practices illegal management of nickel mines and other minerals, which are detrimental to the State and regions, especially mining producing regions. This condition is thought to have an association with the mineral mining management policy model in Indonesia. The objectives of this study are: 1) Describe and analyze the direction of the reform of nickel mine management policies in Indonesia; 2) Describe and analyze the model of nickel mine management policy post-reform in Indonesia.

## 2. Theory of Policy Model

Public policy focuses on "the public and its problems" (Dewey, 1927) public policy is a study of "how, why and to what effect particular courses of courses of action and inaction" (Heidenheimer, et.al, 1990). Dye (2010) mentions what government's do, why they do it, and what difference does it make. While Nagel (1990) states that public policy is the study of the nature, causes, and effects of public policies. According to Anderson policy as a way of acting or acting inadvertently is done by an actor or a set of actors in dealing with a problem or concern (Smith & Larimer, 2009). Dye (2010) states that public policies include anything the government chooses to do or not do.

According to Dunn (2008) there is a set of dichotomous assumptions in developing policy arguments for deciding the best as the authority owner's provisions: a) policy-relevant information as a starting point in policy formulation; b) Policy claims (policy claim), as the initial conclusion of the policy as a logical consequence of the available information; c) Warrants, in the form of data-supported statements to strengthen policy arguments; d) Support (backing) for policy justification in the form of additional information for unacceptable justification of the visible value, which allows the analysis to move backward and state the accompanying assumptions; e) Rebuttal (Rebuttal), which is the second conclusion or argument that states the original claim is not accepted, or the original claim can be received at a certain degree of acceptance; f) Conclusions (qualifier), or

conclusions expressing the degree of confidence in a policy claim. Governments make policies for political, social, moral, economic failures or due to market failures (Kraft & Furlong, 2012). Public policy involves the key role of public actors but is not exclusive (Hill & Hupe, 2014). There are two main features of public policy, namely stability, where policy changes are only marginal, while change is a fundamental renewal of policy content. Today's phenomenon of policy changes is more prominent than policy stability (Aslinda, 2014). Changes in policy include major and minor changes in a policy subsystem in government (Aslinda & Ibrahim, 2014) and Mustafa, Alam, and Bake (2016).

The development of policy studies leads to the discovery of patterns or models of policy analysis that are illustrated through the formulation, implementation process, essence and problem-solving orientation, policy impact, policy principles and arguments, policy scope, involvement of institutions and actors, and environment that influence policy. The policy model is an abstraction of empirical phenomena in the policy that Dunn calls it a simple representation of the choice of actions in managing problems and developing potential for specific purposes expressed in the form of statements, concepts, theories, images, diagrams or graphs and mathematical models. The public policy model has certain characteristics which are shown simply and clearly, the accuracy in determining dimensions or aspects related to policy problems, easily understood and communicated, easy to understand the context and content of the policy and provide a clear picture of what is going to happen by predicting consequences or impact of policy.

Criteria for policy models according to E.S. Quade (1982) in Nugroho (2006) includes; a) Analytic model, carried out through an operational research approach; b) Simulation models, policies formulated beginning with a quasi-experimental, analog model, computer use; c) Game models, humans are directly involved, war games, simultaneous involvement; d) The assessment model, carried out explicitly to obtain verbal expressions, in the form of analogies, in mind, and mental models. The policy model according to Dunn (2008) includes; a) Descriptive models, explain or predict the causes and consequences of policy choices or decisions; b) The normative model explains, predicts, recommends business optimization; c) Cost and benefit analysis model; d) Verbal models of descriptive and normative expressions, in the form of: verbal, symbolic, and procedural, using everyday language, using reason in the form of value arguments; e) Symbolic models use mathematical symbols to explain the relationship or causality between variables using actual data; f) Procedural models, using simulation procedures, decision making theory (alternative determination), assumption data (relative / weight). Policy as a model is seen from the way or approach of the authority in carrying out public policy in accordance with its authority.

Parsons (2001), Dunn (2008); Dye (2010), Dror (2017) mentions the model of the policy approach, namely: First, comprehensive rational; emphasizing the process of policy formulation using a rational approach by considering a number of aspects, based on accurate, valid and actual data,

analysed every opportunity and threat, strengths and weaknesses, and relying on information that supports decision making. Decisions are taken after considering a number of aspects, and choosing the least risky alternative, the least likely, and most efficient failure. Policy is seen as a rational choice from a series of alternatives that exist to solve problems. The stages are carried out through identification of all community values and given weights, knowing the alternatives available and all possible consequences of each selected policy, calculating the ratio between the values achieved with the sacrifices incurred or those borne by the community.

The rational model produces conditions that vary with the most rational decisions, because decision makers act as if in the realm of absolute rationality, there are no limits (both cognitive and political) that suppress it. But in fact, rationality is never absolute, but rationality is always limited because organizational actors (see Herbert Simon and James March; 1958), always act within the limits of certain logical rationalities, where decision choices are subject to limitations that originate from human nature itself (Profiroiu, 2006). In fact, the actions of decision makers in the public sector are faced with the main constraints related to several factors according to Profiroiu (2006: 164 - 165), namely first, the assumptions of efficiency, effectiveness and economics are not valid values in the public sector. In the public sector consideration of budget allocations and expenditure resources, facilities, budgets, and not to increase income, or results, as done in (private profit-oriented) companies. There is a parity of information between empirical facts and available data (because not all related information is controlled by decision makers), making public decision makers act with incorrect data or invalid or even unavailable data.

Selection criteria are rare, because there are very few methods available to determine the profit and loss of public policy, other than because interest groups or political groups (Williamson) intervene make decisions far from their rationality. Some individuals may not act unless they have enough information, and others cannot decide unless alternatives are reduced to smaller amounts, making the chosen situation trigger psychological tension. The decision-making process is often expressed through moments of uncertainty, pressure and tension. The decision maker's ability to support a psychological situation of choice varies from one person to another. The rational understanding model is a criticism of (Stella and Matthew (2006), where in practice, this model is not always in accordance with the actual process in adopting public decisions. Limitations of information and not all aspects of supporting policies are in the control of actor control, then the behavior of actors and interest groups who tend to take advantage of opportunities to benefit themselves (parochial traits), making policies farther away from their rationality.

The rational model assumes that policymakers have the time to overcome challenges in a rational way, to identify all the detailed and comprehensive potential tools to achieve the stated goals and evaluate all these methods based on efficiency, economy and effectiveness. In real terms, there are limitations to human rationality in identifying

alternatives that might be chosen as the best policy. The rational model emphasizes strong specialization which can actually be a burden because of the demands of work and diverse problems amid time constraints to solve various problems at the same time. Rationalism tries to learn all the value preferences that exist in society, give each value relative weights, find all existing policy alternatives, know all the consequences of each alternative, calculate how the selection of one policy will influence the remaining alternatives in terms of opportunity costs, and finally choose alternatives the most efficient policy in terms of costs, benefits and social value "(Henry 2007, p. 290)." Rationalism tries to learn all of the extant in a society value preferences, assign each value relative, discover all the policy alternatives available, know all the consequences of each alternative, will affect the remaining alternatives, and ultimately select the policy alternative that is the most efficient in terms of the costs and benefits of social values "(Henry 2007, p. 290). Global rationality, the rationality of neoclassical theory, assumes that the decision maker has a comprehensive, functional utility that knows all the alternatives that are available for choice, and the alternative process that maximizes expected utility. Bounded rationality, behavioural considerations, the decision maker must search for alternatives, the egregiously incomplete and inaccurate knowledge about the consequences of actions, and the processes that are expected to be satisfactory. Targets while satisfying constraints). (Simon, 1997, p. 17) in Gustavo Barros, 2010; 3).

The rationality model targets policy makers to: 1) Know all people's desires and their weight; 2) Knowing all available alternatives; 3) Knowing all alternative consequences; 4) Calculating the ratio of achievement of social value to each alternative; 5) choose the most efficient alternative public policy. The ability to accurately calculate the cost to benefit ratio is required. In fact, values and trends that develop in society cannot be detected as a whole, making it difficult for policymakers to determine the direction of policies made. Specifically, economically rational model, emphasizes the efficiency and economic value of each policy, while the rationality of objectives, and requires the existence of experiments to determine alternatives so that decisions are made to be effective.

Second, the incremental model as proposed by Lindblom (1959), namely that policies are built on the premise that every decision in an organization cannot be formulated rationally, can be satisfactory or carried out efficiently because of the limited rationality of actors as described by Simon (1955) quoted by Barros (2010: 3). Policies are based on past experience and achievements by calculating targets that will be achieved linearly from time to time. Assumptions and incremental model criteria include: a) Assessing alternative policies not based on problems comprehensively but rather focusing only on policies that differ from time to time incrementally; b) Only a small number of policy alternatives are considered, the assumptions are continuity and sustainability; c) Barriers experienced by policy makers are redefined according to the changes that occur; d) The best problem solving is based on previous experience. Some considerations that are the reasons for choosing this model include: 1) The

achievements that need to be continuously improved, making the allocation of resources focused on achieving the targets set; 2) As a strategy to overcome deadlock due to the many interests that make policies fragmented into different interests; 3) There are doubts about the emergence of unwanted impacts from a new policy; The weakness of this model is that it often ignores changes in values in society that continue to experience the dynamics resulting from the improvement itself in a sustainable manner.

Third, institutional models. According to Dye (2010), policy is seen as an activity of government institutions (policy as institutional activity). The criteria or characteristics of the institutional model are a) the Government provides legality and recognition of formalization of public policy; b) Public policies made by government institutions are universal, applicable to all interested parties; 3) The government has the right to monopolize and even be forced by institutions that have the authority to implement policies. The assumption of an institutional model is that each government institution has the authority, role and function in the implementation of policies both as policy makers, implementers and supervisors. Different things are the types of authority, scope and scope and the magnitude of their responsibilities. In the implementation of policy requires coordination across actors and between government institutions both internally and externally, both vertically and horizontally. The community must obey, because there is social and political legitimacy, it can even use coercion or the right to impose rules that have been made, by institutions that have the authority as mandated by law. The law stipulates the state institutional structure as the organizer of the legislative, executive and judicial branches, as well as the distribution of power, checks and balances between institutions in the government.

Fourth, elite mass models. The elite theory of the time saw that in the country concerned, the system of government was not yet supported by a democratic political culture. The system of government can be based on the principle of democracy but it has not yet proceeded in a consolidated manner. In this theory, Dye (2010) confirms the following; a) Society is divided into small groups that are very powerful and another group that is powerless depending on the willingness of small groups as elite ruling; b) This ruling elite group comes from the middle to upper class who have similar values; c) The transfer from non-elite groups to elite groups is very limited to maintaining stability and survival. Only those who have accepted the basic elite consensus can be accepted; d) Public policies are made for the benefit of elite ruling, and do not reflect the needs and desires of the masses; e) Changes in public policy are only incremental and not revolutionary; f) More elite groups influence the masses, rather than vice versa. The mass elite model emphasizes the understanding that policy as a preference is the decision of elites in the country, because in society power is not evenly distributed. Political power is concentrated in a small group of citizens as a group of rulers who actively influence the administration of the State and the majority-controlled group (a class that rules and class that is ruled), which is passive towards government policy.

Policy issues are an agenda or agreement on the results of a compromise or even the results of conflicts that occur between political elite groups. Communities do not have access and do not have the power to influence policies which should be a political agenda at the top level. Bureaucrats or administrators only become mediators for the course of information flowing from top to bottom. The political elite maintain the status quo and policies tend to be conservative, and policy changes tend to be evolutionary and incremental. At a certain level, policies are made on behalf of the people, or at least the citizens they represent, because they need mass support for power. But what is voiced is only an offense to seize resources within the government. In many facts (cases in Indonesia) there is often no social contract through modern political processes such as those described by Thomas Hobbes, John Locke, and Jean-Jacques Rousseau that in political society there is a social contract between people who choose the political elite chosen to occupy power, and the realization of political promises is realized through pro-people policies, and or political sanctions on the ruling elite given in the next election process. Rulers occupy positions in the legislature through a general election process, but generally those who succeed in gaining votes are those who have the money to buy voters' votes (giving money secretly to voters during elections) or through the practice of money politics.

Fifth, the group model (the group theory) views public policy as a product of group struggle. Public policy is a point of equilibrium in a struggle between groups as a result of negotiations and compromise of interest groups in the process of formulation and implementation of policies. Policy is seen as the result of a compromise and the right of the parties who have the authority and / or factions in the government as a coalition agreement that each element has a contribution and contribution so that they are also responsible for its implementation.

Dye (2010) explains "what is called the public policy is that the equilibrium is reached, and it is a balance which contending factions or groups constantly strive to tip in their favor. The legislature referees the group struggle, ratifies the victories of the successful coalition, and records of the surrenders, compromises, and requests in the form of statutes "The group model is an abstraction of the policy-making process in which interested parties try to influence the content and form of policy. Policy making is seen as an effort to respond to the demands of various interest groups through bargaining, negotiation and compromise. Competing interest demands among influential groups are managed. Competition between interest groups is essentially a balance that is achieved in the struggle between groups to fight for their respective interests in a momentum. In order for this fight to be non-destructive, the political system is obliged to direct group conflict, through: a) Establishing the rules of the game in fighting for group interests; b) Prioritizing compromise and balance of interests; c) Building compromise in setting public policies, and d) Striving for the realization of the results of the compromise.

Interest groups have a major contribution in influencing policy. The strength of the influence of interest groups is determined by the number of members, wealth assets,



organizational strength, leadership, close relationships between personnel and decision makers, including internal cohesion there is a level of implementation. Competition between groups is also one of the factors that determine the effectiveness of policies in achieving their goals. Classical hierarchical model states that the formulation and implementation of policies are separate and sequential activities because of the division of labour between groups that formulate policies, those who implement and those who evaluate policies. Policymakers begin the process of formulating policies because they have information, can approve priorities between different goals because they have the knowledge and authority to run it. The executor of the policy has the technical ability, compliance and willingness to implement the policy in accordance with the direction and mandate which is revealed explicitly and implicitly in the policy. While monitoring is carried out to ensure that the wisdom runs on the right track in accordance with the direction and direction of the policy. Finally, policy evaluation is done after the policy has been formulated or after the policy has been implemented to check: a) To what extent the policy is made through procedures that are in accordance with constitutional norms, ethics and rules at every level of authority; b) How far the contents of the policy are relevant to the problems to be resolved, expressed in clear, easy to understand, not multiple interpretations, and do not overlap each other and do not exclude each other with policies; c) How true is the implementation of custom in accordance with the directions mandated in policy, according to norms, principles and recommendations explicitly contained in policy, to the extent that the discretion carried out by executives does not conflict with the substance, principles and principles of policy implementation; d) To what extent the targets set in the form of results, benefits and impacts to be achieved can be realized in accordance with the quantity and quality expected.

Sixth, the model system theory, assumes that public policy is a response of the political system to requests that arise in the community environment. Input from the environment in the form of requests (demands) and support (supports). This support can be in the form of compliance with the law, paying taxes, voting in elections, and supporting the implementation of policies. Public policy is a product of a political system, a government system and how a leader or institution that has the authority to carry out policies, manage inputs, process data and information in a system of decision making to produce policies that can be implemented, accepted by all parties. In this context, policy is not in a vacuum, but is coloured by a political system whether a system of democracy, authoritarianism or a system of social-democratic governments. The democratic system is characterized by a participatory policy formulation process, listening to aspirations (demand said), an authoritarian system of government seen from among others the process of formulating policies according to the will of the authorities (top said), while the social democratic system or welfare state is a combination of both.

The system perspective considers that policy is the result of a process that uses input in the formulation of policies in the form of data, information related to issues and problems that

must be resolved, rules and constitutions underlying the state system, technological systems and policy environments in the form of political, globalization, economic, social and community culture. It is David Easton (1965) who built the analogy of the system as a biological system, where disruption of one component of the system, would make the system unable to walk. Biological system is an interaction between the components that make up the organism, if one part is disturbed it will be felt by the other part. In a political and policy system, something similar will also happen, where the disruption of one element of the system component will make the system not run or hampered, so that the policy will not run smoothly. Good input will support a good political process, and will produce policies that can be implemented, accepted and successfully achieved its objectives. Good policies, implemented well, surely the results will be good if all the groups that make up the religious system are fulfilled according to what they require.

Seventh, the cycle model, considers that policy is a recurring and ongoing process that runs dynamically. The public policy cycle model is carried out starting from identifying and recognizing problems, formulating agendas, formulating policies, adopting policies, implementing policies and evaluating policies that are carried out continuously and evaluated at all times to ensure the policy runs properly, and evaluation results form the basis for gradual improvement according to environmental changes that affect policy. Public policy is a routine process that recurs from year to year, from one event to another. To achieve maximum results in policy implementation, inhibiting political pressure must be minimized; actor actors understand the main tasks and functions in carrying out policies. The implementation of policies is usually not done by force, because it must be persuasion, negotiation and compromise with other interested parties. The concept of policy cycle revolved as already mentioned around the triad of policy formation, implementation and termination, whereby evaluation was deemed crucial as a cybernetic loop to gathering and feeding back policy relevant information. The underlying scientific logic (Wittrock, Wagner and Wollman, 1991:615), and vision of a science driven policy model was epitomized by Donald Campbells famous call for an experimenting society (reforms as experiment, Campbell 1969) (Wollmann, 2007: 396).

### 3. Research Methods

The research method uses a qualitative approach. The stages of the study range from literature review, policy review and secondary data collection from various official and trusted sources, conducting interviews with officials and several mine processors in the Southeast Sulawesi region as one of the largest nickel producers in Indonesia. Data analysis was carried out in a qualitative descriptive manner with a main focus on the explanation of the direction of reform and the nickel mining management policy model in the reform era in Indonesia.

4. Results and Discussion

a) Nickel Mining Policy Reform

From the beginning after independence, the management policy of nickel mining in Indonesia refers to Law Number 11 of 1967 concerning Mining Provisions. Along with the development of science and technology, the Act was no longer relevant then it was later revised with Law Number 4 of 2009 concerning mining, minerals (nickel) and coal. In the Law, it is explicitly stated that domestic mineral mine processing including nickel mining must be carried out independently, reliably, transparently, competitively, efficiently, and environmentally, in order to ensure sustainable national development.

In Indonesia, mineral mining businesses adhere to the principles of benefit, sustainability, fairness, participation, transparency, accountability, compliance with regulations, and environmental sustainability in accordance with the principles of good mining governance. Every mining business must be able to contribute to the progress of the region and the welfare of the community wherever the mineral mine is located and developed. Nickel as a mineral contained in the legal territory of Indonesian mining is natural wealth, has an important role in fulfilling the lives of many people. The management is controlled by the State to provide real added value to the national economy in an effort to achieve equitable prosperity of the people. Both Law Number 11 of 1967 concerning mining provisions and Law Number 4 of 2009 concerning mining, minerals and coal are both products from the central government. Local governments or companies that are interested in implementing nickel mining investments must comply with the law. The nickel mine management policy has experienced at least three changes, starting with Law No. 37 Year 1960 concerning Mining (State Gazette of 1960 No. 199). At the central government level the formation of the Law is a legislative authority, while at the operational level executive power makes policies as operational references for nickel mine management that are made to maximize the added value of the management of nickel mines.

Before there was Government Regulation No. 1 of 2014, entrepreneurs could export raw nickel ore. Since the introduction of Regulation No. 1 of 2014, the ban on the export of raw mineral materials has been imposed. This policy requires the processing of mineral raw material raw materials to be carried out domestically, before being exported in the form of finished materials (metal). This prohibition has caused many companies to stop mining activities because they have not yet built a smelter and refining of nickel ore. The high cost of investment makes the construction of smelter and refining nickel ore not yet developed by Indonesian investors (except PT Aneka Tambang). There are considerations of business opportunities to make Indonesian businessmen reluctant to build nickel processing industries, including large investment costs, making capital owners from Indonesia prefer to invest in other sectors that are faster to provide benefits, such as property businesses and other industries. Today many investors from China are investing in the nickel processing industry, since the Indonesian government banned the export of ore as raw material starting in 2014.

Management of nickel mines in accordance with Indonesian government regulations refers to the points of management of mineral and coal mines carried out through: 1) General investigations, namely geological or geophysical investigations on land, water, and air, with the intention of making general geological maps or establishing signs of discovery Minerals; 2) Exploration, namely mining geological investigation to determine more accurately the existence of an excavation material and the nature of the excavated material; 3) Exploitation, mining business to produce minerals and their benefits for human life; 4) Processing and refining, to enhance the quality of minerals and efforts to utilize and obtain elements found in nickel-containing minerals; 5) Transportation, namely the transfer of processing results or the results of purification from the exploration area or refining place; 6) Sales, namely the sale of excavated materials from the processing or refining of minerals to the market (national or export markets). The following is a comparison of the contents of the nickel mine management policy before and after the reform:

Component	Before the Reform	Reform Era
Legal basis	Law No.11 of 1967 concerning Basic Provisions for Mining	Law No. 4 of 2009 concerning Mineral and Coal Mining
Principles and objectives	Not explicitly mentioned. All minerals contained in the Indonesian mining jurisdiction which are natural deposits as the gift of God Almighty are the National wealth of the Indonesian Nation and are therefore controlled and used by the State for the greatest possible welfare of the people.	Principle: a) benefits, fairness and balance; b) partiality to the interests of the nation; c) participatory, transparency, and accountability; d) sustainable and environmentally sound. Aim: a) guarantee the effectiveness of the implementation and control of mining business activities in a efficient, effective and competitive manner;b) guarantee the benefits of sustainable and environmentally sound mining;c) guarantee the availability of minerals as raw material for domestic needs;d) support and develop national capabilities to be better able to compete at national, regional and international levels;e) increasing the income of local, regional and state people, and creating employment opportunities for the greatest welfare of the people;f) guarantee legal certainty in the conduct of mining business activities
Mastery / Authority for management	Government; controlled by the state, organized by the government (Minister) and / or Provincial government and supervised by	1) Government and legislative members in setting policies 2) Minister if the Mining Business Permit area is located in the province 3) Governor if the Mining Business Permit area is in the Regency / City



and supervision	the Minister / Ministry	Region
Land Use Distribution of Mining Areas	Restrictions on land that can be cultivated are carried out, not mined at the location of public facilities	4) Regents / Mayors if the Mining Business Permit Area is in one District / City area Land restrictions that can be cultivated and before entering the stage of production operations, must settle land rights with holders of land rights; There are regional developments: namely Mining Business, People's Mining and State Reserve Areas
Rights and Obligations of Nickel Mining Processors	Meet financial obligations in accordance with applicable rules; minimal liability in environmental aspects	1) Finance: paying for state and regional income: Taxes, Non-Tax State Revenues, and contributions; 2) Environment: a) Good mining practices; b) planned reclamation, post-mining and conservation, along with funds provided; 3) Holders of Business Licenses Trading in production operations is obliged to process and refine domestic mining products for Value Added; 4) Prioritizing the use of local labor; 5) The production operation phase, must involve local entrepreneurs; 6) Develop community development and empowerment programs; 7) Use local and / or national mining services companies such as consultation and planning
Sanctions	1) Criminal provisions are less burdensome (imprisonment for a maximum of six years and / or a fine of a maximum of five hundred thousand rupiahs; 2) There are no criminal sanctions for issuing permits	1) Administrative Sanctions that are strong enough for Mining Business Permit holders to commit violations in the form of: written warnings, temporary suspension of part or all of exploration or production operations and / or revocation of Mining Business licenses 2) maximum jail time of 10 years and a maximum fine of 10 billion rupiah;

Source: Summarized from the Mining Law before reform Law Number 37 Year 1960 and after reform, Law Number 4 Year 2009.

**b) Nickel Mining Policy Model In Reform Era**

Nickel mining as a strategic commodity, every processing must provide the maximum benefit for the welfare of the people of Indonesia. The constitution mandates that natural wealth must be controlled by the State and used for the greatest benefit of the people. The management of nickel mining must provide significant added value to state revenues, to be further used for the welfare of the community. It is a challenge for the continuation of nickel business, so as not only to consider the value of short-term benefits but also the role in the contribution of long-term development. Dye (2010) and Henry (2007) state that such a model is called comprehensive rational, where the nickel mine management policy, in addition to considering its economic aspects, benefits the region and its community, also considers the sustainability aspects and environmental sustainability aspects. The process begins with identifying potentials and objectives, analysing all opportunities to choose information and comparing each available information, choosing the best alternative, maximizing values and objectives and making feedback after evaluation and implementation. This is in line with Mercier (2008: 149) that rational decision models are carried out through stages of identifying values and objectives, analysing all alternatives, researching and selecting information based on the efficiency and effectiveness of various alternatives, calculating consequences and choosing the best alternative.

The policy revision is carried out after evaluating the suitability of the existing rules with the current conditions. The policy evaluation approach as a reference in formulating new policies or giving birth to a new law, is a feature of the policy cycle model, Dunn (1990) explains that one of the characteristics of the cycle model in policy implementation. The process of implementing a nickel mine management policy in Indonesia, beginning with the formulation and determination of policies, outreach, implementation, monitoring and evaluation as well as evaluating the impact

of policies as references in the formulation of new policies is an illustration of the implementation of the policy cycle model, as well as nickel mine management policies. The cycle model asserts that every policy that has been made established and implemented needs to be followed up with the evaluation of impacts and policy services. When the policy is irrelevant, its implementation is ineffective and, it cannot overcome the existing problems, the policy revision becomes necessary.

Policy reforms led to the rationalization of the nickel mine management system illustrated through several aspects: First, affirmation of the principles and objectives of mine management. The principles of benefit, justice, balance, alignments with the interests of the nation, participation, transparency, and accountability, are sustainable and environmentally sound as the basis for the management of the nickel mine. The objectives of mine management are expressly explained, namely: a) guaranteeing the effectiveness of the implementation and control of mining business activities in a efficient, effective and competitive manner; b) guarantee the benefits of sustainable and environmentally sound mining; c) guarantee the availability of minerals as raw material for domestic needs; d) support and develop national capabilities to be better able to compete at national, regional and international levels; e) increasing the income of local, regional and state people, and creating employment opportunities for the greatest welfare of the people; f) guarantee legal certainty in the conduct of mining business activities. This approach according to Lindblom (1958) is called the incremental model, because policy is determined based on past experience.

Previous management of nickel mines did not take into account effectiveness, benefit principles, local income competitiveness, job creation and legal certainty. Based on that experience, the new mining policy is directed at

increasing the effectiveness, benefits, legal certainty of competitiveness and increasing income for the community and mining producing regions. In the rules of central and regional financial balancing (Law No. 33 of 2004 concerning the financial balance between the central and regional governments, it is explained that the profit sharing from the mineral mining sector is 80% for producing regions, and 20% is withdrawn from the central government. nickel mines for producing regions to increase people's prosperity in the region.

Second, the mastery, authority and supervision of nickel mine management involves many institutions in the central and regional governments, namely: 1) The Government and the DPR in determining mining policies; 2) Minister if the Mining Business Permit area is located in the province; 3) Governor if the Mining Business License Area is located in the Regency / City Region; 4) Regents / Mayors if Mining Business Permit Areas are in one District / City area which previously only involved the central government and the provincial government. From this perspective, the implementation of policies involves many relevant institutions as interested parties, Dye (2010) states that the institutional model is seen as an activity of government agencies in providing legality, recognition, formalization, applies to all interested parties, the government as the owner of the rights has the right to do coercion if the determined policy is not obeyed. Every government institution has the authority, role and function in implementing policies both as policy makers, implementers and supervisors as in the management of nickel mines. The clear distribution of authority in the implementation of mining policies between the central and regional governments, and the involvement of the parliament (parliament) in the implementation of policies and the broader opportunities of the private sector including foreign investment in managing nickel mines in Indonesia is a manifestation of progressive policy reform in the management of nickel mining, which previously only involved elements of the government and State-Owned Enterprises.

Third, land use and distribution of mining areas are determined by land restrictions that can be cultivated. Before entering the production operation phase, the employer is obliged to complete land administration matters with the holder of land rights to ensure legal certainty and avoid conflicts over land in management and plan activities systematically so that the management of the mine runs on an ongoing basis. Planning is carried out according to the perspective of the interests of all parties, the company, the government and the community and around the nickel mining area. A collaborative approach to policy formulation is one approach taken in mining management. Stiftel (2000: 04) states that good planning is a driving force for implementing good policies. Ferreira et al. (2009: 35) describes collaborative process-oriented policy planning that involves a number of actors over a long period of time which will facilitate the implementation of each policy. Van Baalen (2006: 198) calls it a collaborative approach that guarantees that every activity runs well and reduces resistance or resistance from interested parties.

To differentiate mining areas, mining development areas are defined as mining, community mining and state reserve areas. Previously there were restrictions on land that could be cultivated, and not mined at the location of public facilities. Determination of policies that take into account the possibility of resistance, conflict and legal certainty are part of the rational model. Rationalism according to Henry (2007; 290) tries to study all value preferences in society, find information, formulate alternative policies, calculate alternative consequences and consider aspects that affect alternatives, and the most efficient policies in terms of costs and benefits of social values become the right choice. Other rational considerations in nickel mining policies are: 1) The abolition of the work contract system, which was in effect before, was considered detrimental to resource-producing countries because it was only carried out once during the nickel mine management process. The current system makes the government the party that gives permission to the nickel mining industry businessmen, every investor who wants to manage the mine which is considered more profitable for the country economically; 2) Current policies regulate and pay attention to environmental preservation issues due to exploration activities. There is an obligation for the company to implement the concept of good mining practices, implement a post-mining reclamation and conservation program in accordance with what is planned to be accompanied by funding that supports the program until the former mining environment recovers as before. Such arrangement according to Dunn (2008) is a decision that is supported by information and the fact that so far, mine management that does not pay attention to the environment and ecosystems, makes the environment damaged and the ecosystem disrupted. The true factor is the existence of a damaged environment due to mining exploration activities (cases in Kolaka District and Bombana District in Southeast Sulawesi). Because the previous policy paid little attention to environmental aspects, the latest regulations began to strictly regulate environmental preservation and became the obligation of nickel mining companies to: a) realize good mine governance; b) carry out reclamation, post-mining and conservation according to the planned plan accompanied by budget support provided; c) Develop a community development and empowerment program in the nickel mining operation area, as a form of corporate social responsibility.

Fourth, there is legal certainty in the form of sanctions for business actors who violate the law. The obligation of the nickel mining company had previously only fulfilled its financial obligations according to the rules and had little obligation to address environmental aspects. This is different from the reform era. At present, the obligations of nickel mining companies have a number of obligations, namely: 1) financial obligations, namely paying state and regional revenues according to company tax, non-tax state revenues from the mining industry in the form of royalties, corporate social obligations and statutory-regulated contributions shrimp; 2) obligations in the environmental field, namely; a) the obligation to conduct an environmental impact analysis before the company is established; b) resolve the legal status of land entered in the mining location; c) realize good mining practices; d) conduct post-mining reclamation and conservation; 3) Holders of mining business licenses must

carry out production operations through processing and refining domestic mining products to provide added value to nickel mining products; 4) Prioritizing the use of local labour in management and mining production operations as a form of commitment by the government and mining processing companies to absorb local labour in order to overcome unemployment, avoid social jealousy and encourage increased income for communities around the mine; 5) The production operation phase, is obliged to include local entrepreneurs in order to realize justice in mine management, not monopolized by foreign companies; 6) Arrange development programs and empowerment of communities around the mine area as part of corporate social responsibility; 7) Use local and / or national service companies in the process of consulting and planning business establishment (analysis of environmental impacts) to ensure business certainty in a sustainable manner from the technical, economic, social, cultural and environmental aspects of the ecosystem.

Through reform, the Indonesian government established national priorities in national mining policies such as, encouraging increased value added, divestment, auction processes in mining operations, and determination of area and duration of exploitation. Community rights have been protected from the obligation to develop the community and protect the environment around the mine, to accommodate regional interests, by giving authority to local governments and professional associations involved in planning functions, determining business feasibility, monitoring mining activities. The regulation regarding sanctions is part of an effort to build legal certainty in the management of nickel mines in Indonesia. Giving administrative sanctions that are strong enough to the holder of the mining business permit if they commit a violation Procedure for sanctions starting from written warnings, temporary suspension of part or all of exploration or production operations and / or revocation of Mining Business licenses. While imprisonment sanctions for a maximum of 10 years and a maximum fine of 10 billion rupiah stipulated in Law No.4 / 2009 concerning Mineral and Coal Mining. Such arrangements, according to the Ministry of Mines, are intended to create legal certainty and prudence in the management of nickel mining, which was previously not enforced by the government.

Changes to the nickel mine management policy were triggered partly because: 1) public pressure that the nickel mine management regulations be evaluated and revised. This is related to the disclosure of business information that gives enlightenment to the community, makes the public understand about the economic value of nickel mining and raises awareness to oversee every action and step of the government in formulating a nickel mining policy; 2) the government's commitment to maximizing the added value of each management of natural products, including nickel mines, to boost state revenues; 3) The government's political promise to create new jobs if elected, where mining is one of the promising sectors for the creation of new jobs, through the establishment of factory smelters.

The rationalization of the nickel mining sector policy in Indonesia can still be developed through a number of aspects according to Juwana (2015), namely: 1) Regulations

concerning the obligation to supply domestic needs; 2) Clear arrangements regarding divestment; 3) Clarity of the percentage of the amount of state revenues from taxes and non-taxes; 4) The authority to grant mining business licenses is given to regional governments, but has not been accompanied by a clear national policy reference frame; 5) Implementation of pre-existing mining contracts; 6) Various provisions that are very general in nature, rights and protection for citizens who are victims of the impact of mining activities. According to Cloete et al. (2006: 29) the public policy process as illustrated in the management of nickel mines is subject to legally formed bodies such as government departments, ideologies and certain systems that develop in society. Hyman et al. (2001: 90) asserted that normative trust in society is the basis of public policy. 7) Clarity of management of nickel mines in protected forest areas and customary forests due to the conversion of forests after a permit from the government; 8) Harmonization of regulations in the mining sector and the environment, and the authority of regional governments in managing natural resources in their regions are still overlapping so that it needs rationalization. The process of making public policy rationally and systematically, taking into account every related element according to Hill & Hupe (2002) helps to describe the implementation of policies by formulating a framework, building assumptions, to diagnose problems, formulate solutions, explain the process, resource requirements and predict outcomes so policies run effectively and can have a positive impact sustainably on all interested parties.

## 5. Conclusion

The reform of the nickel mine management policy in Indonesia is directed at efforts to encourage the increase in added value of nickel production, competitiveness, creating legal certainty, realizing the principles of benefits, justice, and balance, national interests, participation, transparency, and accountability, sustainable and environmentally sound for increasing the income of local communities, regions, and countries, and creating jobs for the greatest welfare of the people.

The model of nickel mine management policy after reformation in Indonesia is explained as follows: 1) Determination of policies that pay attention to the principles and objectives of nickel mine management that are increasingly clear, refer to all aspects, consider profit and loss, based on data on the carrying capacity of nickel mining business with attention to potential available, basing itself on fulfilling the interests of the State, the region and the community and involving all interested parties in the process of implementing a nickel mine management policy is characteristic of a comprehensive rational model so that policy analysis with a rational approach is increasingly interesting to do; 2) The process of policy formulation, implementation and evaluation of nickel mine management policies in a sustainable manner and the completion of existing regulations with the current conditions in formulating a new nickel mine management policy are characteristic of the policy cycle model. 3) Changes in the management policy of the nickel mine towards improvements in the form of increasing the added value of



nickel industry products, and increasing competitiveness in the international market, ensuring the effective implementation and control of mining business activities in an efficient, effective manner, increasing the benefits of nickel mining and encouraging increased income for local communities regions, and the State, increasing the absorption of labour for citizens is a picture of the incremental model in the implementation of policies; 4) Increasingly the role of all institutions that have the authority and interests in the management of nickel mines as regulators (legislative and executive) in the central and regional governments, as well as private institutions that are increasingly empowered in increasing production value added, including the Corruption Eradication Commission which oversees activities nickel mine management transactions, the involvement of non-governmental organizations, and community elements living around the mining business working area who have advocated for nickel mine management policies, are important to analyze the nickel mining management policy in the reform era in Indonesia through an institutional approach.

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