



## Waste management Coordination System in Integrated area of Mebidangro, Indonesia: Perspective of decentralization

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### ABSTRACT

The research aims at analyzing current waste management (MW) and coordination system, local regulation and potentials of third parties to participate on WM system. The research found the system and coordination of MW doesn't properly work. Local regulations on WM has just enacted by one of municipal governments. The research identified innovative project so called "bank sampah" where public involved within. Political will perceived as main factor to accelerate comprehensive WM system. The recommendations of research are to synchronize local regulations on WM, the need to re-formulate the system of coordination and magnifying the participation of third parties on WM.

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### Introduction

The area of Mebidangro is one of 67 national strategic areas all over the country where it is focussed as an economic development site in the western part of Indonesia. The economic, social and population growth in the urban area of Mebidangro has been rapidly growing within last three decades that brings about changing of consumption pattern within the society particularly in the urban area and subsequently increases the volume, types, and various characteristics of waste (Article 1 Law 18 of 2008).

Waste Management (WM) issue is one of problems that most of cities all over the world experience. If the problem is not part of urban regional plans there must be new problems at least the pile of uncontrolable domestic and non domestic waste, air pollution, water pollution, soil pollution and environmental destruction. Therefore, It is a must the local government at district and municipal level within the Mebidangro concern on the waste problem.

In handling WM in the Mebidangro the central government has enacted Presidential Regulation No. 62 of 2011 concerning spatial planning of urban are of Mebidangro that is also linked to the existing law on WM as mentioned above. The regulation stipulates one of strategies to enhance the quality and access of integrated service on transportation, energy, telecommunication, water resources as well as urban infrastructures is by enhancing the quality and access of integrated service on clean water, wastewater, drainage and waste.

WM in the area of Mebidangro needs the integration of plans, program, projects and even actions among four district or municipal governments within the area. It is certainly not a simple and easy case to manage since each local government has their own authorities and sovereignty. To avoiding contradiction among the integration of plans, program and local sovereignty, it is needed an integrated actions or even integrated institution on WM in the area. The integrated actions or institutions can only be achieving in case each local government particularly those of municipal or district level is

available to cooperative and to be coordinated. Apart from, another important part is the involvement of government at the higher hierarchical level out of Mebidangro area as coordinator. According to Presidential Regulation No. 62 of 2011, the provincial government of North Sumatra is appointed to be coordinator of municipal or district governments within Mebidangro area to achieving the ideal purpose of establishing the area including on integrated WM management.

Beside the involvement of local government, WM also needs the participation or the engagement of public in each region since the local autonomy given to the municipal or district government is not merely on governance sectors yet to get involved public participation and roles as part of community development program.

This paper wants to discuss coordination on WM in the urban and integrated area of Mebidangro. There area interesting things to discuss this topic in the era od decentralization in Indonesia. Firstly, the involvement of three levels of governmental hierarchy those are central, provincial, district or municipal is susceptible to occur sort of conflict of interest or sectoral ego. Secondly, it is needed more certain and detail local regulations at each level of local government on WM. Thirdly, the involvelment of public or community participation on waste management service is possible to generate new innovation of WM in accordance to local indigenous or local potentials.

### Research Method

The research uses qualitative method where in-depth interviews, observations and literature study are main techniques of collecting data. The informants of the research consist of public officials in the Mebidangro area, residents, medias and non governmental organization. The questions during the interview are related more about the current waste management sysyem in the region, national and local regulation on waste management, process and problems of coordination and public participation on waste management system.

The observation is conducted at some intermediate collection points (TPS) of waste in the region. The triangulation method to confirm the gained data is also applied in this research.

## Results and Discussion

### A. Waste Management: Local Autonomy Vs National Interest

After the regulation of Law No. 22 of 1999 on Local Governance, Indonesia applies decentralization system where local government has bigger authorities to govern and manage their region in accordance to their own initiatives. Maddick (1963) defines decentralization as delegating power by means of law to handle certain functions and divisions from central government to local government. While, Rondinelli and Cheema (1983, pp.18) propose wider definition that "decentralization is the transfer of planning, decision making, or administrative authority from central government to its field organizations, local administrative units, semi-autonomous and *parastatal* organization, local government or non-governmental organization." Through both definitions, decentralization closely relates to the relation of central government with local government or subnational where central government delegates authorities those are related to certain sectors to the local government as a autonomous region. As an autonomous region, local government can manage their own governance affairs with their own initiatives in accordance to local needs and potentials.

According to the World Bank there are four countries of their partners on decentralization project implemented so called "big bang decentralization" which are Indonesia, Philippines, Pakistan and Ethiopia. Wasistiono (2007, pp.33) furthermore argues Indonesia in particular doesn't only implement big bang decentralization but also carry on decentralization revolution that is mainly indicated by transferring responsibilities and authorities of public functions of central government to local government.

However the Law No 22 of 1999 is revised through Law No. 32/2004 and finally revised again through Law No. 23/2014. The main point of these revisions is the fact the central government perceives the authorities delegated to local government are so huge (big bang decentralization) while the local government has shortages on financing the authorities and limited human resources to carry out the authorities. Because of these reasons, the Government Regulation Number 38/2007 on Governance Affair Distribution among Central, Provincial and District Government -as the operating regulation of Law No. 32/2004 and Law No. 23/2014- stipulates the congruent governmental affairs owned by local government whether on obligatory affairs or preferred affairs are carried out by district or municipal government along with central and provincial government including of waste management sector.

**Table 1. Division of Regulation Authorities among Central, Provincial, District or Municipal Government on Waste Sector.**

Central Government	Provincial Government	Distic/Municipal Government
Regulating policy and national strategy of waste management development	Regulating local regulation on waste management development policy in the cross-cutting geographic areas of district/municipal in line with national policy.	Regulating local regulation on waste management development policy in district/municipal area in line with national and provincial policy.

Source: Government Regulation Number 38 of 2007

The division of governmental affairs among central, provincial and district or municipal government does not spontaneously bring about effectivity on waste management particularly on affairs relating to several local governments or in the integrated area such as Mebidangro. The needs and the interest of North Sumatra Province and those of four districts or municipalities are obviously distinct each other. The distinction are caused by the differences of program and development priorities of each local government.

The Presidential Regulation No 62 of Year 2011 Regarding the spatial and development plan of urban area of Mebidangro is certainly central government regulation. The presidential regulation should be followed by other operational regulation in the governmental level of province, district or municipality. Although the article 137 of the presidential regulation stipulates the need of local regulation to issue, it is a fact the operational regulation is not available in almost five years after the enactment of the presidential regulation. The unavailability of such local regulation also bring about the lateness of handling waste problems and issues in the region. The regulation eventually comes in May 2016 notably by the issuing the Governor Regulation No 6 of 2016 on Establishing of the Operating Body of Mebidangro. In the level of district or municipal government in the area, the only local government having issuing local regulation of waste management is the municipal of Medan notably by the enactment of Local Regulation No 6 of 2015.

Referring to the above mentioned explanation, the municipal of Medan is the local government that is initially very concern on waste management by formulating and issuing local regulation. The complexity of waste problems and issues within the city are perceived as the main reason of enacting the regulation. The municipal of Binjai along with the district government of Karo and Deli Serdang do not formulate and issue local regulation on waste management. The main reason behind the unavailability of local regulation within these local government is the fact they perceive waste problem or issues are not local priorities to handle and carry out for the time being for instance the volume of waste generated within their region is not that much and the existing of intermediate collection points and central dump site of waste still able to accomodate piles of waste in their region and can be function up to some years to come.

It is explained the provincial government of North Sumatra as coordinator on handling waste management within the Mebidangro area is very late to formulate local regulation on establishing the institution or operating body of Mebidangro that will be focussing their works on urban and regional issues including of waste. The regulation is regarded pivotal since it will be the considerant or legal consideration to select or elect the organizational structure and line-up of the operating body of Mebidangro as clearly stipulated through the article 137 of Presidential Regulation No. 62 of 2011. Though the governor regulation has not placed the waste management as its focus yet it must be regard as milestone to formulate more applicable and specific regulation on governance sectors to be handled in the area including of waste problems and issues.

In the decentralized area of waste management in urban area of Mebidangro, both national, provincial and municipal or district government have authorities on the sector. The three level of governmental hierachy should be work along to accomodate bigger interests which is the national interest such as the existence of the center of economic services in the

western part of Indonesia notably by emerging the concept of IMT-GT (Indonesia, Malaysia, Thailand-Growth Triangle). It is also relevant to the four districts or municipalities within the area of Mebidangro where the cooperation between and among them should emerge. Each district or municipal government should be flexible to just not thinking about short-term priority but also about long-term priority such as the establishment of integrated central dumpsite or regional landfill that has been discussing since couple years ago. The municipal of Medan is the area having interest the most to establish regional landfill since the volume of waste in the city is almost over capacity to be collected in its central dumpsites or landfills while to built new central dumpsites or landfills seems to impossible since there are not representative fields. As a region lies on Mebidangro area, to build new landfills should not be a problem because there is a chance to place new landfills in neighbouring districts such as in Deli Serdang or Karo. North Sumatra province as a coordinator of Mebidangro area should ask the related districts or municipalities to sit together and come up with solutions to this case. It is however, the discussion and negotiation of building integrated landfills still go deadlock.

Decentralization makes local governments having much bigger authorities to independently govern their area in accordance to local aspirations and potentials. However in the case of Indonesia as a unitary state the bigger authorities of local government are still limited by the central government through the evaluation and oversight in order to maintain the sovereignty of the county as a unitary state. It means the devolution of autonomous authority to local governments must be sensibly applied and regarding to whole national interests.

### **B. Waste Management System in Mebidangro: The urgency of coordination in the era of decentralization.**

Piles of solid waste has been main problem in the urban areas all over Indonesia particularly in the area so called economic and national strategic area such as the integrated area of Mebidangro. The waste are mainly generated by traditional markets, construction projects, industrial activities, domesticts, government and non governmental offices within the region. Waste management is the most prominent environmental issue in Indonesia. In the year of 2007, for instance, urban areas of Indonesia generate about 55,000 tons of solid waste every day and only about 50 to 60 percent of the waste is collected, and landfill sites are mostly open dumps (MacMilan, 2007 pp.1). When compared to other ASEAN countries, the level of solid waste services in Indonesia provided by the municipalities is rather low. (IndII, 2011 pp.5).

The Bureu of National Statistict of Indonesia in 2016 noted the biggest volume of waste in Mebidangro generated by the municipal of Medan (1,500 tons per day) and the lowest one is generated by the district of Karo (76 tons per day). Those number is only based on the number of transferred waste from intermediate collection points (TPS) to central dumpsite/landfills (TPA) exluding those of volumes burnt by residents, sold to agents, recycled by residents or even thrown out to some rivers around the area.

There are some definitions of system proposed by scholars in the field of social and natural sciences. Most of definitions link to the interrelations or relationship of elements in achieving goal(s). Laszlo (1998: pp.2) argues "in its broadest conception, a 'system' may be described as a complex of interacting components together with the relationships among them that permit the identification of a boundary-maintaining

entity or process." In a system "there can be smaller systems (sub-systems) within other or larger systems"[...] such as the activities inside a house would be seen as taking place within a system (the family group involved in that household), which in turn exists within the larger system of the village itself (Tamas, 2000). " In the context of waste management system, there can be sub-systems that possible having effects on system as a whole such as sub-system of: technique, institution, financial, laws and public involvements (Dyayadi, 2008, pp.208). The sub-systems themselves are possibly influenced by process, actions, works and goals of the system. In the context of waste management system in Mebidangro the sub-system of technique relates on grand design of waste management in the integrated area and also the design of all construction works of waste management infrastructure in the area. The sub system of institution is related much on the establishing operating body of Mebidangro and work mechanism among governmental and nongovernmental parties. The sub-system of financial could relate on budgets support from every level of governments while the sub-system of law relates on the availability of complete regulation to run programs and actions on waste management. The sub system of public involvements relates on participation of public including business on the waste management program. The illustration of waste management sub-systems is more-less described by picture below.



**Picture 1. Sub-System of Waste Management in Mebidangro.**

The five sub-system of WM in the urban area of Mebidangro doesn't work properly yet. One of casuality factors is the weakness and the lack of coordination that leads by provincial government as well as the lack of communication among district or municipalities within the Mebidangro area. According to Kral (2007) coordination means into four main definitions which are "the act of coordinating, making different people or things work together for a goal or effect; the regulation of diverse elements into an integrated and harmonious operation; integrating or linking together different parts of an organization to accomplish a collective set of tasks; and integrating or linking together different resources to accomplish a collective set of tasks." Verhoest on other hand (Christensen, 2015), classifies coordination into an external-internal and a vertical-horizontal dimension. In line with the opinion of Verhoest, Hasibuan (2011) dan Magan, Edigin

(Esifo 2012 pp.1) vertical organizational structure is marked by hierarchy, because of the power context or pattern that flows from top to bottom; while there is horizontal organizational structure when there are more preferences for specialization and participation (Osifo: 2012 pp 9). Whereas horizontal coordination is furthermore divided into the interdisciplinary and interrelated coordination. Interdisciplinary coordination relates on the activities aimed at integrating and unifying actions, achieving discipline among different units of organization. Interrelated coordination relates much on activities aimed at different functions of unit within organization in the same level.

As early mentioned, one of casualties the five sub-system doesn't work properly in the context of waste management is the weakness of coordination between and among districts and municipalities within the Mebidangro area. In the age of decentralization every local government including those of in Mebidangro area has prioritized in undertaking governance affairs in accordance to local needs and financial capabilities. The needs and financial capabilities would bring impacts on the five sub-system of WM in each local area. It is said for instance the establishing of regional landfill as recommended by the Presidential Regulation No. 62 of 2011 is not responded by the municipal of Binjai, the district of Deli Serdang and Karo with simple excuse the volume of waste in their own region is still manageable. The municipal of Medan, on one hand, welcomes and receives positively the idea of establishing regional and integrated landfill within the Mebidangro geographic site since the existing landfill in the region is almost overload, the capital city of the North Sumatra province lies also on their geographical area and the unavailability of representative fields to build or establish new landfills.

Referring to the plan of establishing regional and integrated landfills in the area of Mebidangro the five sub-system explained above must work properly in the municipal area of Medan. Sub-system of law or regulation must reserve law base notably by issuing local regulations related on WM. Apart of the regulation, the municipality must also connect WM with local budget availability. The performance of waste retribution must be magnified and enlarged particularly by intensifying and diversifying retribution fee from household sector. It is certainly different to other three districts or municipality within the Mebidangro area as they perceive waste management is not one of local priorities of the time being. However, though the municipal of Medan as part of bigger system of WM in the area of Mebidangro does agree to establish regional and integrated landfills while the three others do not agree with the program the intention of establishing those regional and integrated landfill will not be achieved. It case furthermore shows the horizontal coordination that has been applied before does not bring a fruitful result yet.

It is almost the same to vertical coordination undergone by the provincial government of North Sumatra Province with four district or municipal governments in the region seems to be unsucceeded in accordance to the desired hopes on WM. Regular meeting on WM involving four district or municipal governments has not been an agenda of the province. Provincial government doesn't have formula to regularly monitor and evaluate activities on WM conducted by each district government within the area. In addition, the provincial government doesn't give directions to district governments on WM and doesn't urge them to do programs and actions to accelerate the integrated WM system in the region. These

cases make the district or municipal government as sub-system of integrated waste management in the area does not work as well.

It is then summarized both type coordination on WM do not work properly and do not meet with the ideal purpose of WM as clearly stipulated in the articles of the President Degree. There are several conditions making the coordination does work properly for instance or particularly by the unavailability of local regulations to be implemented in accordance to the central government regulation and the unavailability of local budget allocated on WM sectors. Moreover, the central and provincial government has lack of motivation and initiatives to formulate coordination system and regular meeting among the districts within the Mebidangro area.

In the age of decentralization, coordination in the environment and circumstance of local autonomy is obviously a must. Through the coordination system, the program or local governance affairs could be integrated and so those programs become mutual program in order to achieve bigger purpose which is national interest. Conducting coordination in the era of decentralization is not an easy and simple affair since local government particularly district or municipal has their own authorities and sovereignty. Therefore it is needed a leader with strong leadership, decisive, integrity and having foresight vision.

### **C. Local Regulation on WM: The need of Political Will and Interest**

Waste regulation at local level regarded as vital instrument to formulate policies on WM. The availability of such regulation in local governance system will place the WM sector to be adequately brought to local annual plan and budget. It is the same to another service sectors those have been backed-up by particular law or regulation such as those education, healthcare, housing and so forth. The Indonesia Infrastructure Initiative (IndII) noted Indonesia did not have a national waste policy until the year of 2007. A year after, The WM Law No. 18/ 2008 enacted by the Government of Indonesia (IndII, 2011 pp.5). The law covers public service principles, waste reduction and handling of domestic solid waste and specific waste, incentives and disincentives mechanism, local government responsibility, financial system, private and public sector participation and sanctions. However, the waste law is considered weak in terms of accommodating regional waste regulations, and promoting Integrated WM principles (IndII, 2011 pp. 5).

According to Law No.32/2004 and Law No.23/2014, local government indeed consists executive and legislative body. Executive body consist of governor at provincial level and regent or mayor at district level while the legislative body (DPRD) is local parliament from various political parties. The executive body has authorities to govern the region as well as enacting necessary regulation to run the governance. The local legislative body has the authority to establish local regulations, local revenue and expenditures budgets, to conduct investigation, to express opinion and consideration, as well as to facilitate and follow up the aspiration of citizens (Basri, 2014: pp 2, LGSP 2007, pp. iv). Following the transition to democracy in Indonesia, Parliament has also taken on its role in the budget process with great zeal (Blöndal, Jón R. et.al, 2009 pp 30).

According to Ministry of Home Affairs Regulation No 53 Year 2011 regarding on Local Regulation Product Formulation, there are three types of regulation within

province, district or municipal level which are local regulation, head of province/district/municipal level and mutual regulation (Article 4, 5 and 6).

The formulation of local regulation itself is based on (i) order or directions of higher law or regulation (ii) local development plan (iii) implementation of local autonomy or "divided tasks", (iv) local aspiration (Article 9). The head of district orders the top leader of local institution to formulate local legislation program (*Prolegda*) in a year which is based on priority scale of local regulation formulation. The formula of regulation is brought to parliament to get approval.

To formulate local regulation on WM needs political will of head of local government. In the provincial level the political will usually refers to the right of governor and other political decision maker such as legislatures while in the district and municipality level the political will refers to the right of regent or mayor and legislatures. "But in the system of representative democracy, in its ideal form, is built upon the premise, and the promise, that those actors, i.e. the political elites, represent voters' interests and implement their collective will" (Abazoni, 2015 pp 7). Political will towards democratization is defined as "a government's commitment and ability to act in furthering or reversing a democratization process". This definition "brings out two fundamental features of political will *vis.* (i) commitment is determined by preferences for this objective relative to other objectives actors or agents in a government may have. (ii) ability is determined by the constraints actors or agents face in pursuing their preferences (Betancourt, 2008 pp2).

The political will of the head of district or municipality government could be manifested by placing WM as local legislation program, putting more annual budgets on WM and initiating programs of WM. The lack of political will bears the lack initiatives of local government to handle WM in their district. According to informant from government side the lack of political will of head of district on WM is particularly based on the fact the sector is not so popular in term of political views. There are a lot of sectors except the WM which are more potential the head of district to be engaged with and politically valuable. It is a fact that WM is a sustainable program and need longer time to achieve the ideal objectives of WM where the tenure of head of district is only five years. The political will of the head of district or municipality is related much on the political interest of them. Lupia and Philphot in (Blais, et al 2004 pp.3) simply define political interest as "a citizen's willingness to pay attention to political phenomena at the possible expense of other topics." In the context of head of local government's political interest it is assumed the attentions of them on WM issues in their region. The revision of Law No. 22/1999 into the Law No. 32/2004 and the latest revision through Law No.23/2014 changes the mechanism of selecting head of local government from indirect election by local legislatures into direct election by residents or voters. Before the revision of the law, the candidates of the head of local government ensures only the legislative members give their voices to them where in the new law the candidate must win the people voices collecting from one voting station to others voting station. The consequence of this new mechanism makes the candidates have more challenges to win the election, more potentials, much money and more campaign. In the case of Mebidangro and in the context of WM, one informant of this study argues the WM is not popular issue as well as political interest of head of local government. It's caused by the fact the WM system is not a short-term activities

yet a long and sustainable one. In such case, the incumbent of head of local governments looking other more political issue in accordance to the stability of their position on power.

#### **D. Bank Sampah: Simple Innovation of WM**

It is a fact district governments have several limitations to implement proper WM in line with national laws. The main obstacle is the unavailable of adequate budget to cover programs on WM. According to Februati & Dayana (2016), most of districts in the area only allocate less than 10 % of their budget on WM. The budget is even placed mostly on human resources expenses such as monthly stipend for staff, monthly allowances, local transport and so forth.

Local government at district or municipal level has authorities to collect retribution or kind of tax from residents or public offices within their region by transporting waste from households or public offices to intermediate waste collection (TPA). Amount of retribution is different among districts. A household in the elite residents' compound or housing complex costs IDR 15.000 (around USD 1) monthly while a household in non housing complex costs only IDR 10.000.

The amount of money collected from retribution is not much comparing to the budget needed to undertake WM in each district. There must be innovation to at least mitigating piles of waste impacts. Besides implementing the "4R" (reduce, reuse, recycling and recovery) approach on handling waste, establishing "*bank sampah*" (waste bank) such as those of implementing by communities in Medan and Deli Serdang could be an alternative. According to the government of Medan "*Bank Sampah*" is a concept of collecting dry-waste such as papers, cans and plastics derived from households by enriching community participations and increasing the value of the waste. The purpose of establishing the waste bank is one of solutions to reduce waste at grassroots level as part of the whole system of WM.

The establishment of "*Bank Sampah*" is initiated by local government by carrying out series of program to the communities. The first step is to undertake public dissemination or socialization about the concept and the benefits of the project to the community. The second step is to run trainings about how to establish group of "*Bank Sampah*", how is the system works, management of group and mechanism of implementation. The next step is implementation phase where the communities have independently collected and saved the waste at their waste bank. The further step is community companionship and evaluation where volunteers from government stay with community to ensure the program properly runs and doing evaluation. The last step is development where the group of "*Bank Sampah*" could be increased its level to be such microfinance group or other small business.

The dry-waste collected through "*Bank Sampah*" will be furthermore utilized for instance for organic fertilizer. Other services proposed through "*Bank Sampah*" are to pick-up piles of waste door to door and buying piles of waste in residents' households. The microfinance services through the "*Bank sampah*" in Sicanang for example are conventional saving, educational saving, saving for English course, saving for healthcare insurance (BPJS), saving for buying cows during Islamic *Aidil Adha*, saving for other religious day such as Christmas and Islamic *Idul Fitri*. The mechanism or the work chain of "*Bank Sampah*" is described as follows:



Source: Adapted from <http://blh.pemkomedan.go.id/>

### Conclusions

It is resumed the WM system in the area of Mebidangro doesn't work properly in line with central government regulations. The existence of local autonomy as well as local authorities on WM is one obstacles to accelerate an integrated WM system in Mebidangro area and establishing the regional and integrated waste landfills. Likewise the political will and political interest of head of local governments are also the handicaps in the region. The coordination system of WM within the region has not been designed according to the regional needs. The provincial government as a coordinator seems to be unable to formulate framework of WM system in the area.

Another aspect to ensure the WM system work properly is the existence of certain and detail regulation on WM in the provincial, district or municipal level. Up until the present the local governments at district or municipal level having issued regulation on WM is the municipal of Medan only. It is needed other local governments to issue local government regulation on WM and there isn't overlapping rules on WM so all parties have law references in carrying out WM.

Though the proper WM system does not exist, the simple innovation of handling waste on the community level has came up. The establishment of some *bank sampah* in the municipal of Medan and the district of Deli Serdang must be seen as initial step and is regarded as embryo to involve public participation on WM.

### Recommendations

Based on findings of this study there are several recommendations to be taken primarily by local governments in the area. The first one is the need to synchronize central government laws and local regulations on WM in the context of unitary system of state and local autonomy. Secondly is the need of provincial government as the coordinator of the Mebidangro concept of economic development site to reformulate type, method and system of coordination on WM in the area. The third one is the need of provincial government to accelerate the implementation of Governor Regulation No 5/2016 particularly to do selection to chair the managements of Mebidangro Operating Body. The fourth is the need of district or municipal governments except Medan to regulate local regulation on WM. The innovations of WM such those of implemented in Medan and Deli Serdang are recommended to be learnt and applied by other district or municipal in the region so the involving of third parties such as business,

community and public at large to take part on waste management could be magnified.

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