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ARTICLE

Indonesian Civil Service Management in the Health and Disaster Management Sector: Post-COVID-19 Pandemic Prospective

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ABSTRACT
The COVID-19 pandemic as a non-natural disaster has made many countries aware of reform in healthcare systems and services and disaster management, including Indonesia. The high intensity of natural disasters in Indonesia and the presence of non-natural disasters such as the COVID-19 pandemic have become the government's momentum to carry out better mitigation in the future. This study aims to identify and analyse the gap between the existing conditions and the ideal conditions for the needs of the State Civil Apparatus (ASN) in the health and disaster management sector in the future. Using a gap analysis approach with qualitative data collection, this study shows a significant gap between the availability of ASN compared to the number of ASN needed in the health and disaster management sectors in Indonesia. Moreover, to make the health and disaster management sector successful, this study formulates the need for ASNs in strategic positions: Specialist Doctor, General Practitioner, Dentist, Pharmacy and Food Supervisor, and Rescuer. In addition, this study suggests the need for developing ASN competencies in this sector, such as digital services, biotechnology, nanotechnology, integrated flood management, construction of drinking water supply systems and landfills, risk management, and review analysis and mitigation.

A. INTRODUCTION

The health and disaster management sectors are Indonesia's national priority. The high frequency of natural disasters makes this sector need to increase its supporting capacity immediately, including the State Civil Apparatus (ASN). This urgency is also added to non-natural disasters such as the COVID-19 pandemic. The National Search and Rescue Agency (BASARNAS) recorded 2,264 natural and non-natural disasters in 2021.

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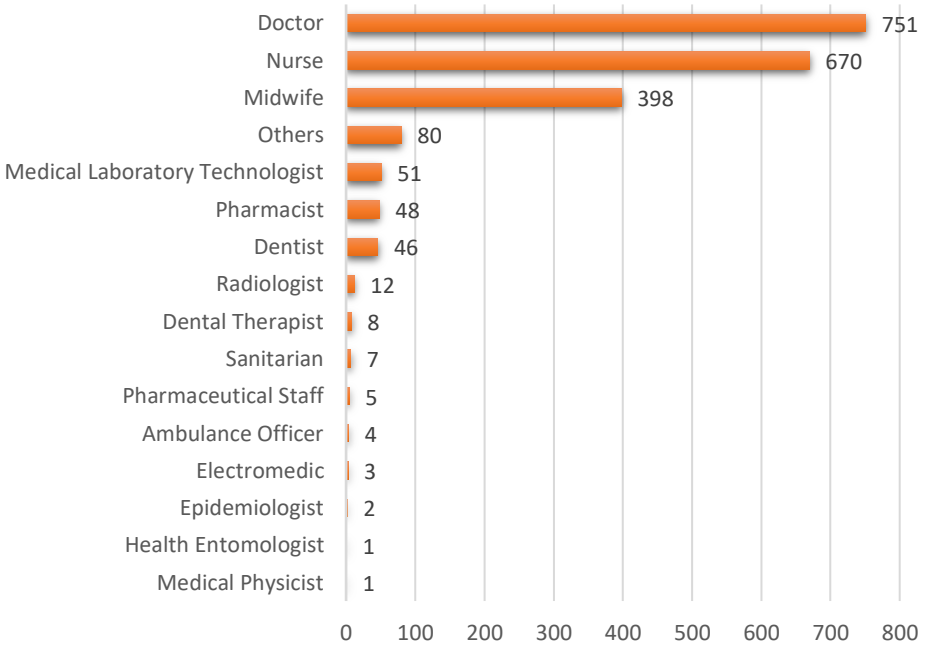
Table 1. Number of Natural and Non-Natural Disasters in Indonesia (2021)

No.	Type	Case	Survive	Passed Away	Missing
1.	Plane Accident	4	127	62	3
2.	Boat Accident	811	4,811	441	401
3.	Natural Disaster	164	38,936	599	87
4.	Emergency	1,243	637	997	153
5.	Specific accident	42	205	63	2
	Total	2,264	44,716	2,162	646

Source: (BASARNAS, 2021).

The beginning of the COVID-19 pandemic in Indonesia shows that prevention aspects, including weak areas with screening tests and tracing and tracking, are still limited, disease surveillance systems are not yet integrated and not real-time, and testing capacity in laboratories is weak. Health facilities, pharmaceutical support, and medical equipment are also poorly prepared, including the lack of personal protective equipment (PPE), isolation rooms and test kits, treatment rooms, ICU rooms, independent isolation rooms, and weak case management. This is exacerbated by the lack of health workers caused by the large number of health workers who have contracted and died from COVID-19. Until October 2022, the number of health workers who died due to COVID-19 infection reached 2,087 people.



Source: (Laporcovid19, 2022)

Figure 1. Number of Deaths of Indonesian Health Workers Infected with COVID-19

The highest number of deaths occurred among doctors, nurses, and midwives. The mortality rate in these three professions is much higher than in other health professions. In addition to the problem of the COVID-19 pandemic, the achievement of health targets in Indonesia has not been optimal. New tuberculosis cases are still ranked as the highest third in the world. On the other hand, there are only 300 districts/cities that have malaria elimination. Complete basic immunisation coverage is only 57.9 per cent. In addition, only 31.9 per cent of public health centres (*Puskesmas*) have nine types of health workers, and there is still 12 per cent of *Puskesmas* without a doctor. Nationally, only 12 per cent of Regional General Hospitals (RSUD) have seven types of specialist doctor expertise (Ali, 2021).

There are 4 (four) strategic issues for the development of the health sector, including (1) reducing stunting rates, maternal and infant mortality; (2) improvement of the management of the national health insurance system; (3) strengthening health services; and (4) management of drugs and medical devices. The Government of Indonesia's 2020-2024 Mid-Term Development Plan focuses on creating an independent, advanced, fair, and prosperous society through accelerating development in various fields supported by quality and competitive human resources (HR). Changing the mindset of the bureaucracy through a spirit of service and dedication (Merta et al., 2022), as well as increasing the competency of ASN, can be one of the keys to improving the quality of public services in the health and disaster management sector.

Institutionally, there are the Ministry of Health, the Food and Drug Supervisory Agency (BPOM), the National Search and Rescue Agency (BASARNAS), the National Disaster Management Agency (BNPB), the Meteorology, Climatology and Geophysics Agency (BMKG), and other supporting agencies, both at the central government and the local government in the implementation of public services in the health and disaster management sector. The Indonesian Civil Apparatus (ASN) reached 4,254,513 employees (BKN, 2022). This number comprises 3,890,579 civil servants (PNS) and 363,934 government employees with work agreements (PPPK). Civil servants in functional positions in the health sector reach 409,727 employees, or around 10.5 per cent of the total number of civil servants nationally. Meanwhile, PPPK in the health sector reaches 9,683 employees or around 2.7 per cent of the total number of national PPPK employees. However, the number of ASNs in disaster management has not been mapped. Compared to the area, population, and frequency of the number of national disasters, obviously, in general, the number of ASNs in this sector is not ideal.

In addition, Indonesia is also facing the problem of equal distribution of ASN specialist expertise, especially outside Java. The number of ASNs in functional positions needed in essential services such as health and education is not evenly distributed. For example, the region of Papua is hugely lacking in skilled civil servants. At the same time, Eastern Java, parts of Sumatra, and Northern and Eastern Kalimantan have the highest educational attainment among their medical staff. There is a vast spatial inequality between provincial and district government civil service organisations, one of which can be seen from the availability of specialised technical workforce, for example, in the medical field (Asian Development Bank, 2021).

In addition, ASNs in functional positions of expertise and skills that currently exist have not optimally supported the management of regional potential (Bappenas, 2018). Factors causing the gap in the distribution of ASN include (1) the lack of attractiveness of local governments to job seekers, which is influenced by the level of development progress and regional economic capacity – local governments with high local revenue have a high number of job applicants because it affects the amount of income – on the contrary for local governments with low local revenue, job applications tend to be low; (2) the ineffectiveness of the sustainability of the distribution program for health workers (such as the *Nusantara Sehat* program); (3) the limitations of local governments in providing facilities for health workers in remote areas (LAN, 2018).

Although several studies have analysed the needs of ASNs in Indonesia, no study has analysed the needs of ASNs in the health sector and disaster management in Indonesia. This study tries to fill this gap by answering the following questions: (1) How is the existing condition of ASN management in the health and disaster management sector? (2) What are the ideal conditions for managing ASN in the health and disaster management sector in the future after the COVID-19 pandemic?

The existing conditions in this study refer to the number of ASNs that exist and the development that has been carried out. Meanwhile, the ideal condition is the expected number of ASNs and development to fulfil the strategic agenda of the needs of the health sector and disaster management in Indonesia. Identifying the existing conditions with the ideal conditions needed by this sector is expected to be an essential input for the development of ASN in Indonesia.

B. LITERATURE REVIEW

This study focuses on analysing the gap between the supply and demand for ASNs in functional positions of expertise and skills in Indonesia's health and disaster management sectors. The scope of the analysis is restricted to the central government's role as the national policymaker in this area. After conducting literature research, it is found that several studies have a similar scope but do not have the same focus as this study. A gap analysis is the comparison of actual value with expected value (Lee, 2013). The gap analysis approach can be understood as an attempt to compare the current situation or performance with the ideal state or performance expected by the organisation (Channon & Bonnici, 2015; Hidayat et al., 2022). The organisation seeks to modify its current situation through gap analysis to reach a desired situation. Gap analysis consists of four steps: (1) identifying an organisation's critical needs of the present situation, (2) determining the ideal future or desired situation of the organisation, (3) highlighting the gaps that exist and need to be filled, and (4) modifying and implementing organisational plans to fill the gaps (Kim & Ji, 2018). In the gap, the identification of an action plan is created for implementation. Thus, it decreases the gap and improves efficiency (Subzwari & Ahmad, 2019).

The study of civil servant management carried out in the State Civil Apparatus redistribution study (LAN, 2018) departs from the background of the problem of a gap in the distribution of ASN in Indonesia. This study identifies the issues that cause gaps in the distribution of ASN and presents strategies that can be taken to reduce problems in the distribution of ASN in Indonesia. The issue of disparities in human resource distribution also occurs in other countries, in which countries with limited resources, conflict, and challenging geographical distances are vulnerable to experiencing problems with human resource supply in specific fields such as the health sector (Ferrinho et al., 2011; Pallikadavath et al., 2013; Roome et al., 2014; Teklehaimanot & Teklehaimanot, 2013). The magnitude of the challenges faced by health workers requires the strengthening of health governance and human resources so that they can make changes to the health system (Kaplan et al., 2013). The next is the Study of Functional Position Mapping for Development Acceleration (LAN, 2019). This study was conducted based on the need for functional positions of expertise and skills in sectors that can support the acceleration of development in Indonesia. This study then maps the needs for functional positions of knowledge and skills in 3 (three) leading sectors seen by the Indonesian government as accelerating development, especially encouraging national economic growth, namely the manufacturing, tourism, and creative economy sectors.

Quality health services must be supported by civil servants in the health sector, who are professional human resources. Civil servant recruitment must be carried out through planning that is in accordance with the organization's needs in order to have civil servants who meet health service competency standards The aim is to identify the gap between the current condition of employees and appropriate employee needs. Human resource planning can be said to be human resources management because the planning function is the key to ensuring the success of an organisation and as a reference in estimating human resource needs in both the long and short term (Irwan, 2016; Nahidah, 2016). In addition, the importance of human resource planning in the health sector and disaster management, including training and

development of human resources, increasing institutional capacity, HR information systems, motivation and retention strategies, is so that organisations have a clear picture of the future and can anticipate shortages in the quality of the workforce needed (Abuosi & Abor, 2015; Kumar et al., 2014).

This is also part of the significance of human capital development (Schultz, 1961, 1979; Todaro, 2000) and human resource development (Alika & Aibieyi, 2014; Atiku & Fields, 2017; Lawal et al., 2020; Muhi, 2010; Setiabudi & Anggraini, 2021) for the effectiveness and productivity of development in Indonesia. Human resource development is part of operationalising human resource management strategies (Kusuma et al., 2023). A concept concerning all activities regarding employing and managing people in organisations is considered human resource management. Hence, human resource management (HRM) is essential in keeping the public organisation on track (Ali, 2019). Human resource development policies in an organisation are important to maintain and improve employee competence to achieve organisational effectiveness and support organisational strategies in the health and disaster management sectors (Martineau et al., 2015; Rocha et al., 2014). In countries with limited resources, conflict, and challenging geographical gaps, health worker education and training programs are essential and effective interventions for overcoming limitations and post-disaster recovery (O'Hanlon & Budosan, 2011). The existence of human resources with skills that suit needs, both in terms of quality and quantity, has been proven to have an essential role in determining the speed of handling post-disaster conditions (Sun et al., 2021).

Civil servants are central to effective governance because they deliver essential services to citizens, including in the health and disaster management sector. The management system and performance of ASN strongly influence the quality of governance. The provision of a healthy, safe working environment, a proportional balance of working time (non-financial incentives) for employees in the health sector - as well as an indication that the organisation pays attention to and cares about their welfare - has been proven to increase motivation and higher commitment to the organisation (Misfeldt et al., 2014; Sadatsafavi et al., 2015). In Indonesia, the implementation of Law Number 5 of 2014 State Civil Apparatus (UU ASN) has provided a solid foundation for transforming the management of the state civil apparatus from an administrative and rule-based approach towards a performance-based approach with human capital development implementation (Dwiputrianti, 2020).

As an update to Law Number 5 of 2014 concerning ASN management in Indonesia, Law Number 20 of 2023 concerning ASN has been ratified. This latest ASN Law has a major impact on the governance and management of ASN. According to this regulation, ASN management in Indonesia begins with the needs planning, recruitment, strengthening work culture and institutional image, performance management, talent and career development, competency development, honouring awards and recognition, and dismissal. Since the enactment of the newest ASN Law, implementing ASN management in all sectors must obey this regulation, whether at the central or regional level. Based on the literature review that has been conducted, several previous studies found a shortage of human resource needs in specific sectors. Still, they did not focus on the needs of the State Civil Apparatus, especially in the health and disaster management sectors.

C. METHOD

This study uses a gap analysis approach. This research can determine current conditions and ideal conditions in the future by using a gap analysis approach for the management of ASN in the health and disaster management field in Indonesia. The gap between the existing and ideal conditions is ultimately used as the basis for formulating a strategy for fulfilling the needs

of ASNs in the sector, both in terms of number and competence. This study uses qualitative data collection techniques, desk study, and focus group discussion methods.

Desk study is the study of literature exploration, such as library study and other written or electronic resources related to Indonesia's health sector and disaster management. Focus Group Discussion (FGD). FGD is a method of collecting data on a particular topic through the opinions of several source persons with different or similar backgrounds. Discussions in FGDs were carried out using systematic guidelines. FGDs are guided by a moderator who organises the discussion. Researchers transcribed the conversations and analysed the data obtained from the discussion. The informants for this study came from central government agencies as national policymakers in the health sector and disaster management in Indonesia. The following table lists the details of the informants involved in the data collection process for this study.

Table 2. List of Informants

Informant	Data
Ministry of National Development (Kementerian PPN/ Bappenas)	The direction of national development policy is in Indonesia's health sector and disaster management.
Ministry of Administrative and Bureaucratic Reform (KemenPANRB) National Civil Service Agency (BKN) National Institute of Public Administration (LAN)	a. State Civil Apparatus Management Policy. b. They are planning, obstacles, mapping state civil apparatus in the health sector, and disaster management.
Ministry of Health (Kemenkes) National Agency of Drug and Food Control (BPOM) National Search and Rescue Agency (BASARNAS) Meteorological, Climatology, and Geophysical Agency (BMKG)	State Civil Apparatus needs mapping results from sectoral ministries and the obstacles.
Ministry of Education, Culture, Research, and Technology	The existing condition data of state civil apparatus supply in health and disaster management is based on education.

Source: (Researcher, 2022)

D. RESULT AND DISCUSSION

The health and disaster management sector has become increasingly crucial, especially since the COVID-19 pandemic hit Indonesia. The Ministry of Health and the National Agency of Drug and Food Control are the leading players in managing the health sector. Meanwhile, in handling natural and non-natural disasters, such as pandemics, several government agencies have a central role in delivering services, namely the National Search and Rescue Agency, Meteorological, Climatology, and Geophysical Agency and National Board of Disaster Management. Apart from the central government, local government organisations are also encouraged to carry out their duties and functions in the local government's health and disaster management sectors. In addition, non-governmental organisations (NGOs) and the private sector are the government's strategic health and disaster management partners.

The Ministry of Health assists the President in handling government affairs in the health sector. This agency can be regarded as a leading health sector. The health sector cannot be separated from the supervision of drugs and food; in this case, the National Agency of Drug and Food Control (BPOM) carries out government duties in drug and food supervision.

BASARNAS supports the National Board of Disaster Management (BNPB) as the search and rescue (SAR) coordinator in emergency response clusters, especially in the search, rescue, and evacuation of victims carried out for ship and aircraft accidents, accidents with special handling, disasters in the emergency response stage, and conditions that endanger humans. Besides that, the BMKG has an essential role in providing meteorological, climatological, and geophysical information services.

The following analysis presents the existing and expected conditions for ASN needs on the national development agenda for the health and disaster management sector.

Existing Condition

In the education aspect, the availability of several study programs that support the development of the health sector and disaster management include Doctor and Specialist Education, Midwifery, Nursing, Radiology, Pharmacy, Biotechnology, Food Technology, Disaster Management, Biological Engineering, Meteorology, Climatology and Geophysics study programs, and another cognate. The study programs are spread across universities, polytechnics, and institutes with public and private status. In particular, the number of study programs in the health sector group reaches more than 4,000 study programs nationally (Nurwardani, 2021).

Table 3. Number of Study Programs and Graduates in Health and Disaster Management

Education Supply	Total
Study Programs	> 4,500
Number of graduated students	> 400,000

Source: Data Processed, Ministry of Education and Culture (2021).

Health Sector

Human resources of the health sector are one of the subsystems in the National Health System (SKN) that play an important and strategic role in implementing health efforts and achieving the national development agenda. Challenges from various types of diseases, endemics, and pandemics, such as COVID-19, will impact the need for more complex human resources in the health sector in terms of number, type, and competence. Although the production supply of human resources in the health sector increased along with the increasing number and types of higher education institutions in the health sector, until now, the fulfilment of trained human resources in the health sector in terms of quantity, quality, and distribution is still a major challenge in Indonesia.

More than 370,000 health workers in Indonesia work in the health sector and have varied professions. The Ministry of Health realises that the problem of equal distribution of health workers is currently a problem. An example is the ratio of doctors to the population of 0.4, which means that Indonesia only has four doctors serving 10,000 residents (Irfan et al., 2020). When viewed at the provincial level, the ratio increasingly shows inequality, for example, in DKI Jakarta Province and Banten Province. The ratio of doctors and residents in DKI Jakarta is 1:65, which means there are 65 doctors to serve 100,000 residents, while in Banten, it is 1:11, which means 11 doctors must serve 100,000 residents. Even though DKI Jakarta and Banten are geographically adjacent, the distribution and distribution of health workers becomes essential, especially in dealing with disaster moments such as COVID-19.

Drug and food control areas are also crucial to notice. BPOM fosters the functional position of Pharmacy and Food Supervisor. This position plays a role in standardisation, assessment, supervision, testing, enforcement, counselling, and monitoring of the distribution

of pharmaceuticals and food. Until now, the number of pharmacies and food supervisors is not ideal due to the workload required nationally.

Table 4. Number of Functional Positions in the Health Sector

No.	Functional Position	Total	%
1.	Nurse	174,683	46.31
2.	Midwife	80,055	21.22
3.	Doctor	24,672	6.54
4.	Health Laboratory Technician	13,419	3.56
5.	Pharmacist Assistant	12,187	3.23
6.	Nutritionist	11,551	3.06
7.	Sanitarian	11,488	3.05
8.	Dental Nurse	11,246	2.98
9.	Dentist	7,389	1.96
10.	Community Health Extension Worker	4,759	1.26
11.	Pharmacist	4,418	1.17
12.	Medical Record Officer	3,671	0.97
13.	Radiographer	3,321	0.88
14.	Pharmacy and Food Supervisor	3,075	0.82
15.	Physiotherapist	2,437	0.65
16.	Doctor of Clinical Education	2,157	0.57
17.	Health Epidemiologist	1,831	0.49
18.	Health Administrator	1,806	0.48
19.	Electromedical Technician	1,536	0.41
20.	Optient Refractionist	392	0.10
21.	Occupational Health Advisor	259	0.07
22.	Clinical Psychologist	160	0.04
23.	Blood Transfusion Technician	147	0.04
24.	Occupational Therapist	136	0.04
25.	Health Entomologist	129	0.03
26.	Dental Technician	113	0.03
27.	Medical Physicist	92	0.02
28.	Prosthetic Orthotics	33	0.01
29.	Anesthetist	33	0.01
30.	Anesthesiologist Assistant	24	0.01
	Total	377,219	100.00

Source: Data Processed, Ministry of Health; BPOM (2021).

Disaster Management Sector

BASARNAS, as one of the government agencies, has the task of handling disaster management affairs. The functional position in disaster management fostered by BASARNAS is that of a rescuer. Furthermore, the agency that is also related to this sector is BMKG. As a central government agency that organises government affairs in meteorology, climatology, air quality, and geophysics, BMKG has a vital role in disaster management. Currently, BMKG is fostering functional positions related to disaster management, namely meteorology and geophysics observation.

The composition of ASN functional officials in central and local government agencies is still not optimal in supporting the needs of national disaster management. This takes into account the geographical condition of Indonesia, which is a disaster market, both in terms of transportation, wide sea lanes and as an area that is also called the ring of fire, thus requiring a large number of ASN employees in functional positions with expertise and skills in disaster management.

At the research institute locus there are 2 (two) types of functional positions of expertise in the field of disaster management, namely (1) Rescuer and (2) Meteorology and Geophysics

Observer. The main task of the Rescuer is to conduct search and rescue, including preparation, SAR preparedness, SAR operations, evaluation, and reports. Meanwhile, Meteorology and Geophysics Observers conduct meteorological and geophysical observations and develop meteorological and geophysical systems. The conditions for the number of existing employees who occupy these functional positions are as follows.

Table 5. Number of Functional Positions in Disaster Management

No.	Functional Position	Total
1.	Rescuer	1,909
2.	Meteorology and Geophysics Observer	3,511

Source: Data Processed, BASARNAS; BMKG (2021).

Competency Development

The development of ASN competence in the health and disaster management sector, which is routine, is carried out through (1) managerial education and training, (2) functional technical education and training, and (3) the provision of learning assignments to improve formal education. In addition to routine competency development, ASN education and training innovations are developed through On Job Training (OJT), workshops, overseas training for special training needs such as Management Essentials, Training Development Plan organised by the World Meteorological Organization, and other technical training. In practice, it cannot be completely ideal. Obstacles in implementing ASN competency development in the health and disaster management sector are caused by budget constraints and a shortage of instructors in organisational units that provide education and training.

Ideal Expectation

Considering the needs of ASNs in the health sector and disaster management, several strategic agendas are the background of the urgency of the potential fulfilment of ASN capacity in the current and future development agendas. This cannot be separated from the dynamics of environmental change and the digital era as a strategic agenda that the government must pay attention to.

First, in its implementation, the welfare policy for ASN in the current high-risk type of work does not yet accommodate fair and decent aspects, including for health and disaster management workers. The element of fairness has not been seen where the regulation of ASN incentives for high-risk types of work is still limited at the agency (institutional) level. In addition, the absence of ASN categorisation in high-risk kinds of work also affects the possibility of not identifying other high-risk functional positions that should receive incentives to increase work motivation. Meanwhile, from the aspect of feasibility, the implementation of existing regulations has not contributed positively to improving the welfare of ASN. Although the number of incentives is considered sufficient by most ASNs financially, this has not prevented or protected ASNs from being exposed to harm.

Second, related to technology, the adoption of the right technology will be able to encourage productivity growth in the strategic sector. To improve the quality of the health sector and disaster management in the future, we must consider the latest technological developments to produce effective and efficient health services and search and rescue. Big Data and Artificial Intelligence will help get a comprehensive picture of health and disaster projections so that they can be used to formulate more effective healthcare and disaster management strategies and other strategic policy-making.

Third, the strategic agenda for mitigating and handling post-natural and non-natural disasters such as COVID-19. The high vulnerability of disasters in Indonesia and the weak efforts to mitigate and reduce disaster risk make disaster mitigation and management a strategic agenda for the Government to optimise public services in the health sector and disaster management.

These strategic agendas gave birth to several strategic needs in the development process. The following strategic needs must be considered and realised to execute the health sector development agenda and disaster management.

First, the composition of ASNs in central and local government agencies with health and disaster management expertise must be fulfilled.

They first Formulated the composition of ASNs with expertise in health and disaster management in central and regional government agencies. The current composition of ASNs is undoubtedly not ideal for realising a strategic agenda in the health and disaster management sector. ASNs in functional positions in the health sector are still very much needed. Based on calculations in terms of the ratio of the need for health workers to the population, area, and health facilities, Indonesia still desperately needs specialist doctors, general practitioners, and several other health workers to meet the needs of national health services optimally.

Table 6. Expected Condition in Functional Position in the Health Sector

No.	Functional Position	Total
1.	Specialist	> 70,000
2.	General Practitioner	> 140,000
3.	Dentist	> 35,000
4.	Pharmacy and Food Supervisor	> 5,500

Source: Data Processed, Ministry of Health; BPOM; Ministry of National Development (2021).

ASN for the position of National Rescuer is still urgently required. The overall number of rescuers is still far from the ideal minimum number of 1,909 people. Along with the need to increase organisational capacity and increasingly complex accident or disaster cases, large work areas, high public demands, and rapid technological advances are challenges for the limited composition of Rescuers. Therefore, the presence of rescuers is significant and should be considered and strengthened for disaster management in Indonesia. Meteorological, climatological, and geophysical information support is also needed in disaster management. The composition of ASN for the position of Meteorological and Geophysical Observers is still ideal enough to meet the needs of services in various regional offices spread nationally.

Table 7. Expecting Conditions in Functional Positions in the Disaster Management Sector

No.	Functional Position	Total
1.	Rescuer	> 6,000
2.	Meteorology and Geophysics Observer	3,500 – 4,000

Source: Data Processed, BASARNAS, (2021); BMKG (2021).

Second, ASN competency development in disaster management must be fulfilled. Rescuers need continuous competency development considering that the expanding and complex disaster area, the increasing population, rapid technological advances and Indonesia's disaster-prone environmental conditions require professional and competent disaster management human resources. In addition to technical competency development, disaster management, projection, mitigation, and technology are also needed.

Third, the growth of the private sector in the health sector. The rapid growth of private health services needs to be accompanied by a fast response from the government to ensure

service regulation and standardisation. This condition requires a good synergy between the government and the private sector in every policy formulation and optimisation of public health services.

Fourth, standardisation and certification of ASN competencies in health and disaster management. The environmental crisis and environmental changes after the COVID-19 pandemic require ASNs in health and disaster management to have professional, competent, effective, and efficient competency standards and technical expertise. For example, in the Rescuer position, there are technical competency standards that include (1) carrying out SAR warnings, (2) knowing the types and functions of SAR equipment, and (3) maintaining SAR equipment.

Fifth, digitisation and information and communication technology (ICT) infrastructure. Digital health applications such as telemedicine have an important role and can make accessing health services easier during a pandemic (Dewanta et al., 2023). After the COVID-19 pandemic, access to adequate internet connections has become a primary need. This situation requires accelerating ICT infrastructure provision and digital transformation in the health and disaster management sectors. In addition, improving ASNs' skills in health and disaster management must be done to continue to adapt to the latest technological developments.

Strategic Human Resources for the Health and Disaster Management Sector

Referring to the strategic needs analysis that has been carried out, the needs of ASN in strategic (critical) positions in the health and disaster management sector that are urgent and need to be mainstreamed to the fulfilment of the ideal minimum number include (1) Specialist Doctor; (2) General Practitioners; (3) Dentist; (4) Pharmacy and Food Supervisor; (5) Rescuers.

In addition, there are several needs for strategic competency development in the health and disaster management sectors, which were mapped as a result of the elaboration of the findings of this study. Competence needs that have a high urgency to be prepared, developed, and capacity-enhanced include (1) Digitization, Big Data, and Artificial Intelligence; (2) Biotechnology; (3) Nano Technology; (4) Integrated Flood Management; (5) Construction of drinking water supply system and landfills; (6) Risk Management; (7) Projection and Mitigation (Disaster and Emergency Responder).

This study shows a significant gap between the availability of ASNs and the number of ASNs needed in the health and disaster management sectors. Likewise, developing competencies is urgent to improve ASN skills in the health and disaster management sectors. Previous research similar to this study focused more on evaluating HR training programs, analysing the causes of HR shortages, and developing HR management strategies in the health sector. Although there have been several studies analysing HR needs in the health sector, this study fills the void for research that focuses on analysing the gap in ASN needs in Indonesia's health and disaster management sectors.

E. CONCLUSION

The mitigation of health and disaster management sector capacity must be carried out well to prepare for the future. ASNs in functional positions, expertise, and skills are important government assets to maximise public service performance and achieve development targets. The results of this study indicate that the need for human resources in several types of positions, as well as expertise and skills in the field of health and disaster management, is still very much needed in Indonesia. It is necessary to mainstream government policies to build the capacity and composition of human resources in the health sector and ideal disaster management. The gaps captured in this study provide a lesson that the public service process in a non-ideal

capacity requires the involvement (collaboration) of other organisational elements that are not limited to agencies that have the task of administering the health sector and managing disasters. Health and disaster management responsibilities must involve multiple stakeholders (the whole government).

However, it should be acknowledged that this study still has limitations, with limited projections only looking at the expectations of short to medium-term development (5 years) based on job analysis calculations and workload analysis in government agencies that are the leading health and disaster management sectors. This study has not been able to project expectations of long-term development needs (more than 5-10 years). In addition, this study also has not taken a complete picture of government agencies in the health and disaster management sector, with the research being limited to the research locus that has been determined. Hopefully, there will be a more comprehensive follow-up research with a broader locus scale to provide a more holistic picture of the gap in the need for human resources in the health sector and disaster management in Indonesia.

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The authors in this article are all main contributors.

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