THE AGGREGATION OF GLOBAL OPPORTUNITY:
A Reflection on the Implementation of Collaborative Governance to Develop the Capacity of GIS-based- Health Planning and Information Services in the Ambon City Health Agency

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ABSTRACT

This study examines a collaborative governance (CG) program between the Ambon City Health Agency (ACHA) and USAID APIK (Climate Change Adaptability) to improve the capacity of the Geographic Information System (GIS) in the ACHA. The research aims to analyze the processes of CG arrangements, fulfill the ability of GIS application to health staff, discuss outcomes of collaborative actions to improve the quality of health planning and information services and manage the APIK in the health sector in the local context of Ambon city. The qualitative research applies a case study approach. It uses an in-depth interview technique to collect primary data from key informants related to the four dynamics stages of the specific CG program in the local context of Ambon. Secondary data was collected from relevant documents. The main findings are that the CG program has successfully built GIS capacity for over 20 health agency staff, improved health planning and budgeting, and enhanced information services, particularly in delivering community health services in Ambon. The program has been appreciated as one of the successful CG programs in Ambon City, optimizing collaborative processes and aggregating global opportunities for local goals with global impacts.

Keywords: collaborative governance; capacity building; gis; health planning & information service.

BACKGROUND

The Ambon City Health Agency (ACHA) is one of the Regional Apparatus Organizations (RAOs/OPD) within the Ambon City Government, which is in charge of preparing and implementing policies and programs in the health sector in Ambon City (Regulation of Ambon Mayor, No. 38/2016). Providing health information services (HISs) based on spatial data is part of the ACHA tasks as they very importantly serve as a reference in the management process, decision-making, planning, and accountability (Health Ministry Regulation/HMR No. 97/2015; the HMR No. 92/2014), besides using gis based information also as part of the strategies of climate change adaptation in the health sector (HMR No. 101/2014). So, the question is whether and how the ACHA can fulfill these tasks. In fact, until 2016, the ACHA could not provide spatial data due to, among others, the technical shortages of human resources (ACHA Profile (2016). The ACHA's HR data in 2018 indicated that of 678, especially from 82 employees who

worked at the ACHA Office, they could only apply GIS application to support the planning and health information services/PHISs (LAKIP, ACHA, 2018).

Collaborative action was then considered a strategy to overcome the technical problems in the PHISs (ACHA Profile, 2015). The idea is in line with many studies recognizing the importance of collaboration to overcome various problems of resource scarcity many governments face in delivering public services and programs (Dwiyanto, 2010; Ufi et al., 2020a), although certain obstacles it has (Thahir, 2022; Ufi et al., 2020b). Based on the above description, this research seeks to study one of the CG programs implemented in Ambon City. As many CG practices and studies have been widely carried out to strengthen local governments' capacity, including in the health sector (Schneider et al., 2019; Brissette et al., 2019; Kapufu & Demiroz, 2012), they have to be adapted to different local contexts (Etiaba et al., 2023; Guo & Li, 2022). However, research on CG practices within the local island context still needs to be improved. So, this study tries to fill the gap by exploring a unique CG program in the health sector as a part of joint efforts to handle the risk of climate change and disaster impacts (APIK: Climate Change Adaptation and Resilience) in the local context of Ambon City.

The primary theoretical basis of this study is collaborative governance (CG) theory. Ansell & Gash defines collaboration as a relationship designed to solve problems by creating solutions in limited conditions. Such limitations include limited time, space, and information (Thahir 2022). Bardach (1998) states collaboration is 'any joint activity by two or more agencies that intended to increase public value by their working together rather than separately", while governance entails a range of functions, including "the preferences aggregation, policy options decision, and the policies implementation" (Bultema, 2022).

Emerson et al. (2012) then construct a broadened perspective on CG as "the processes and structures of public policy decision-making and management that enable people to engage across boundaries and levels of governments" (Emerson & Nabatchi, 2015; Bultema, 2022). The Concept of CG integrates four processual aspects: context and driver of collaboration, collaboration dynamics, collaborative actions, and outcomes. Those CG aspects can lead to collaborative processes and actions that contribute to positive outcomes (Emerson et al., 2015). Besides some shortcomings, it needs more continuity and a more facilitative role of the government (Arrozaaq, 2017). However, CG has been applied broadly to address various cross-sectoral public problems (Bultema, 2022).
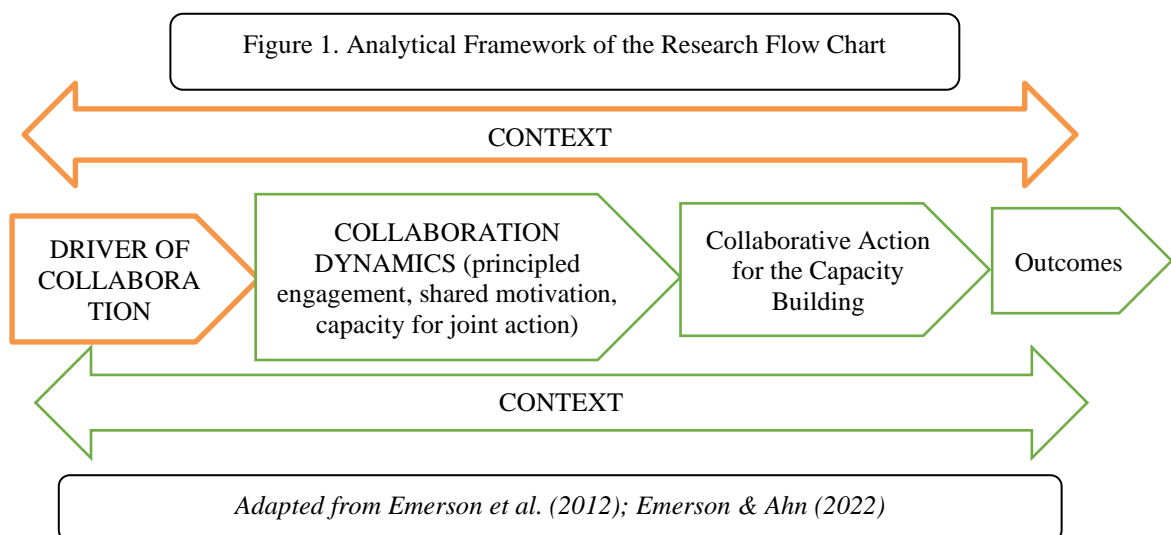
This study then proposes a functional definition of CG: "… the processes and structures of public policy decision making and management that enable one or more agencies to engage across boundaries or levels of government to build the capacity of GIS based on health planning and information services". Several studies using CG in health sectors are the study on the health sector capacity building (Krishnaveni & Sripirabaa, 2008; Aroni, 2012); CG to improve public health (Crisp et al., 2000); to study health system problems in several local governments

(Schneider et al., 2019). Studies by Fletcher & Caprarelli (2016) and Yeh Hsu et al. (2012) shared several expected results, showing that the global dimension of collaboration is strategic to strengthens the resilient capacity of local governments, for example, in dealing with various human health problems through the gis application, the results indicate some similarities & differences from one place to another.

In practice, CG has to be adapted to various and different contexts (Etiaba et al., 2023; Guo & Li, 2022). So, this research focuses on a CG program between the ACHA and USAID APIK for building the capacity of gis in the ACHA with its outcomes in accordance with the local island context of Ambon City. The research questions are as follows: How can building GIS capacity and its use for improving the quality of planning and health information services in the Ambon City Health Service be achieved through collaborative programs with USAID APIK? Can the collaborative programs with USAID APIK be contributed to the Ambon CHA in its efforts to manage the APIK in the health sector in the local context of Ambon City? This study then has threefold objectives: to analyze the processes of CG arrangements among the ACG, the CHA, and the USAID APIK partner; to fulfill the capacity of GIS application to the health staff; to discuss several outcomes of the collaborative actions to improve the quality of the Ambon city's health planning and information services, its contribution to managing the APIK in the health sector in the local context of Ambon city. The conceptual framework of this study is constructed below.

Figure 1. Analytical Framework of the Research Flow Chart

CONTEXT

DRIVER OF COLLABORATION → COLLABORATION DYNAMICS (principled engagement, shared motivation, capacity for joint action) → Collaborative Action for the Capacity Building → Outcomes

CONTEXT

Adapted from Emerson et al. (2012); Emerson & Ahn (2022)

METHOD

The central concept is the CG applied to the collaborative programs among the ACG, the ACHA, and the USAID APIK in the Ambon context. This research is qualitative, applying a case study approach. To achieve the objectives, explore the data to gain factual conditions about the program. An in-depth interview technique was applied to collect primary data from

some 9 (essential) informants related to the four dynamics stages of the specific CG program in the local context of Ambon. Secondary data were collected from the relevant soft and hard documents related to the CG program under study.

Meanwhile, data analysis was conducted using qualitative descriptive analysis by reducing, presenting, and verifying (Miles et al., 2014). Secondary data were analyzed by using content and thematic analysis. In presenting the interview data, we will use "the initial name" of each informant.

RESULT AND DISCUSSION

The presentation and construction of the findings following the four dynamics elements of CG (Emerson et al. 2012) is an effort to answer the research questions and objectives.

The System Context

There is strong evidence regarding the system context influencing the APIK CG program. First, the APIK program was a bilateral cooperation between Indonesia's and the USA's governments. Bappenas, KemenLHK, and BPBN managed it at the national level in collaboration with USAID APIK. It had to be implemented at Provincial and district/ city levels, including Maluku and Ambon cities representing small islands region (USAID APIK, 2016, 2017). Those contexts have three natures: global/national, provincial, and city levels. A prior relationship existed between both parties in a previous CG program among partners in Sanitation and clean water in Ambon from 2009 to 2016. (DP, Nov 2019; WP, January 2020). The findings above provided strong system contexts that enabled opportunities and constraints and influenced the CG to operate (Emerson, 2018; Emerson et al., 2012). Those system contexts function as dynamic and can influence the course of the CG program over time (Emerson & Ahn, 2022). Interestingly, the findings also underline two external conditions that may influence the collaboration dynamics in terms of extreme weather events (climate change issues) and newly enacted regulations (the HMRs) (Emerson et al., 2012). They functioned as a starting point that catalyzed the entire CG program processes and enabled the CG drivers of the program to emerge (Emerson, 2018).

Drivers of Collaboration

Findings on the drivers arising from the system contexts are indicated in the CG program case, covering three drivers' elements.

Uncertainty

There is substantial uncertainty in the APIK CG program, including the problem of the local capacity limitation to deal with the risks of climate change and natural disasters". Ambon City is the capital of Maluku Province, with a land island area of 359.45 km2, a sea area of 17.55 km2, and a coastline length of 98 km (Wicaksono et al., 2017). It means that the Ambon Island area, as a small island, is very vulnerable to climate change and disaster risk impacts. PNPB (2017) reported that disasters related to climate change occur most often in the Maluku and Ambon islands and cause the most losses; and 73% of the natural disasters from 2007 to 2017 in Ambon Island gave heavy rains caused flash floods and landslides, also lack of clean water often

occurs. Losses and damage due to hydrometeorological disasters will likely be more significant in the future (in DAI, 2018), including in the health sector. The health effects of changing climate due to infectious diseases depend on seasonal patterns and geographic regions, mostly in coastal and small island regions (Patil & Phansalkar, 2019). A Report on the Resilience Assessment 2017 stated that Ambon City was still less resilient, with an average score of 2.30 from 10 fundamental steps (Wicaksono et al, 2017). A summary of the assessment results is below.

Table 2. Resilience Value of Ambon City Against the Disasters Based on 10 Fundamental Steps

Fundamental Steps (FSs)	Score	category
The existence of an organization for disaster resilience	2.69	M
Identify, understand, and use the current and future risk scenario	2.33	M
Strengthen financial capacity to realize resilience	2.36	M
Striving for resilient urban development and design	2.86	M
Protect Natural Buffers to enhance the protective functions of the ecosystem	3.17	M
Strengthen institutional capacity for resilience	2.45	M
Understand and strengthen the community's ability to realize resilience	2.21	M
Increase infrastructure resilience	1.89	Low
Ensure preparedness and effective response to disaster	1.20	Low
Speed recovery and rebuilding better	1.75	Low
Renata Score	2.30	Less tough

Source: Wicaksono et al., USAID APIK, 2017; Score 0,00 s/d 5,00 & 3 categories: less, medium, high

Another problem is the need for more technical and human capacity in ACHA, making it challenging to design spatial-based planning and address health climate change risks (WP, January 2020; Renstra, 2017/2022). None of the 678 Health Office employees and 82 Health Office employees were able to apply for GIS until 2017. From the above findings, we can identify three types of uncertainty: societal (climate change risks), organizational (in planning), and individual (the staff has no skills in GIS) (Emerson et al., 2012). Those uncertainties could not be resolved internally, so we needed groups to work together to understand and define the problem and how to approach it in order to reduce, diffuse, and share risk (Emerson, 2018).

Interdependence

The problems related to climate change and disaster risks in ACG created interdependence because of the weak Capacity of Human Resources (HRs) and the health sector (APIK-USAID, 2017). An overview of ACG's employees' education is presented below.

Table 3. Education Level of the ACG's Employees, 2018

Education Level	Amount
Elementary School (SD)	18 persons
SMP/ the same level	21
SLTA/D	1.263
Diploma	805
Sarjana S1	2.928
Sarjana S2	200
Amount	5.243

Source: ACG LAKIP, 2018

The data presented above certainly reflects the organizational limitations in budget and supporting facilities (WP, January 2020). Meanwhile, the USAID APIK Program and its mandated mission were to offer technical assistance in GIS capacity and manage the risks of climate change and natural disasters also in different local contexts (USAID APIK, 2017). An interdependence existed between both parties. The USAID APIK's goal was a broader macro, while the ACHA's goal was micro and specific, both individually and organizationally. As both parties had different goals and could not achieve them on their own, they needed joint action, such as a jointly recognized problem and set of solutions according to the local context well determined by both parties. Schneider et al. (2019) before coming to collective actions through mutual reliance (Emerson, 2018; Emerson et al., 2015).

Initiating Leadership

Some people had played initiating leadership roles at the beginning of this CG program. Those were the APIK RM and Head of ACHA. RM first initiated coordination with the governor and the Ambon mayor concerning the APIK CG program in a meeting held in January 2016. Two local governments committed to the APIK CG Program (RM, Nov 2019). They then created several roundtable meetings for coordination at the ACG level (DP, November 2019). At the sectoral level of ACG, the ACHA also initiated the first communication with USAID APIK, requesting a joint action via a letter (WP, January 2020; DP, Nov 2019). Two initiating leaders had acted in their official position to take the first moment in motivating the preliminary engagement with partner in motivating the preliminary engagement of participants in a potential CG, in this case, in the CG program. Regardless, as the ACHA Head did, they also realized a solid commitment to collaborative problem-solving (Emerson et al., 2012; Emerson, 2018). It was a key driver to create collaboration dynamics. Initiating leadership was necessary for collaboration, including the case under study (Schneider et al., 2019).

Collaboration Dynamics

Findings on the collaborative dynamics encouraged by drivers' stages are shown along with the processes of the CG program case, covering three interactive elements.

Discovery & Definition

There were two channels to process the expression of interest and build shared values as part of discovery in the CG program, including a joint meeting forum coordinated by Bappeda Kota (DP, November 2019; FM, January 2020). The APIK program was socialized through the meetings, and the interests/aspirations were expressed toward collaboration. As such, through specific and informal direct contact with the APIK team, they could share a common interest in the GIS skills needed and explore shared values on collaborative opportunity (FM, January 2020; WP, January 2020). Both parties then started to define problems and needs/goals, such as problems regarding the ACHA staff having no ability in GIS for planning and information service, and others. (WP, RT: January 2020; RS, March 2020).

In contrast, as USAID APIK had the solution, they needed to collaborate with ACGs and ACHA to run the technical solution toward supporting the APIK program in Ambon (USAID APIK, 2018). Both parties were willing to collaborate (DP, Nov 2019; WP, January 2020). Compared to the discovery concept by Emerson et al. (2012), that shared interest and common values in the CG Program between the ACHA and USAID APIK, they had resulted from a suitable identification and analysis of relevant and significant information gained during the meetings and interactions (Emerson et al., 2012). In terms of the definition process, the findings also fit with the idea that it resulted from a continuous effort to define problems, goals, and opportunities for collaboration (Bentrup, 2001 in Emerson et al., 2012).

Deliberation & Determination

There are two mechanisms of the CG program; one was formal and official, marked by a Memorandum of Understanding (MoU) between the USAID APIK top manager and the Acting Mayor of Ambon, dated 2 December 2016. The MoU covered the APIK aim, & the leading partners from 2016 to 2017. The program aims, among others, are 'to increase capabilities in APIK…'; 'strengthening the resilience of local governments and communities in APIK… '; and 'increasing the use of information to APIK among key stakeholders' through strengthening capacity in the gis and spatial data for planning and information services. Another was a specific CG arrangement between the ACHA & USAID APIK based on a request letter and informal coordination, meaning that the CG mechanism was more straightforward, informal, and flexible (DP, Nov 2019; WP, January 2020). As the deliberation concept has to be fitted to public judgment and represent the common good, it has been successfully created in the CG program (Robert 2004 in Emerson et al., 2012) by integrating formal and informal mechanisms for collaboration. Finally, the joint determination as the last stage of principle engagement in the APIK CG program with the ACHA had been very fruitful created that incorporate both procedural decisions (e.g., tabling a discussion) and substantive determinations (e.g., reaching agreements on the collaborative actions) (Dukes 2004 in Emerson et al., 2012).

Shared Motivation

Mutual trust between both partners had strongly existed through intensive interactions created from previous CG sanitation and clean water programs in Ambon from 2019 to 2016 (FM, January 2020; DP November 2019). Mutual trust was then reinforced through interactions within the meetings forum and by personal contact via telephone and WA contacts (WP, January 2020). Regarding mutual understanding, it was created through informal mechanisms based on a request letter as an official contact", and the quick APIK response, even all coordination and consensus building on the proposed activities in gis were created informally via help, wa (WP, February 2020; RT, January 2020; RS, March 2020). For example, the draft TOR for activities was sent via WA for corrections until mutual agreement, and it is simple (DP, November 2019). As explained by Donahue (2004 in Emerson, 2018), the relational dimensions of trust and mutual understanding, legitimacy, and commitment as shared motivation usually emerge from both individual and organizational motivations, as indicated in the CG program between the ACHA & USAID APIK (Emerson, 2018). Moreover, trust building is essential, whether one starts with or without trusting relationships. It has long been a sine qua non of collaboration (Walker & Hills in Emerson, 2018). Trust even becomes the foundation for mutual understanding of each's common interests that contribute to an appreciation for the partners' legitimacy, as in the case of the APIK CG program (Emerson et al., 2012; Emerson, 2018). While the conflict of interests in terms of ego-sectoral in institutional settings (hierarchy, power, and bureaucratic obstacles) still become inhibiting factors in reaching a mutual agreement for collaboration (Arrozaaq, 2017; Smith, 2009; Muklis & Perdana, 2022), in contrast, the CG program under this study has a strong mutual understanding and legitimacy by both partners.

Capacity for Joint Action

As presented before, the MoU-based mechanism was to establish the OPD's priority, the coordinating body, the formal joint meeting forum, priority activities, and others. In contrast, the mechanism of the CG program was more informal and flexible, through informal discussion, request letters, coordination, and consensus building related to collaborative actions (WP, January 2020; DP, Nov 2019). Collaborative leadership was powerfully expressed through joint consensus building and joint decision-making about the program between partners and informally in the internal Health Office. The office head said she often delegates staff to interact with the APIK partner about the program (WP, January 2020; RT, February 2020).

Both partners provided knowledge and resources to take joint actions in the capacity-building program. What was provided by the ACHA included a training room, facilities, logistics, and health staff to attend the GIS capacity training, while the USAID APIK provided experts or skilled trainers to tutorial the GIS training" (Secretary of ACHA, RT: February 2020; DP, Nov 2020). It is because his application was part of the APIK's expertise (DP, November 2016; Sayoga, 2019).

In sum, both partners had a good capacity for joint action in all aspects. The informal mechanisms in the collaborative process were strongly expressed based on their social capital (Emerson, 2018) and through horizontal relationships (Thomson et al., 2007), based more on mutual trust toward collaborative action (Smit, 2007; Ufi, 2018). However, the CG APIK program incorporated robust formal mechanisms through an umbrella MoU and an informal one through a request letter (FM, Dec 2019). That is to underline Emerson (2018), that 'reciprocity & self-governing are essential to cross-boundary governance, as reflected in MoU for handling the complexity .'Solid collaborative leadership is created by both partners in the APIK CG Program in terms of mutual trust, decision sharing, time commitment, and dedication to action (Vangen & Huxham, 2003). It means that 'leadership continues to be a central capacity that includes facilitators and managers, and the participants themselves as they represent their organizations, public decision-makers and technical experts' (Emerson, 2018). There were also strong knowledge and resources provided by both partners in the APIK CG program that enabled two partners to play a crucial role in collaborative actions, including, e.g., sufficient funding, staff, materials, and time (Brinkerhoff & Brinkerhoff, 2011; Emerson et al. 2012). To sum up, the good quality of collaborative dynamics in this CG program has been affected by the productive and self-reinforcing interactions among principled engagement and shared motivation towards the capacity for joint action by both partners,

the ACHA and the APIK USAID (Emerson et al., 2012).

Collaborative Actions & Outcomes

Several collaborative actions were conducted to achieve the goals. First, eight training activities were conducted in GIS and digital mapping for 15 Health Agency staff from April to October 2018, tutored by the APIK's GIS specialist (WP, January 2020; RS, March 2022). Following the training, in October 2018, 5 participants could conduct mapping on the malaria transmission areas in several villages (RS, SS: March 2022; Prayogo, Dec 2019); third, a KoBoColect training was conducted for the ACGs planners include the Health Staffs, it was the visualization at 22 Yandu posts at 22 Puskesmas in Ambon in the immunization program (RS, RT: March 2020; Prayogo, Dec 2019); fourth, use the SIPINTER application (an Integrated Immunization Recording Information System) in 22 Puskesmas and 22 Pos Yandu in Ambon City (2019 /2020) (RT. February 2020; SS, March 2020).

Several outcomes are well identified. First, having GIS skills and spatial mapping, the health staff was able to develop and use several innovative applications from 2018 to 2021 in 22 Puskesmas and 22 Pos Yandu, such as the SIRIA to Map malaria and mosquito areas transmission; the SISKA to map the leprosy disease and others. Those staff then mapped disaster-prone areas in the 22 Puskesmas Areas in 2021/2022. By using the SIPINTER, the health staff have enhanced the quality of the community health services, especially in the basic immunization program for babies. The only

problem is when the network/signal needs to improve (RT, SS: March 2022). They could even provide essential immunization certificates and have become a reasonable basis for children to enter the PAUD, SD, and SMP in Ambon in collaboration with

It can be briefly summarized several points. The collaborative actions implemented had resulted successfully in the above outcomes, both individually (gaining skills in GIS application and mapping) and organizationally (improving quality of spatial base data for health planning and budgeting, and in the health information services as well), and improve the quality of community health services. Even the ACHA can contribute innovatively to the APIK program in Ambon through digital data in the health sector (RS, March 2020; SS, RS, MFP: March 2022; RT, Feb 2020; WP, July 2022). It has accommodated the APIK in the city strategic planning under the theme: "Integrate disaster mitigation results, resilience assessment recommendations, and studies vulnerabilities into the RPJM and RKPD of Ambon City" (Renstra of the Agency, 2023 – 2026). The CG program between the APIK USAID and the ACHA has been appreciated by many parties as one of the most successful CGs in the ACGs (Prayogo, 2019). As expressed by the GIS Specialist, we fully hope those successful lessons "inspire other agencies and other cities/districts that face similar challenges and they can replicate this initiative according to their needs" (Prayoga, 2019). Those good outcomes and the successful lessons from the CG program under study hence reflect the interrelation between processes and outcomes, as the dynamics

the Education Agency (WP, July 2022; the Amex, 2019).

Samples of visual-spatial data from the staff for health services delivery in Ambon City are presented below.

process of CG itself is important to achieve good results (Innes and Booher, 1999 in Emerson et al., 2012). The ACHA optimizes the CG with USAID APIK because it was fully aware that it was not easy to access the GIS for public health planning (Fletcher & Caprarelli, 2016). Those results integrate comprehensive aims (e.g., the APIK goals) besides its narrower goals (e.g., the ability to use GIS and spatial mapping) (Huxham et al., 2000 in Emerson et al., 2012). This CG and action was successful because it was indeed based on actual needs in the ACHA because it has been oriented 'to solve concrete problems is a useful outcome and lesson of collaborative efforts' (Thomson et al., 2007 in Ufi, 2020a). Finally, the successful CG program is also inseparable from the outstanding commitment and consistency of both Partners, as are the primary measures of the success of the collaborative governance process (Amin et al., 2021; Thahir, 2022).

CONCLUSION

This study has some conclusive points. First, the CG program implemented has successfully built the capacity of the health agency staff. Through well-managed CG processes by both partners and several collaborative actions (training and field practices) in GIS application and spatial mapping, the health staff can finally use GIS application to produce various spatial data. Second, the CG program has several

outcomes. The health staff can be able to produce various spatial data (the SIRIA and the SIPINTER, for instance) as a solid basis for improving the health planning and budgeting and the health information services in ACHA, especially in delivering community health services at 22 Puskesmas and 22 Pos Yandu in Ambon city.

Furthermore, the collaborative programs with the USAID APIK have enabled the ACHA to contribute to the APIK program in more innovative ways per the local island context. In sum, the CG program between the ACHA and the USAID APIK has been appreciated as one of the most successful CG programs in Ambon City and on the local small islands. By optimizing the collaborative processes, both partners can aggregate the APIK global opportunity to achieve local goals with global impacts.

This study has some implications. By using spatial data in works, the ACHA has to change health service delivery. So, several new policy products have to be implemented, such as new SOPs, incentives, facilitation for staff, commitment to budget, etc. There are several needs for the community, such as new awareness of the new modes of health services enabling behavior changes. Some policies are needed, such as providing new health information service networks, including community leaders and stakeholders, socializing the health information services at each community service center, and training the community youth and students with digital-based health information services in the APIK program. Finally, there are many limitations of this study. This study has focused on a successful APIK CG program that could not be generalized to the whole context of small islands; it is suggested that the following studies focus on collaborative programs with limited achievements. In doing so, more comparative studies should be applied.

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