Conference Paper

In-situ Conservation Strategy to Safeguard Sentul Chickens in the Future

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Abstract

Animal genetic resources such as indigenous chickens are part of biodiversity. Sentul chickens are one of indigenous chickens in Indonesia which are regarded as local to Ciamis District in West Java. It is reported that the population of pure Sentul Chickens are in decline. This study was aimed to find out the current population of pure Sentul chickens in three areas in West Java and to develop a conservation strategy to safeguard Sentul chickens in the future. The study used qualitative method to gather data including literature review and key informant interviews. The informants consisted of a leader of farmer group and managers of breeding centers. The interviews were carried out in Ciamis, Majelengka and Bogor Districts. The data were analyzed by descriptive analysis. The results indicated that population of Sentul chickens in Ciamis are in decline, while population in areas outside Ciamis such as Bogor tend to increase. There is a need to develop an *in-situ* conservation program in which Ciamis District should be assigned to be the center area to provide pure Sentul chickens in West Java. To support the conservation program, stakeholders such as local government, research institutions, universities and farmer groups play important roles.

Keywords: in-situconservation strategy, Sentul chickens, animal genetic resources, biodiversity.

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1. Introduction

Indigenous chicken breeds form part of global animal genetic resources (AnGR). [1, 2] argued that Indonesia is one of the major chicken domestication centers in the world. Indigenous chickens in Indonesia can be categorized as descript and nondescript chickens [3]. Descript chickens are usually regarded as local to a specific area and they have specific plumage characteristics [4] or example, Kedu chickens (black chickens) from Temanggung District (Central Java) danSentulchikens (grey chickens) from Ciamis District (West Java).

The plumage colors of Sentul chickens which are dominated by grey show great variety from Sentul Kelabu (all grey), Sentul Geni (reddish grey), Sentul Jambe (reddish

orange grey), Sentul Batu (whitish grey), Sentul Debu (ashy grey) and Sentul Emas (golden grey) [5, 6]. Sentul chickens were primarily fighting cocks. However, they were kept by farmers as dual-purpose chickens [5] and currently they were kept as meat producers [7]. The keepers in Ciamis perceived that Sentul Batu to be the fastest among other types of Sentul Chickens in terms of growth rate.

It is reported that Sentul chickens have higher risk of extinction compared to other local chickens in West Java such as Pelung Chickens. As a consequence, Sentul chickens should be prioritized in conservation programs [7]. This current research was conducted based on study of [7] and intended to find out the current population of Sentul chickens. This study also proposes a strategy to safeguard Sentul chickens in the future.

2. Literature Review

Conservation is among various elements in managing AnGR [8]. Economic, ecological, scientific and socio-economic [9, 10] as well as cultural and insurance factors [11] are justifications of the need for conservation interventions. Conservation methods are broadly grouped into in-situ and ex-situ [12]. Hence, conservations may have different forms [10] with their strengths and weaknesses of each method.

In-situ conservation, or on-farm, maintains breeds in their environments in which the breeds have been developed [13]. This method uses traditional production systems, thus, it does not require highly technological approaches [14, 15]. In addition, this conservation method maintains community identities [16] and livelihood options [17].

Ex-situ conservation maintains breeds outside their traditional production systems [16]. This method has advantages such as can preserve the genetic diversity in long-term storage (through cryopreservation) and has a role as a backup to in-situ conservation in case genetic problems occur. The choice of the appropriate conservation methods for particular breeds depends on the needs and resources [13]. However, in developing countries, in-situ conservation is preferable as the keepers of AnGR are de facto conservation agents [18]. Identification of community needs, perceptions and preferences is the key strategy in conservation of AnGR [19], thus the implementation of in-situ conservation of AnGR should be done through a community-based approach [15, 17, 19]. It assumed that communities have a better understanding of the management of their AnGR [20]. However, it is also known that communities may be requiring in technical knowledge such as veterinary treatment and the management of breeding programs. Hence, other stakeholder beside government, for example universities, may be needed.

3. Materials and Method

A literature review formed the basis for this study and it was supported by key informant interviews. The key informants who involved in this study were a leader of farmer group and managers of breeding centers. The interviews were carried out in Ciamis, Majalengka and Bogor Districts. The data were analyzed by descriptive analysis.

4. Result and Discussion

In Ciamis, Sentul chickens have been maintained by a famer group named Barokah Farm. The organisation provided Day Old Chicks for its farmer members. Based on interview, there were only 200 adult chicken breeds due to disease outbreaks. In general, farmers in Ciamis have issues mainly related to chicken health management. Similar to Ciamis, in Majalengka, the population of Sentul chickens was less than 1000 birds. In this district, Balai Pengembangan dan Perbibitan Ternak Unggas (BPPTU), a technical breeding unit of the local livestock agency owned by West Java Government has been having collaboration with UniversitasPadjadjaran to conduct a purification program of Sentul Chickens. The institution had 727 birds with mixed-age from starter to adult chickens. However, the population is dominated by Sentul Debu.

In Bogor, Sentul Chickens were maintained and produced by a private company that provides DOCs for farmers in Bogor and Sukabumi Districts as well as other areas in West Java. This farm has 16,000 breeding stocks with total populations of 56,000 birds and produces of 16,000 DOCs a week. However, Sentul chickens kept by this company were not pure. The phenotypic characteristics of Sentul chickens in this farm were influenced by other local chickens such as Kedu and Arabic chickens.

Crossbreeding is commonly practiced by the keepers who raised Sentul chickens driven by economic arguments that the crossbreeds are considered more productive than the pure breeds [7]. However, this practice is a major cause of genetic dilution of AnGR in the world [10, 21]. This is because the genetic variance of indigenous chickens reduced as a consequence of crossbreeding. For example, the adaptive traits, such as high disease-resistant genes, might be lost because the aim of crossbreeding was to increase productive performance.

This research indicated the need of improving population number of pure Sentul chickens and maintaining the diversity of the breed through conservation programs. The research found that pure male and female adult chickens are less than 1,000 which mean that the population status of the chickens is at risk as classified by [12]. Since the population of Sentul chickens in Ciamis the location where Sentul first developed

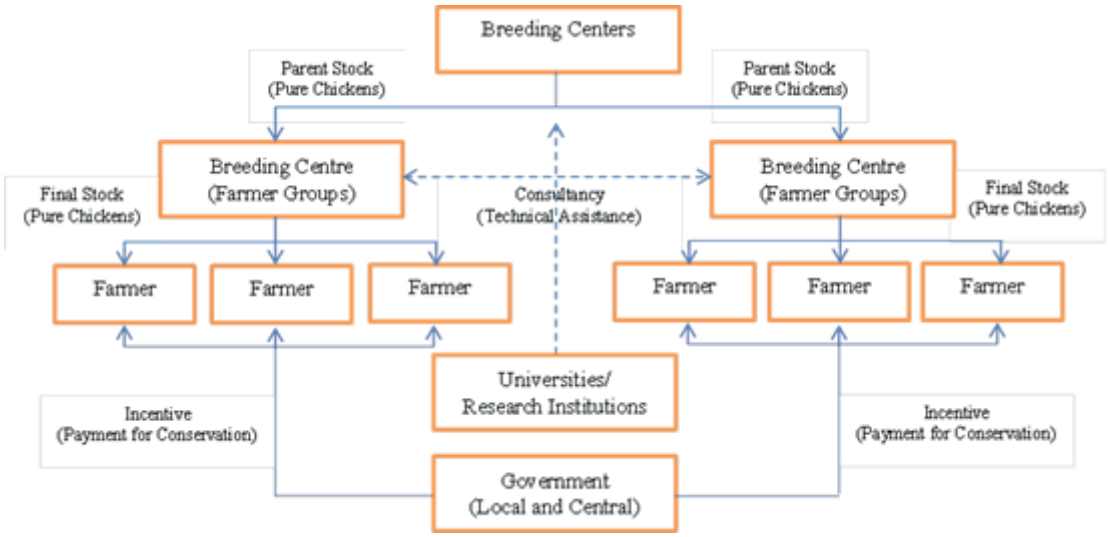

Figure 1: *In-situ* Conservation Program for Sentul Chickens.

is decreasing, thus in-situ conservation should be prioritized. [7] proposed stakeholders that may involve in an in-situ conservation program for indigenous chickens in Indonesia. The stakeholders are government, research institutions, universities, private companies and farmer groups. Based on findings and combined by previous study conducted by [7], the potential stakeholders for in-situ conservation of Sentul chickens are depicted in Figure 1.

4.1. Government

In terms of Sentul chickens, the government should have a mechanism to determine how and who to be involved in the conservation programs. This is because government has responsibility to manage AnGR [12]. Central government for example, should bring Sentul conservation as part of national programs and may adopt a conservation payment service (incentive) to attract farmers join the conservation program [7].

4.2. Breeding Centers (Nucleus)

An in-situ conservation for Sentul chickens need to be supported by structured breeding programs to provide pure breeding stocks for the keepers (farmers). Since chicken health management is still an important issue for farmers, closed-breeding schemes are preferable for Sentul chickens [7]. Breeding centers ran by local government (supported by skilled human resources) such as BPPTU are potential to be developed as nucleus for Sentul chickens.

4.3. Farmer Groups

The roles of farmer organizations in Ciamis such as Barokah Farm should maintain and strengthen the current role as well as can also be enhanced as providers of final stocks of pure Sentul. In Ciamis, beside Barokah Farm, there are five farmer groups that are potential to be involved in the program spread in six sub-districts including Banjarsari, Pamarican, Panumbangan, Rancah and Sukadana [22]. As a duplication of breeding center, different farmer groups should have different types of Sentul chickens. However, as the skill of human resources at farmer groups are different (lower) from those at breeding centers, the chickens managed by farmer groups do not have to be the best chickens.

4.4. Keepers/Farmers

Keepers or farmers are the crucial stakeholders in conservation programs because the farmers are owners of Sentul chickens. The conservation programs should be based on the interests of the farmers and is economically viable to them. Reference [7] reported that farmers are very willing to participate in conservation program as long as the farmers as producers of environmental services are compensated through financial incentives (cash payments).

4.5. Universities and/or Research Institutions

Research institutions such as Balai Penelitian Ternak (Balitnak) or Research Institute for Animal Production (RIAP) and universities such as Universitas Padjadjaran are important reservoirs of Sentul chickens. Balitnak is among the first institution to conserve and develop AnGR in Indonesia. In this propose scheme, these institutions can share their experiences in maintaining AnGR through providing technical assistance and/or training for human resources in breeding centers and/or farmer organizations. If it is required, these two institutions can also be involved as breeding centers.

5. Conclusion

This study found the decreasing population of pure Sentul chickens; hence a conservation strategy to maintain the diversity and to increase the population of this breed is required. As population of Sentul chickens in Ciamis, the location where Sentul first developed is decreasing, an *in-situ* conservation program should be prioritized. This study also implied the involvement of different stakeholders to maintain population and diversity of Sentul in the future. However, the government (central and local

government) should initiate and develop mechanism of the conservation program. In addition, a study to design an *ex-situ* conservation program should be conducted to support (as back-up) *in-situ* conservation program.

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