



building, i.e., roof and walls, by using reflective materials, while outside the building by multiplying vegetation to maximize evaporation and lower temperatures (Indradjati and Aisha 2020). Urban sustainable development has more attention from international but the rural area that have important role in human society, has been neglected (Wang et al. 2024). Because of the strategic position, government make climate village program that community-based national movement of climate change control (Luthfia and Alkhajar 2020). The Climate Village program focuses on strengthening community-based adaptation and mitigation capacity to address the impacts of climate change (Demartoto 2022). This program aims to improve food security, public health, ecosystem resilience, and economic development (Demartoto 2022). The program also encourages sustainable practices and resilience to disaster because of climate change, such as afforestation, waste management, and fish and plant farming (Demartoto 2022; Fitrina 2024).

The Climate Village Program (PROKLIM) is a community-based climate change control program implemented by the Indonesian Ministry of Environment and Forestry (KLHK) (Sekaranom, Kusumandari, and Suratman 2022). This program aims to strengthen the capacity of communities and stakeholders in adapting to the impacts of climate change and reducing greenhouse gas emissions (Sekaranom, Kusumandari, and Suratman 2022). The collaborator in this program not only government and the community but also University or educational institution, Other private sector, and NGO (Fitrina 2024). In addition, this program also aims to improve social and economic welfare at the community level by considering regional conditions (Sekaranom, Kusumandari, and Suratman 2022). This program also suitable with government goal where Indonesia committed to reducing emissions by 29% until 2030 as commitment to maintaining long-term growth rates and is a form of participation at the global level (S. R. K. Sari et al. 2021).

The Climate Village Program encourages active participation from the public and all stakeholders in implementing local actions to increase resilience to climate change

(Demartoto 2022). This program aims to reduce national emissions, maximize the use of waste as an energy source, and raise awareness about climate change and its impacts (Demartoto 2022). This program recognizes and supports community efforts in adapting to and mitigating climate change (Demartoto 2022).

The youth community plays an important role in the implementation of the Climate Village Program. They serve as initiators, motivators, and implementers of various activities, such as workshops on climate village programs, fish breeding mechanisms, and waste management (Demartoto 2022). These activities aim to improve knowledge and skills related to this program and contribute to community resilience to climate change (Demartoto 2022).

The Climate Village program focuses on strengthening community-based adaptation and mitigation capacity to address the impacts of climate change (Demartoto 2022). This program aims to improve food security, public health, ecosystem resilience, and economic development (Demartoto 2022). The program also encourages sustainable practices, such as afforestation, waste management, and fish and plant farming (Demartoto 2022).

Climate Smart Villages (CSVs) are an integral part of the Climate Village Program. CSVs were established by the CGIAR Research Program on Climate Change, Agriculture, and Food Security (CCAFS) in East African countries, including Kenya, Tanzania, and Uganda (Ambaw et al. 2020). These villages serve as testing grounds for climate-smart agricultural practices (CSAs) with the potential for climate change mitigation (Ambaw et al. 2020). CSVs have shown promising results in terms of soil carbon sequestration, with significant increases in soil carbon stocks compared to control land use (Ambaw et al. 2020).

The success of the Climate Village Program depends on community participation and involvement (Sriyanto and Saniya 2021). This program has had a positive impact on the community, resulting in a high level of community involvement (Sriyanto and Saniya 2021). Continuous support and assistance from relevant institutions should further develop people's ideas and skills (Sriyanto and Saniya

2021). The purpose of the Climate Village Program (PROKLIM) is to encourage community and stakeholder involvement in strengthening capacity for adaptation actions to various impacts of climate change and reducing greenhouse gas emissions (Sekaranom, Kusumandari, and Suratman 2022). This program aims to improve social and economic welfare at the community level by considering regional conditions (Sekaranom, Kusumandari, and Suratman 2022). The goal is to control climate change and increase community resilience simultaneously (Sekaranom, Kusumandari, and Suratman 2022).

The Climate Village Program encourages active participation from the public and all parties in implementing local actions to increase resilience to climate change impacts (Demartoto 2022). This program aims to reduce national emissions and maximize the use of waste as an energy source (Demartoto 2022). The program also aims to raise awareness about climate change and its impacts, encouraging communities to contribute to strengthening public resilience to climate change (Demartoto 2022).

This program recognizes and supports community efforts in adapting to and mitigating climate change (Demartoto 2022). The focus is on strengthening community-based adaptation and mitigation capacity to address the impacts of climate change (Demartoto 2022). This includes activities such as reforestation in landslide-prone areas and the implementation of biopore programs, which create places for living things to absorb water by utilizing waste (Pambudi, Koem, and Lahay 2023; Sakroni, Mustofa, and Nabilah 2023).

The Climate Village program also emphasizes the role of the youth community as initiators, motivators, and implementers of various activities (Demartoto 2022). These activities include workshops on the Climate Village Program, fish breeding mechanisms, and waste management (Demartoto 2022). This program aims to improve knowledge and skills related to climate change and contribute to community resilience (Demartoto 2022).

The establishment of Climate Smart Villages (CSVs) is an integral part of the Climate Village Program (Ambaw et al. 2020). CSVs serve as a

testing ground for climate-smart agricultural practices (CSAs) with potential for climate change mitigation (Ambaw et al. 2020). These villages are in various agroecological zones and aim to address specific challenges faced by smallholders (Ambaw et al. 2020). Studies have shown that CSVs have the potential to increase soil carbon stocks compared to land-use controls (Ambaw et al. 2020)

Overall, the Climate Village Program is a community-based initiative in Indonesia that aims to strengthen adaptation and mitigation capacity to address the impacts of climate change. The program encourages sustainable practices, encourages community participation, and recognizes community efforts in adapting to and mitigating climate change. The program also includes the establishment of Climate Smart Villages as a testing ground for climate-smart agricultural practices. Community participation and support from relevant institutions are critical to the success of this program.

The Climate Village Program (PROKLIM) offers several benefits in tackling climate change and promoting sustainable development. These benefits are supported by numerous studies and research. One of the main benefits of the Climate Village Program is its contribution to climate change mitigation and adaptation efforts. The program aims to reduce greenhouse gas emissions and increase community resilience to the impacts of climate change (Helferty and Clarke 2009). Through the adoption of sustainable practices such as waste management, greening, and utilization of renewable energy sources, the program helps mitigate the effects of climate change (Helferty and Clarke 2009). In addition, by promoting community-based adaptation strategies, the program helps communities to better deal with climate change and the risks associated with it (Helferty and Clarke 2009).

Climate Village program also give the communities adaptation to and give them ability to increasing food resilience, controlling climate diseases and disaster, handling of sea-level rise, and other activities to efforts to enhance adaptation to climate change (Fitriana 2024). If the communities have strong resilience to disaster then they become A

disaster-resilient community that has strength and capability to minimize disaster risk by anticipation, overcoming, and recovery (Arifin et al. 2022).

The benefit of the Climate Village Program is its contribution to sustainable development at the community level. This program focuses on improving the social and economic welfare of the community by considering regional conditions. By promoting sustainable practices and supporting community initiatives, the program helps create more sustainable and resilient communities. This includes activities such as promoting ecotourism, supporting local businesses, and improving community-based natural resource management. Furthermore, the Climate Village Program encourages community participation and involvement. The program recognizes and supports community efforts in adapting to and mitigating climate change. The program encourages active participation from the public and all stakeholders in implementing local actions to increase resilience to climate change. This participatory approach empowers communities and fosters a sense of belonging and responsibility in confronting the challenges of climate change.

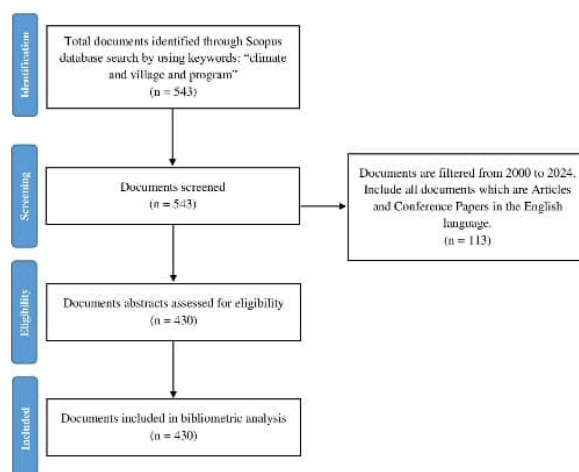
Overall, the Climate Village Program offers several benefits in addressing climate change and promoting sustainable development. These benefits include climate change mitigation and adaptation, improved agricultural practices through CSVs, community sustainable development, and increased community participation. These programs play an important role in building resilience, reducing emissions, and improving community well-being in the face of climate change.

## 2. METHODS

This study maps the literature on climate village programs. With a bibliometric approach, all research articles published in journals and contained in the Scopus Database were analyzed using Vosviewer version 1.6.17. The observation period is from 2000 to 2024. The results of a literature search showed that as many as 430 research articles were revealed about the climate village program. The sample research article uses various languages (English, Chinese, French, Azerbaijani,

Croatian, Persian, Russian, Ukrainian). Figure 1 shows the sampling procedure of 392 research articles on climate village programs.

Figure 1 outlines the procedure for determining the study sample using PRISMA. PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses, which is a set of guidelines designed to improve the reporting of systematic reviews and meta-analyses. This approach ensures a transparent and systematic method for identifying, screening, and selecting the studies to be included in the review. A total of 430 documents related to the research theme were obtained. In this screening step, documents are filtered from 2000 to 2024, include all documents which are Articles and Conference Papers in the English language. This reduction suggests a thorough filtering process to ensure that only the most relevant documents were included in the final analysis. This is likely based on criteria such as relevance, quality, and alignment with the research focus.



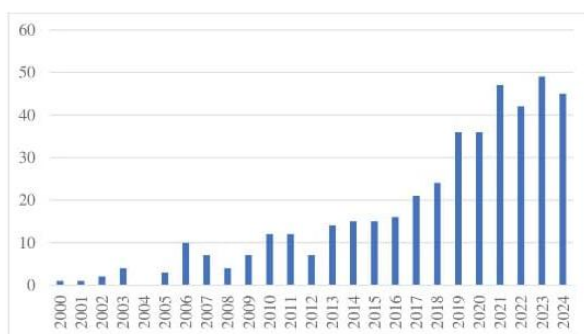
**Figure 1.** The Sampling Procedure of 430 Research Articles on Climate Village Programs

Bibliometric analysis reveals subject areas as well as publication trends. Knowledge mapping is used to show the development of knowledge of a field over time, making it easier to see groups of fields and trends in their development. Bibliometric studies make it easier for researchers to obtain a thorough review, identify knowledge gaps, acquire new ideas for research, and make desired contributions in the field (Donthu et al. 2021). Bibliometric analysis also helps evaluate previous research and provides an overview of future research needs (Ratnayake et al. 2024).

Topics such as culture-based tourism villages, community empowerment through empowered villages, and innovation policy mapping in Indonesia provide useful methodological context for designing climate village mapping studies, for example, how bibliometric data can reveal the relationship between village policy programs and climate adaptation and sustainable development. A combination of SLR-PRISMA for literature selection, bibliometric analysis (co-authorship, co-citation, bibliographic coupling), topic mapping, and network analysis using VOSviewer or similar tools is recommended to obtain a comprehensive overview of the climate village research landscape.

### 3. RESULTS AND DISCUSSION

Time analysis shows the number of research articles published each year. Fig. 2 shows that in 2000 there was only 1 document published in 2000, as well as in 2001. This is related to the climate village program that has not received attention. The Climate Village Program (*Proklam*) in Indonesia was only launched in 2011, referring to the Regulation of the Minister of Environment Number 19 of 2012 concerning *Proklam*. Then in 2015 the integration of the Ministry of Environment and the Ministry of Forestry was conducted followed by the ratification of a replacement regulation through the Minister of Environment and Forestry Regulation No P.84/Menlhk/Setjen/Kum.1/11/2016 concerning the Climate Village Program.



**Figure 2.** Number of Selected Research Articles During 2000-2024

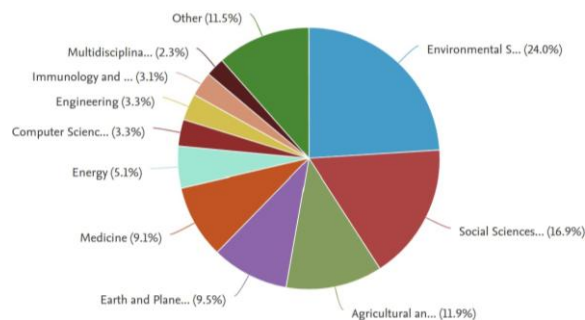
The number of research articles on the climate village program has increased steadily from 2013 to 2021. The highest number of

documents was in 2021 at 53 articles, but in 2024 it decreased slightly to 47 articles.

Time analysis was applied to display the movement of the number of literature documents on the climate village program during 2000 – 2024. Figure 2 shows that the number of literature documents has a fluctuation pattern. From 2000 until 2005, the number of literature was under 10 papers. There was no publication in 2004. Starting from 2012, the number of literature increased until 2021. The highest number of literature occurred in 2023, with 49 papers. This condition shows that scholars are less concerned about studying climate village programs and their efforts to increase their contribution to the literature in the last six years.

Figure 3 shows an analysis by field of study. The climate village program is related to Environmental Science (24%) field study, which is the largest percentage of research articles. Another field study, the climate village program is related to Social Science (16,9%), and also Agricultural and Biological Sciences (11,9%).

Environmental, economic, and social factors were all important influences on the social transformations that were occurring within each village. The social, economic, or ecological conditions under which socio-ecological systems are expected to adapt to climate change impact. Within agricultural systems, farmers have the option of significantly transforming their practices, or migrating elsewhere in the search for a better lifestyle, and exiting the agricultural socio-ecological system (Khanian et al. 2018). Another option for that issue is the Climate Village program.



**Figure 3.** The Sampling Procedure of 430 Research Articles on Climate Village Programs



able to identify key research trends and knowledge gaps in this area (Adesipo et al. 2020).

Another reference is research on the importance of community participation and involvement in program activities. By conducting a bibliometric analysis of the literature related to community involvement in climate change initiatives, this study can identify the extent of research in this area and explore potential strategies to increase community participation in climate village programs (Demartoto 2022).

Jiang et al. (2023) present a bibliometric analysis of research trends and hotspots in climate adaptation in agricultural systems. Such references can provide insight into current research on climate adaptation in agriculture and identify emerging areas of research. By analyzing the literature on climate adaptation in the agricultural sector, the study was able to identify key research themes, influences and knowledge gaps, which can be input to the development of strategies and policies in the climate village program.

Belter & Seidel (2013) conducted a bibliometric analysis of climate engineering research. Although not related to the climate village program, this reference can provide insight into the broader field of climate change research. By analyzing the literature on climate engineering, the study can identify research trends, collaboration networks, and knowledge gaps, which may feed into the development of interdisciplinary approaches in climate village programs.

Bibliometric analysis of climate village programs should provide valuable insights into research trends, knowledge gaps, and emerging focus areas within the program. By analyzing relevant literature, such as studies on smart agriculture, community participation, climate adaptation in agriculture, and climate engineering, it can inform the development of strategies, policies, and research directions.

#### 4. CONCLUSION

The analysis of relevant literature on the climate village program has provided valuable information for the development of strategies, policies, and research directions. The literature has additionally highlighted the importance of

smart agriculture, community participation, climate adaptation in agriculture, and climate engineering.

The study conducted a bibliometric analysis of 430 research articles on the climate village program and revealed an increase in the number of publications over the years. The analysis also shows that most publications are in the field of Environmental Science, followed by medicine, energy, biochemistry, and multidisciplinary studies. These findings show that there are still opportunities for further research and collaboration in various fields related to the climate village program. The most frequently published journals on this topic are *the Iop Conference Series Earth and Environmental Science* and *Sustainability Switzerland*. Overall, this study highlights the growing interest and importance of climate village programs in tackling climate change, building resilience, reducing emissions, and improving community welfare.

#### AUTHOR CONTRIBUTIONS

AH conceptualized the research and conducted the bibliometric analysis research articles using VOSviewer software, primarily responsible for drafting the manuscript, covering the abstract through the results and discussion. SY contributed to the data analysis and provided specialized insights from a regional development perspective. Both authors actively collaborated in reviewing the literature related to the research conclusions.

#### ACKNOWLEDGEMENT

This Research was funded by RKAT PTNBH Universitas Sebelas Maret, Fiscal Year 2023 through the Penelitian Hibah Grup Riset (Penelitian HGR-UNS) with research assignment agreement letter number: 228/UN27.22.PT.01.03/2023.

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