LONDON JOURNAL OF SOCIAL SCIENCES

eISSN 2754-7671

Eco-print *Batik:* Eco-Friendly Products of Green Business based on Indigenous Knowledge in Bantul

Elsa Putri E. Syafril
Creole Institute Yogyakarta
elsaputri.es@gmail.com

Hadara Haqqira Agel
SMA Insan Rabbany Tangerang Selatan
haqqiraagel@gmail.com

Abstract

Indonesia has diversity culture, one of them is *batik*. One of Indonesian *batik* is eco-print *batik* in Bantul, Yogyakarta. It is a type of *batik* that made by using utilizes natural dyes from leaf, root or stem dyes that are placed on a piece of fabric. Eco-print *batik* is an eco-friendly product and is based on the potential and local knowledge of the local community. Therefore, the objectives of this research are: (1) to explain the existence of eco-print *batik* in Bantul, Yogyakarta; (2) to explain the process of making eco-print *batik* in Bantul that eco-friendly products of green business; (3) to identify and strengthen the concept of eco-friendly products of green business based on indigenous knowledge by the case of eco-print *batik* in Bantul. The research method is qualitative with an ethnographic approach. The data are collected by participatory observation (directly observing the process of making eco-print *batik*), in-depth interviews, documentation, and document studies on eco-products, especially eco-print *batik*. The informant of this research are the eco-print *batik* crafters. Then, the data are analyzed using the Miles and Huberman interactive model analysis. The results of this research are: (1) eco-print *batik* is a technique of applying leaves or flowers on a fabric to produce certain (natural) motifs. It was introduced in Indonesia around 2016 and easily accepted by Indonesian textile crafters because Indonesia has strong roots in the tradition of natural dyeing and textile arts (*batik* process). In 2018, eco-print is increasingly gaining attention and popularity, especially for one of the *batik* crafters in Bantul with a workshop space, namely Sogga *Batik*. (2) The process of making eco-print *batik* uses several techniques, such as pounding, leaf fermentation, and steaming techniques. From the three techniques, Yanti Sogga in Bantul prefers the steaming technique because the resulting color is strong and long lasting. The process is not too long. Moreover, the materials used (**input**), the **process,** the product (**output**), and **marketing** method in eco-print *batik* are very eco-friendly because these concern about environmental sustainability. (3) The concept of eco-friendly products of green business based on indigenous knowledge by the case of eco-print *batik* in Bantul is being the novelty concept, namely the "indigenous eco-friendly product" by strengthening and combining Sommer's green business components, ILO's green business elements, and 3R method (go green concept) with indigenous knowledge perspective.

Keywords: Eco-print *batik*, eco-friendly products, green business, indigenous knowledge.

https://doi.org/10.31039/ljss.2024.7.165

The Background

Indonesia has large multicultural society with a variety of cultural structures [1]. Moreover, Indonesian people have high spiritual values, noble values, knowledge (mind) that is in harmony with nature based on repeated interpretations of the body, as well as feelings for others and the environment. The knowledge is identified as indigenous knowledge that is closely related to various ecological systems [2] and is integrated into community activities, both spiritually, emotionally, physically and mentally [3]. So, indigenous knowledge (spirituality, values, thoughts, tastes, and body) begins and returns to the environment as seen by the following picture [4].

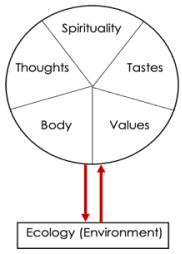

Figure 1. The Circle of Indiginous Knowledge Perspective (Elsa, 2020) [4]

It presents diversity of local culture. Thus, local culture contains local wisdom that can strengthen the local knowledge (indigenous knowledge) of the local community [5][6]. That's why, it plays a major role in protecting and preserving the environment as well as the sustainability of assets owned by a community for their needs hereditary without destroying assets [7]. Or in other words, local wisdom with local knowledge (indigenous knowledge) has a positive impact on environmental sustainability, such as coloring using leaves, flowers, or certain bark which are endemic plants in certain place, like teak (its leaves) or soga (its bark).

Indigenous communities have devised distinctive ways to determine useful information related to their thought and modes of activity, including geographical, genealogical, biological, and other evidence that describes human relations to flora and fauna, land and water, and supernatural forces. These relations are conveyed both literal and metaphorical truths by the knowledge that is often inherited through regular indigenous performances, including oral traditions, song, dance, and ceremony. Ecological knowledge is one of them. This knowledge is portable because its reliance upon local resources and careful observations on living things and natural process interactions within an ecosystem (any ecosystem) to ensure human survival [8]. Therefore, the inheritance of local wisdom is very important for local communities [9], such as eco-print *batik* in Bantul.

Eco-print is a technique of applying leaves or flowers on a fabric to produce certain (natural) motifs. Currently, the application of eco-print has developed and can be done on skin, paper, and some even on ceramics. So, eco-print techniques can be processed and applied to materials which are one of the largest contributors of the three creative economy sectors to Indonesia's economic growth: 18.15% [10]. Eco-print techniques can be an environmentally friendly (then will be said as eco-friendly) business opportunity. Products produced using this eco-print technique have artistic and high selling value [11]. Subsequently, the process of eco-

print *batik* includes pounding, steaming and leaf fermentation technique. For the best eco-print *batik* results, fabrics with natural fibers can be used [12].

Based on the above explanation, it can be said that eco-print *batik* is an eco-friendly product and is based on the potential and local knowledge of the local community. Environmentally friendly behavior is very important for business development and continuity to control and allocate resources into environmentally friendly activities [13]. The concept of entrepreneurship that seeks to resolve environmental challenges in the last three decades emerged a variety of terms around this phenomenon, namely sustainable entrepreneurship (e.g., Hockerts and Wüstenhagen, 2010), environmental entrepreneurship (e.g., Dean and McMullen, 2007), and ecological sustainability entrepreneurship (e.g., Gast et al., 2017) that combines economic, social, and environmental factors. In most cases, the term “greening” is widely used as an equivalent said for improving environmental sustainability. Additionally, green business is an enterprise that has a significantly lower impact on the environment (“1% is not enough”) than a similar traditional business, supports the development of products and services with environmental benefits [14].

There are five major components of green business model which identified by Sommer (2012): (1) green value proposition, (2) target group, (3) key activity, (4) key resources, and (5) financial logic [15]. Of course, it is different from the conventional business model which still has a linear pattern: "take-make-use-dispose" which gives a negative impact on the quality of ecosystem and human health, then the ability to provide resources [16]. The following is a diagram of the elements and common practices of green business to make it easier to understand.

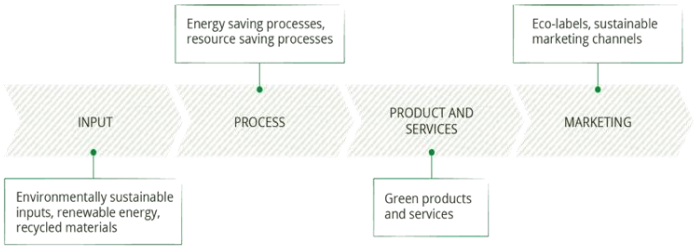

Figure 2. Elements and common practices of a green business [17]

Figure 2 shows that all elements in green business should concern about environmental sustainability. So, in this article eco-print *batik* is become one of “green business” products that eco-friendly. It clearly defines and categorizes business models which give both business and ecological environment benefit through generating beneficial impact to the environment.

Therefore, the objectives of this research are: (1) to explain the existence of eco-print *batik* in Bantul, Yogyakarta; (2) to explain the process of making eco-print *batik* in Bantul that eco-friendly products of green business; (3) to identify and strengthen the concept of eco-friendly products of green business based on indigenous knowledge by the case of eco-print *batik* in Bantul.

The Method

This study uses a qualitative design with a critical paradigm to find new concept. The concept related to eco-friendly products of green business based on indigenous knowledge, especially by the case of eco-print *batik* in Bantul. So, this study uses an ethnographic approach. The ethnographic approach is based on anthropological and sociological studies that examine the conditions of behavior, language, and actions that take place in a cultural group naturally for a long time [18].

The data were collected by participatory observation (directly observing the process of making eco-print *batik*), in-depth interviews (the key informant of this research is the eco-print *batik* crafter—Bu Yanti, the owner of Sogga Batik in Bantul. She is known as Yanti Sogga), documentation, and document studies on eco-products, especially eco-print *batik*. The data were firstly collected on May-August 2019, then stopped because of pandemic. Next, the data were collected again on February-May 2022. The data are analyzed using the Miles and Huberman interactive model analysis, especially for the observations and interviews data were reduced to several important notes by using a holistic coding method (determination, coding and coding, taking notes, and drawing conclusions) [19]. The interactive model analysis is shown as in figure 3.

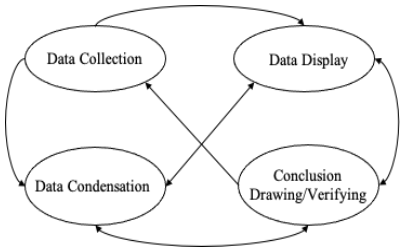

Figure 3. Interactive Model Data Analysis
(Miles, Huberman, dan Saldana, 2014) [19]

The interactive analysis model in Figure 3 emphasizes that the analysis process runs throughout research activities, starting from data collection, then data is selected, concluded, and presented. This data then becomes the basis for further data collection if necessary.

Discussion

1. The existence of eco-print *batik* in Bantul, Yogyakarta

Basically, the eco-print technique combines art and nature with the aim of creating beautiful and sustainable results. Or in other words, this technique combines natural coloring processes and art to create unique, attractive and eco-friendly products. The material of eco-print comes from plants such as tree bark, leaves, flowers or other plant parts that contain color pigments.

The eco-print technique was first introduced by India Flint in the early 2000s. She is an Australian textile artist who has become a central figure in the development of eco-print. She developed this technique through experiments and in-depth research on the properties of plants, natural pigments, and fabric fibers [20]. That's why, she is renowned for her ability to weave nature's landscape into her creations, allowing the natural world beauty to permeate her

work. With a captivating style that combines eco-dyeing, botanical alchemy, and slow stitching, she has established itself as a pioneer of environmentally conscious textile practices. Her work always reflects her passion for sustainability and eco-consciousness, reflecting her deep commitment to preserving the environment. She sources her materials ethically, often foraged for plants and uses recycled fabrics, aligning her practice with the principles of slow fashion.

Meanwhile, the eco-print technique was introduced in Indonesia around 2016. This technique is easily accepted and has become a special attraction for Indonesian textile crafters because Indonesia has strong roots in the tradition of natural dyeing and textile arts (*batik* process). In 2018, eco-print is increasingly gaining attention and popularity, especially for one of the batik crafters in Bantul with a workshop space, namely Sogga *Batik*. Sogga *Batik* is one of the *batik* business activities in the Krebet Tourism Village, specifically in Krebet, Sendangsari, Pajangan District, Bantul Regency, Yogyakarta. Sogga *Batik* has been established since 2008 by Bu Yanti (she is known as Yanti Sogga). It not only produces and sells products in the form of *batik* on fabric and wood but also opens up space for training related to natural dyes.

For the information, the name Sogga is taken from the name of the plant that its bark is used as a source of natural dye, namely the soga plant (*Peltophorum pterocarpum*). The soga plant (its bark) has been known and traded in large quantities as a dye since ancient times. The bark of this plant has become the main ingredient for producing a yellowish-brown color in Java batik industry, especially at a time when synthetic dyes were still scarce. This is as stated by Bu Yanti Sogga, that:

"*Soga digunakan untuk warna dasar, warnanya coklat.*"

(Soga is used for the base color, the color is brown).

So, it can be said that soga is an important plant producing batik dye. To make dye, soga bark is cut into small pieces and boiled with several other ingredients. Color variations are obtained by adjusting the composition of the mixing ingredients. The soga plant and its bark as shown in Figure 4.

Figure 4. Soga plant (*Peltophorum pterocarpum*) and its barks
(Personal collection photo, on May 2019)

2. The process of making eco-print *batik* in Bantul as eco-friendly products of green business

As stated in the beginning, eco-print is a coloring technique and motifs on fabric with natural materials that are eco-friendly. These materials usually come from plants, such as tree bark, leaves, flowers or other plant parts that contain color pigments. Plants that its leaves are often

used for eco-print *batik* in Bantul, such as teak, moringa, and castor plants. The process of making an eco-print *batik* uses several techniques, as described below.

a. Pounding technique

This technique is done by putting some flowers or leaves on the fabric, then beaten with a wood hammer. The process is so simple that it is widely used.

1) Prepare fabric, paper, wood hammer, alum, and some plant parts that contain color pigments.
2) Put the paper on the floor as a fabric base so that the fabric is not dirty.
3) Place the plant parts that have been prepared on the fabric and arranged in such a way as to produce a beautiful motif, then cover with another fabric.
4) Furthermore, pound the fabric parts that has flowers or leaves with a wood hammer so that the color produced is maximum.
5) After that, let the fabric for 15 minutes before opening it and cleaning of the leaves or flowers attached. Leave the fabric for 2-3 days so that the color is perfectly absorbed.
6) Then, rinse the fabric with alum water and directly dried in the sun without being squeezed.
7) After drying, the fabric is soaked again with alum water for one hour so that the color does not fade when washed.

b. Leaf fermentation technique

This technique is almost the same as the pounding technique, the difference is in the process before pounding, the leaves, flowers or other plant parts are soaked with vinegar water. The steps are like the description below.

1) Collect leaves, flowers or other plant parts which contain natural color pigments.
2) Then, soak the leaves, flowers or other plant parts in vinegar water so that the color can be seen clearly.
3) After soaking, the leaves, flowers or other plant parts are arranged on a fabric, then covered with another fabric and hit with a wood hammer or other object.

c. Steaming technique

As the name implies, to produce the motifs of leaves, flowers, or other plant parts, done by steaming the sheet of fabric that has been attached with the plant parts. The steps of working on this technique is as follows.

1) Prepare a cloth, then dip it in vinegar water with a ratio of 3:1 (water: vinegar).
2) Spread the fabric on a flat surface, then place several leaves, flowers or other plant parts in the desired composition to produce a beautiful motif.
3) After that, fold the fabric into two equal parts.
4) Place a small piece of pipe or round wood at the bottom of the fabric, then roll it up gently, and wrap the string along the roll of fabric so it doesn't come loose.
5) Steam the roll of fabric for 2 hours so that the pigment in the plant part comes out completely and produces an attractive color.
6) After that, lift the steamed fabric and untie the rope.

From the three techniques above, Yanti Sogga prefers the steaming technique. According to her, the time required for this technique is not too long and the color of the resulting motif is stronger and does not fade easily. It is as conveyed by her, that:

"*Saya lebih pilih pakai teknik kukus karena warnanya kuat dan tahan lama. Prosesnya pun tidak terlalu lama*".

(I prefer to use the steaming technique because the color is strong and long lasting. The process is not too long).

Figure 5. The process and product of eco-print *batik* (outer)
(Personal collection photo, on May 2019)

Figure 5 shows us how the process of steaming technique is very eco-friendly, the process is simple using the steaming technique on the stove and the steamed water can be used repeatedly. If the water is thrown away, it is not dangerous on the ground or river because it comes from natural ingredients. The plant parts that have been steamed can be used as compost for plants which will be used for further eco-print materials. According to Bu Yanti Sogga, that's why eco-print *batik* is an eco-friendly product. It is as conveyed by her, that:

"*Saya selalu menggunakan bahan-bahan alami dan saya fokus menanamnya*".
(I always use natural ingredients and I focus on growing them).

She uses and grows the plants herself for supplying materials of making motifs and colors eco-print *batik*. In general, these plants grow around the Yanti Sogga workshop area, such as teak and moringa plants. The teak plants are endemic plants in Yanti Sogga area because of the chalky soil character which is suitable for these plants. Apart from that, Yanti Sogga also planted several plants which she will use as eco-print *batik* materials. This plant also functions as a spice and medicinal plant (part of indigenous knowledge). The plants are in the yard of her *batik* workshop, as shown in Figure 6.

Figure 6. The plants for base materials of eco-print *batik*
(Personal collection photo, on May 2019)

Based on what Yanti Sogga does, the materials used (input) are very eco-friendly because they come from plant parts. Then, the process is also eco-friendly which is in line with the concept of go green withal the 3R method (reduced, reuse, recycle). Its method is a series of principles and actions aimed at managing waste more effectively and sustainably [21]. First, reduced method, that the eco-print batik process done by minimizing the waste produced. Second, reuse method, that the eco-print batik process uses used materials that can still be utilized, such as plastic to wrap rolls of cloth when steamed. Third, the eco-print batik process is also in line with recycle method, that plant dregs and steamed water from the eco-print batik process can be used as compost for plants which will also be used as eco-print batik materials. So, it can be said that eco-print *batik* is an eco-friendly product (output).

The marketing method uses personal connections through online media as well as a natural dyeing practice room opened in a batik workshop which is also a place to sell workshop goods, including eco-print batik. Then, a promotion was carried out that some of the profits would be used to replant endemic plants in the area and plant certain plants (also functions as a spice and medicinal plant) for eco-print.

3. Identifying and strengthening the concept of eco-friendly products in green business based on Indigenous knowledge (eco-print *batik* in Bantul)

The circle of indigenous knowledge perspective emphasizes that local wisdom with indigenous knowledge has a positive impact on environmental sustainability, such as coloring using certain leaves, flowers or bark which are endemic plants in certain places, like teak (the leaves) or soga (the leaves). skin). On the other hand, there are also several plants used as eco-print *batik* materials that are grown and function as spices and medicinal plants (part of indigenous knowledge). Apart from that, it can be interpreted that nature provides material needs for humans in everyday life. Therefore, a very "friendly" and mutually beneficial reciprocal relationship must be created between humans and nature for the preservation of nature which can ultimately support human needs. Therefore, eco-print *batik* is an eco-friendly product that comes from nature as a source of raw materials, both endemic plants around settlements and plants grown independently by the community.

Furthermore, the five main components of Sommer's green business model which are very different from conventional business models with a linear pattern and are supported by green business elements from the ILO have a very positive impact on the quality of ecosystems and human health, as well as the ability to provide resources. All elements in an eco-friendly business must concern about environmental sustainability. These concepts clearly define and categorize business models that benefit both business and the ecological environment by generating beneficial impacts on the environment. Therefore, it can be said that eco-print *batik* is one of the "green business" products that is very eco-friendly.

Apart from that, the eco-print *batik* process as a green business product is also in line with the concept of go green withal the 3R method (reduced, reuse, recycle): reduced method, that the eco-print *batik* process done by minimizing the waste produced because the materials used are from nature and eco-friendly based on indigenous knowledge (for their functions and benefits); reuse method, that the eco-print *batik* process uses used materials that can still be utilized, such as plastic to wrap rolls of cloth when steamed; and the eco-print *batik* process is

also in line with recycle method, that the plant dregs and steamed water from the eco-print *batik* process can be used as compost for plants which will also be used as next eco-print *batik* materials.

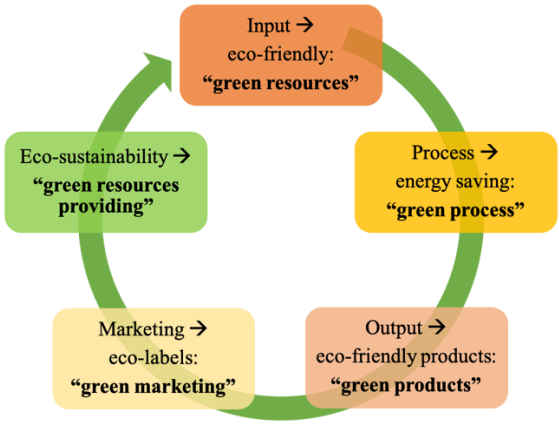

Figure 7. The cycle of green business elements
(by Elsa & Hadara, 2023 based on Sommer's and ILO concepts with 3R Method)

Based on the explanation above, it can be conveyed a "new concept" in green business based on eco-friendly concept with eco-print *batik* as eco-friendly product, namely the "indigenous eco-friendly product". The concept is based on the identification, association, and strengthening of four concepts, namely the Sommer's green business components, ILO's green business elements, and 3R method (go green concept) with indigenous knowledge perspective for environmental sustainability.

Conclusions and Suggestion

Conclusions

Eco-print *batik* is a technique of applying leaves, flowers or other plant parts on a fabric to produce certain (natural) motifs. It was introduced in Indonesia around 2016 and easily accepted by Indonesian textile crafters because Indonesia has strong roots in the tradition of natural dyeing and textile arts (*batik* process). In 2018, eco-print is increasingly gaining attention and popularity, especially for one of the *batik* crafters in Bantul with a workshop space, namely Sogga Batik in the Krebet Tourism Village, specifically in Krebet, Sendangsari, Pajangan District, Bantul Regency, Yogyakarta. It has been established by Bu Yanti (she is known as Yanti Sogga) on 2008. Sogga is taken from the name of the plant that its bark is used as a source of natural dye, namely the soga plant (*Peltophorum pterocarpum*) which its bark produces a common yellowish-brown color in Java *batik* industry.

The process of making eco-print *batik* uses several techniques, such as pounding, leaf fermentation, and steaming techniques. From the three techniques, Yanti Sogga in Bantul prefers to use the steaming technique because the resulting color is strong and long lasting. The process is not too long. It is also very eco-friendly; the process is simple using the steaming technique on the stove and the steamed water can be used repeatedly. So, it can be

concluded that the materials used (**input**) are very eco-friendly because they come from plant parts. Then, the **process** is also eco-friendly which is in line with the concept of **go green** withal the **3R method** (reduced, reuse, recycle): reduced method, that the eco-print *batik* process done by minimizing the waste produced; reuse method, that the eco-print *batik* process uses used materials that can still be utilized; and recycle method, that plant dregs and steamed water from the eco-print *batik* process can be used as compost for plants which will also be used as eco-print *batik* materials. That's why, eco-print *batik* is an eco-friendly product (**output**). The **marketing** method uses personal connections through online media as well as a natural dyeing practice room opened in a batik workshop which is also a place to sell workshop goods, including eco-print batik. Then, a promotion was carried out that some of the profits would be used to replant endemic plants in the area and plant certain plants (also functions as a spice and medicinal plant-indigenous knowledge perspective) for eco-print.

The "new concept" in green business based on eco-friendly concept with eco-print *batik* as eco-friendly product, namely the "indigenous eco-friendly product" being a novelty of concept by strengthening and combining Sommer's green business components, ILO's green business elements, and 3R method (go green concept) with indigenous knowledge approach. The scheme of the novelty of concept like below ("indigenous eco-friendly product" in green business):

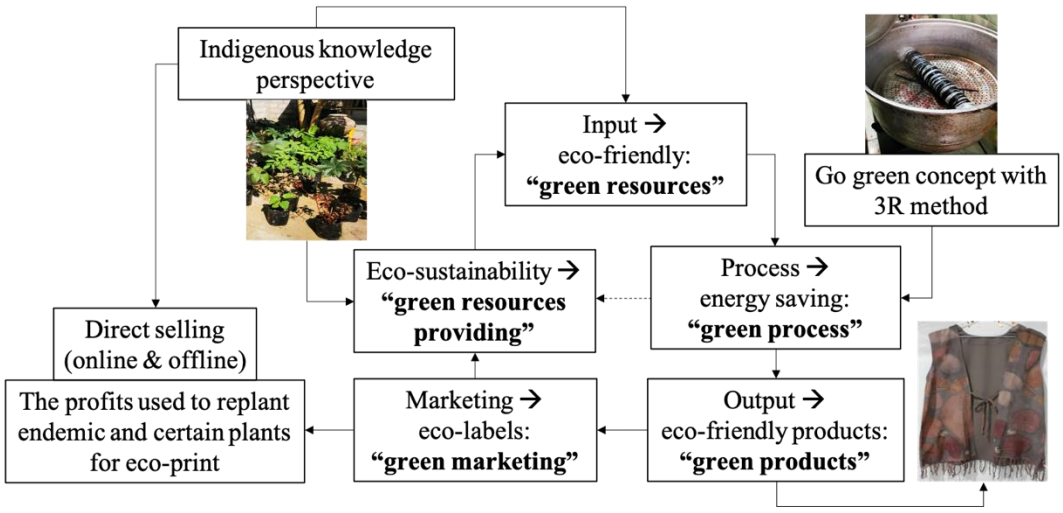

Figure 8. Indigenous Eco-friendly Product in Green Business
(by Elsa & Hadara, 2023)

Suggestion

Every indigenous knowledge in other places in Indonesia or other countries can be researched and used as an indigenous eco-friendly material and product of (green) business for environmental sustainability.

Acknowledgements

This article was presented at the 10th London International Conference, held from November 15 to 17, 2023, in London, United Kingdom. It has been published in the proceedings of the London International Conferences under No. 8(2003).

References

[1] Syafril, E. P. E. (2021). Traditional Games as Fun Media in Strengthening Multiple Intelligences During Learning at Home in the Corona Pandemic. *Eurasian Journal of Higher Education*, *2*(4), 12-22. https://doi.org/10.31039/ejohe.2021.4.50.

[2] Puschkarsky, Tatjana dan Ernesto Noriega. (2013). *Working with indigenous and local* knowledge *systems for the conservation and sustainable use of biodiversity and ecosystem services*. Berlin: WWF Germany.

[3] Sparkes, Lisa L. and Vanier College. (2015). Indigenous ways of knowing and western science: including traditional knowledge in post-secondary biology courses. CÉGEP Vanier College Department of Biology, and Vanier Indigenous Circle Steering Committee.

[4] Syafril, E. P. E. (2020). Coronathropology; Local Wisdom During and After the Plague. Malay Local Wisdom in the Period and After the Plague, 17.

[5] Syafril, E. P. E. (2021). The TILIK Tradition of Ngapak Kebumen Community as A Local Wisdom in Strengthening Social Resilience Post-Corona Pandemic. In London International Conference (pp. 1-17).

[6] Fatayati, N., & Syafril, E. P. E. (2022). Implementasi Kepedulian Lingkungan melalui Ekowisata Gua Pindul sebagai Sumber Belajar IPS. Proceedings Series on Social Sciences & Humanities, 3, 326-332.

[7] Theresia, A. (2014). Pembangunan Berbasis Masyarakat Acuan bagi Praktisi, Akademisi, dan Pemerhati Pengembangan Masyarakat. Bandung: Alfabeta.

[8] Bruchac, Margaret M. (2014). Indigenous Knowledge and Traditional Knowledge. In Encyclopedia of Global Archaeology. Claire Smith, ed., chapter 10, pp. 3814-3824. New York, NY: Springer Science and Business Media.

[9] DuryatmoS., SarwoprasodjoS., LubisD. P., & SuhartijoD. (2019). Local Wisdom: a Sociology of Communication Analysis in West Manggarai. Sodality: Jurnal Sosiologi Pedesaan, 7(2), 136-142. https://doi.org/10.22500/sodality.v7i2.25453.

[10] Aryani, I. K., R. Beny W., dan Ristiana D. P. (2022). Teknik Eco-print Ramah Lingkungan Berbasis Ekonomis Kreatif dalam Upaya Menciptakan SDM Masyarakat Mandiri Pasca-pandemi COVID 19 untuk Anggota Pimpinan Ranting Aisyiyah (PRA) Desa Karang Cegak Kecamatan Sumbang, Kabupaten Banyumas. JPM: Jurnal Pengabdian kepada Masyarakat Institut Teknologi dan Bisnis Asia Malang, 3(1): 1-16.

[11] Safitri, N. A., et al. (2023). Creative Development of The Natural Potential of Sesaot Village through Eco-print Workshop. Jurnal Wicara Desa, 1(1): 27-28. e-ISSN: 2986-9110.

[12] “Tiga Macam Teknik Eco Printing” (https://www.bahankain.com/2020/12/24/3-macam-teknik-eco-printing, accessed on February 17, 2022).

[13] Leon and Calvo-Amodio (2017) in A. Utaminingsih, S.H. Priyanto, J.J.O.I. Ihalauw, L. Kusuma. (2020). Green Business Behavior, Green Technologies, and Sustainability in

SMEs. International Journal of Economics and Business Administration, Vol. VIII, Issue 1: 417-424.

[14] Antal, Imola and Brindusa Burrows. (2018). A Short Guide to Developing Green Business Models: For Entrepreneurs, Researchers and Organizations that Support Entrepreneurs. Germany: Global Climate Forum (GCF).

[15] C.T.C. Trapp and D.K. Kanbach. (2021). Green Entrepreneurship and Business Models: Deriving Green Technology Business Model Archetypes. Journal Of Cleaner Production, 297 (2021) 126694: 2-3.

[16] Sari, E., Septiani, W., Ruhiyat, R., Khomsiyah, Hartini, & Richy Wijaya. (2023). Framework Model Green-Techno Sociopreneur Ternak Maggot untuk Membangun Kemandirian Ekonomi Panti Sosial DKI Jakarta. Jurnal Agroindustri Halal, 9(1), 41 – 52.

[17] International Training Centre of the ILO. (2022). Green Business Guide. Turin, Italy: International Labor Organization (ILO). ISBN: 978-92-9049-893-3.

[18] Creswell, John W. & J. David Creswell. 2018. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, Fifth Edition. Los Angeles: SAGE Publications, Inc.

[19] Miles, Matthew B., A. Michael Huberman, & Johnny Saldana. 2014. Qualitative Data Analysis, Third Edition. USA: SAGE Publications, Inc.

[20] "Mengenal Sejarah Ecoprint yang Muncul Tahun 2000" (https://kumparan.com/sejarah-dan-sosial/mengenal-sejarah-ecoprint-yang-muncul-tahun-2000-211HxdHabzS, accessed on May 31, 2022).

[21] "Metode 3R (Reduce, Reuse, Recycle): Prinsip Pelestarian Lingkungan yang Berkelanjutan" (https://narasi.tv/read/narasi-daily/3r-reduce-reuse-recycle, accessed on August 27, 2023)