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Scientization of Jamu in Indonesia: Reacting to Fake Jamu, Pressures of Nationalism, and the Preservation of Local Wisdom

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Abstract

Jamu is the general name for traditional Javanese herbal elixirs, traditionally made by a Mbok Jamu (Jamu lady) or a dukun (traditional Javanese healer). This paper first examines why at this historical juncture the state has begun sponsoring a program to scientize Jamu within a cultural heritage context. Drawing on archival research and interviews given from 2017 to 2019, I posit that the urge to avoid recurrent scandals over fake Jamu, and the wave of nationalism which has been prevalent since 2007 have combined to create the conditions for the scientization of Jamu. This paper investigates how the government-sponsored RISTOJA (Riset Tumbuhan Obat dan Jamu [Research of Medicinal Plants and Jamu]) program acts as a database for Jamu scientization and remolds the cultural content of Jamu. In order to achieve the goal of scientizing, the program must face at least three integral aspects of Jamu: community-based bodies, geography-centered herbal knowledge, and authentic local healers.

Keywords: Jamu, RISTOJA, traditional medicine, scientization

1 Introduction

Jamu is the general name for traditional Javanese herbal elixirs which are traditionally used to treat a variety of illnesses. However, *Jamu* has been suffering a decline recently, especially in urban areas. During my visit to Gadjah Mada University in 2018, a pharmacy professor worriedly reported to me: “*Jamu* has now dwindled a lot if compared with the past. *Jamu* was the solution to all kinds of illness, but [now] it’s seen as only a stamina or health enhancement drink now.” This statement that modernization is not a mere replacement for traditional medicine is worth acknowledging.

Traditional medicines do not just go extinct in the face of modernization but emerges as “hybrids” (Latour, [1993](#)). In *Neither Donkey nor Horse*, Lei ([2014](#)) analyzes the modern history of Chinese medicine in terms of diversified modernity, and explores the relationship between Chinese medicine, modern medicine and the state in a co-evolutionary history. Instead of assessing the dichotomy between modern medicine and Chinese medicine, Lei explores the co-evolutionary development of these two. “Modern Chinese medicine” as a hybrid thus becomes one of the symbols of China’s modernity. The emergence of hybrids dissolves the distinction imposed by modernization theory and divides the world into pairs of binaries such as modern/traditional and science/alternative. “Scientific *Jamu*” has risen as an invented hybrid of Indonesia in response to both the scandals of fake *Jamu*, and growing nationalism. I will later elaborate on both in this article.

Indonesian traditional medicine has been challenged and disparaged in the modern history of Indonesia. At the end of the 19th and the beginning of the 20th centuries, Indonesian physicians favored modern medicine and science. Instead of embracing traditional medicine, Indonesian physicians engaged in the nationalist movement with firm convictions about the necessity of modernity. After independence, Indonesian physicians committed themselves to the new nation (Pols, [2018](#)). As modernity signifies progress, the West, and evidence-based treatment; *Jamu* has been left out of education. This exclusion of traditional medicine has led to *Jamu*’s rejection in formal education and hospitals for a long time.



Nevertheless, traditional medicine in modern times is not doomed to be replaced. Since 2010, Jamu has been the subject of a state-sponsored scientization¹ projects. Understanding this new approach to Jamu entails answering several questions. How does traditional Jamu face modernity and align itself with the project of Jamu scientization? How does the RISTOJA program avoid simply viewing Jamu in terms of molecular active ingredients and remold the cultural content of Jamu?

In 2010, the Indonesian Ministry of Health (Kementerian Kesehatan) initiated a project for the scientization of Jamu at the Center for Research and Development of Medicinal Plants and Traditional Medicine (Balai Besar Penelitian dan Pengembangan Tanaman Obat dan Obat Tradisional [B2P2TOOT]) in Tawangmangu, Central Jawa. In addition to sponsoring the scientization project, in 2012, 2015, and 2017, the Ministry of Health carried out a project called *Riset Tumbuhan Obat dan Jamu* (Research of Medicinal Plants and Jamu) or RISTOJA for the investigation of current traditional medical practices over most of Indonesia (B2P2TOOT, [2013](#), [2015](#), [2017](#)). The project aims to collect medical formulas from each tribe or ethnic community based on an ethnic group investigation carried out in 2000, broadening the database of Jamu scientization as a national asset (aset nasional). This is the first time since independence that the Indonesian government has extended its hand to feel the pulse of traditional medicines within its national borders.

This paper will first explore the background of the scientization of Jamu. The story begins with the relentless scandals of fake Jamu which have occurred since 2000. These have provoked fear in society and distrust of traditional medicine. In response, scientists and Indonesia's Food and Drug Authority, BPOM (Badan Pengawas Obat dan Makanan), intervened to check for the adulteration of Jamu with other pharmaceuticals. Jamu became distrusted and its reputation dwindled under the waves of scandal. In 2007 and 2008, around the height of scandals of fake Jamu, another parallel storyline developed involving the cultural heritage confrontation between Malaysia and Indonesia. This was followed by the declaration of Jamu as "Brand Indonesia"² by President Susilo Bambang Yudhoyono ("Temulawak", [2008](#)) and the establishment of the

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- 1 By scientization, I mean a process to prove the local wisdom of Indonesia through scientific methods. This is not based on the hypothesis that traditional Indonesian medicine is erroneous and can only continue to exist after it is examined by scientific methods but rather on respecting Indonesia's local wisdom through the RISTOJA project. Scientization happens mainly in the lab but extends its influence to rationalize and give order to the botanical plants, distribute recipes of Jamu to the medical frontier, and finally, shape the national character of Jamu.
 - 2 Brand Indonesia means Indonesian brand if it is directly translated into English. I choose to keep its original term "Jamu, brand Indonesia" as it is a slogan initiated with strong cultural recognition of Jamu.

Jamu scientization center to pursue the goal of scientizing Jamu. In this sense, Jamu scientization should be understood in the context of both the proliferation of fake Jamu and the new wave of nationalism spurred on by the cultural heritage confrontation with Malaysia. I will also argue that the intention of scientization to reconstruct Jamu as Brand Indonesia leads to a fundamental tension between the government, local practitioners, and community-based bodies, as well as different viewpoints on medicine from social-ecological communities.

2 What is Jamu?

Jamu comes from the Javanese word *Djamu*, derived from the Sanskrit word जप [japa], meaning pray (Fibiona & Lestari, [2015](#)). In this sense the term indicates that *dukuns* (traditional Javanese healers who are mostly men and sometimes practice magic) pray and concoct Jamu at the same time. Central Java has been thought of as the originator of Jamu. Records regarding Jamu appear on the Borobudur inscription panels and in the Javanese classic *Serat Centhini* from central Java (Beers, [2012](#)). During Dutch colonization, Indonesian herbs and spices sparked a renaissance in European medicine during the seventeenth century. Europeans coming to the Dutch East Indies were confronted with unfamiliar illness and had no choice but to turn to local medication (Pols, [2009](#)). Jamu in modern times is used as a dietary supplement, for the prevention of disease, stamina enhancer, or as a traditional body scrub (*lulur*). Mass marketed Jamu such as *Tolak Angin* is available in supermarkets and shops everywhere.

Traditionally, Jamu was the specialty of a *Mbok Jamu* (Jamu Lady) or the *dukun*. Most Jamu ingredients are from plants; only a few recipes require parts of animals or insects. Knowledge of Jamu has been passed down from generation to generation and usually from mother to daughter or mothers-in-law to their sons' wives. Therefore, Jamu is "traditionally feminine commercial activity" (Torri, [2012](#), p. 38). Modern Indonesian people share similar stories about how common *Mbok Jamu* used to walk down the street with a basket on her back and sell Jamu door-to-door.



The definition of Jamu has changed through time and is closely related to socio-historical changes. In 1963, a new law required all traditional medicine in Indonesia to be renamed Jamu (UU. 7/1963; Afdhal & Welsch, 1988). This is another example of Java-centric law enforced in the time of the Sukarno era. In modern Indonesia, traditional medicines from other islands have their own local names and not everyone is willing to call their own traditional medicine “Jamu”. In my interviews, some Indonesians from outlying islands consider Jamu as a generic term for medicine from Java, whereas others take it as a preexisting term to designate any traditional medicine. “Scientific Jamu” is a new term indicating scientized traditional formulas packaged within national borders.

3 Scandals of Fake Jamu: A Failed Hybrid

The BPOM defines BKO (Bahan Kimia Obat) as “synthesized compounds or chemical products from natural substances commonly used in modern medicine”³ (BPOM, 2006). Fake Jamu is generally adulterated with drugs ranging from over-the-counter analgesics to controlled drugs, causing serious side effects if consumed regularly. BPOM publicized the side effects of adulteration that might lead to death. As early as 1990, the Ministry of Health enacted a law to prohibit this kind of adulteration (Permen. 246/1990, article 23).⁴ In 2006, the BPOM warned the public with lists of fourteen common drugs frequently added to fake Jamu. In 2016, the BPOM published a formalized law using BKO as the official term for such adulterants (Perka. 5/2016, articles 2–3).

Laws constantly strive to regulate the adulteration of Jamu with BKO. However, examples of fake Jamu still regularly cause scandals in local news and are frequently found by researchers in Indonesia. In 1999, reports of fake Jamu began appearing in Cilacap, a city in Central Java, and began to accelerate from around 2007 until the present. Researcher Elizabeth Krier (2011) reported that Jamu companies in Cilacap chased the inspection officers out of their factory to protest the government’s crackdown on fake Jamu. They were called the Jamu Mafia in the news, and worse, the side effects of fake Jamu can be alarming; for example, so-called “moon face” is one side effects of Jamu adulterated with steroids.

3 “BKO atau bahan kimia obat adalah senyawa sintesis atau bisa juga produk kimiawi yang berasal dari bahan alam yang umumnya digunakan pada pengobatan modern.”

4 “Tidak mengandung bahan kimia sintetik atau hasil isolasi yang berkhasiat sebagai obat”

Since 2011, the BPOM has given annual BKO warnings and cases. In 2011, there were 21 cases; in 2012, there were 28; in 2013, there were 54; and in 2015, the crackdown spread all over Java island with the BPOM conducting widespread inspections of Jamu producers (Nuryunarsih, [2016](#)). This crackdown was not only conducted by the BPOM but also carried out by other scientists who actively acted to investigate and expose fake Jamu.

Table 1 below shows how the Indonesian scientists tried to develop faster methods for detecting adulteration as they pushed the government to institute more comprehensive and standardized monitoring to control the distribution of fake Jamu. This was a call from normal research science to regulatory science (Jansnoff, [2009](#)). The scientists there aim to detect and regulate the unknown adulteration in Jamu in their own labs, implicitly questioning the competency of BPOM.

Table 1. Developed Methods to Detect Adulterations of Jamu

Year	Methods	Adulteration
2009	TLC	Paracetamo (Siswanti, 2009)
2013	TLC-spectrophotodensitometry	Prednisone in rheumatic Jamu (Wisnuwardhani et al., 2013)
2013	TLC	Sildenafil in sex enhancement Jamu (Waris et al., 2013)
2015	HPLC	Scopoetine, Andrographolide, Quercetin, and Luteolin (Fidrianny et al., 2015)
2016	TLC-densitometry	Prednisolone in anti-rheumatic Jamu (Wirastuti et al., 2016)
2016	HPLC	Tadalafil in sex enhancement Jamu (Mahesha & Rachmawati, 2016)
2016	TLC	Paracetamol, Mefenamic acid, and Ibuprofen in pain killing Jamu (Hayun & Karina, 2016)
2017	TLC-densitometer, TLC with various phases	Paracetamol and Dexamethasone in anti-rheumatic Jamu (Mustarichie et al., 2017)

Note. Methods compiled by the researcher.



Anthropologist Mark Woodward borrowed the idea of bricolage from Lévi-Strauss to explain how the dukun incorporated various new elements into their medical practice (Woodward, [1989](#)). Adulteration of Jamu and BKO can be seen as a bricolage process which occurs when traditional medicine is confronted with modernity. The table above shows that modern medicines added to Jamu are mostly the same medications prescribed by doctors to patients who go to clinics for standard ailments. For example, sexual impotence is treated with Sildenafil and Tadalafil. This is why people often feel fake Jamu is “cespleng” (effective). In the interviews I conducted, some illegal workers in Cilacap said they knew the modern medicines were added through the instruction of pharmacists or doctors. Most of the modern medicine used in fake Jamu is from pharmaceutical companies, as some medicines do not meet the Good Manufacturing Practice (GMP) standards, but are still lucrative when sold illegally. A modern but failed hybrid is thereby produced, translated, and adopted through the cooperation of complicated networks.

Inappropriate bricolage actually intensifies the risks of taking Jamu. Consuming the fake Jamu may initially seem to lead to quick recovery, but it will reveal its side effects after prolonged use. Such side effects constitute the risks which the development and complexity of new technologies bring about (Beck, [1986/1992](#)). These risks cause future uncertainty, especially when the amount and kind of BKO the Jamu was adulterated with is unknown. Since 2011, the Indonesian government has annually published lists of companies that produce fake Jamu. This is a complex undertaking, rather like looking for a needle in a haystack. When the illegal Jamu products are found, there is an exaggerated press conference with a line of officers jostling one another to take credit while a bonfire is made from the confiscated Jamu is not unusual (Gabungan Perusahaan Farmasi Indonesia Jawa Barat, [2008](#); Latif, [2016](#)).

To rebuild the reputation stained by those eye-catching headlines, small and medium businesses and local governments have held Jamu-drinking events to highlight their resolution to improve the quality of Jamu. In 2018, the local government in Cilacap worked with the Association of Indonesian Jamu to summon more than twenty thousand people to drink Jamu together. They even applied for a Guinness World Record. The chairman of the Association of Indonesian Jamu told the media (Mutiah & Mahbub, [2018](#)):

Breaking Guinness World Records can be the first milestone to make Jamu in Cilacap legal, free from BKO, and prosperous like before. Jamu is the future, not the past. Many advanced countries also “Go back to Jamu, Go back to nature”.

The Indonesian national government has besieged fake Jamu producers with the scientification program. For example, by opening a scientific Jamu clinic in West Sumatra's Mentawai, the government hoped to use scientization to finally ensure that Jamu could become trusted as well as free from chemical substances (Realitakini, [2016](#)). It is believed this scientization will enhance its reputation.

4 Nationalism

In the history of South East Asia, modern medicine has often taken the role of carrying nationalist sentiment. Physicians engaged in the process of decolonization with their minds set on modernity and scientific progress (Anderson & Pols, [2012](#); Pols, [2018](#)). They devoted themselves to their new-born nation's health infrastructure management after independence, thus turning into apolitical figures of national development compared with their anti-colonial political role in the pre-independence era. At this stage of national modernization, traditional medicine had no legitimacy within formal medical education and is considered as opposing modernity.

Nationalist physicians participated in the decolonization process. Regarding this nationalism, Gellner argues that "during the late nineteenth century the discourse of nationalism shifted from history to biology as the main mythopoetic science" (Pols, [2018](#), p. 12). Under biological nationalism, Jamu is in opposition to modernity. However, scientific Jamu showed up on the stage in 2010, attempting to be seen on the same level as modern medicine. It is through the understanding of both historical and biological discourse of nationalism then we came to realize that celebrating modernity and evidence-based research does not demand the rejection of traditional medicine.

In *Imagined Communities*, Benedict Anderson ([2006](#)) argues that communities should be distinguished by the processes through which they are imagined. This process of construction is also embodied in official language and the unification of terms. Bahasa Indonesia is "of paramount importance for the shaping of younger Indonesia's national consciousness" (B. R. O. Anderson, [1990](#), p. 124). Indonesia's founding father, Sukarno, was a fan of Jamu and supported incorporating herbs in household-based gardens. He believed that Jamu was an important asset for the newly independent nation (Antons & Antons-Sutanto, [2009](#)). It was under his government, in 1963, that Jamu was designated as the official name encompassing all traditional medicines made from raw materials in Indonesia (Afdhal & Welsch, [1988](#), p. 151). This law stretched the Javanese term "Jamu" to cover the whole nation in another example of harnessing an element of Javanese culture and using it to forge the imagined Indonesian community. Jamu thus came to be the legally recognized term for *obat asli Indonesia*



(medicine originally from Indonesia) while other traditional medicine names were ruled out. The 1963 Law (UU. 7/[1963](#)) that defined Jamu was a precondition for its later incorporation into cultural heritage nationalism.

This nationalization of Jamu continued under the Suharto regime in the 1980s when it prohibited Jamu advertising from promoting regionalism. The government of Suharto demanded that Jamu reflect a unified national character, meaning there could be no Jamu Madura or Jamu Bali, only Jamu (Afdhal & Welsch, [1988](#), p. 166). Jamu, according to this official ideology based on Pancasila, was the only winner in any regionalism-related politics. Therefore, Jamu was reimagined as originally not part of Java, Madura, or Nusantara, but as coming from all of Indonesia. Jamu was connected to the nation-state and constituted a new way of representation.

5 Cultural Heritage, Nationalism, and Brand Indonesia

Two preconditions of the cultural heritage nationalism of Jamu comes from two legal transformations. The first was the law in [1963](#) which made Jamu epistemically represent Indonesia. The second was global rather than national. The [2003](#) Convention for the Safeguarding of the Intangible Cultural Heritage promulgated the Paris Convention's interpretation of intangible world heritage. This international notion of unique cultural heritage led to the formation of a discursive battlefield between Malaysia and Indonesia, as both shared a similar pre-colonial history.

With the rise of the modern nation-state, cultural heritage that connected the communal memories and culture became ammunition in "politics of tradition" debates (Hobsbawm & Ranger, [1983/2012](#)). The formation of heritage was deemed to be a modern process serving the demands of politics, economy, and society (Ashworth, [2011](#)). Heritage in the present nation-state became a means to secure its identity. Tunbridge and Ashworth ([1996](#)) explain that "the present selects an inheritance from an imagined past for current use and decides what should be passed on to an imagined future" (p. 6). Aragon ([2012](#)) offered the idea of "intangible property nationalism" to describe post-colonial confrontations regarding cultural heritage. Following this "equally assumed imaginary future," the future of a nation could also be imagined in clinics and laboratories (W. Anderson, [2006](#)).

The formation and consolidation of traditional medicine has had close relationship with the identity struggle. The revival of traditional medicine at different time and in different places has received active encouragement from nationalists searching for national and cultural identity. The Ayurveda tradition in India was created through the search for a glorious past for Hindu recognition

in the twentieth century. Traditional Chinese Medicine was reconstructed during the Cultural Revolution as part of a nation-building project (Chakrabarti, [2014](#)). I will later elaborate how Jamu was embroiled in a confrontation on cultural heritage at this specific historical juncture and how did science come to function as the prime mode of state legitimization of culture.

In 2007, Jamu was involved in a cultural heritage skirmish between Indonesia and Malaysia (“Folk Song”, [2007](#)). Indonesia accused Malaysia of co-opting the song “Rasa Sayang” and the Pendet dance in its overseas tourist campaign, which used the slogan “Malaysia, Truly Asia.” In response, the leading commercial Jamu producer in Indonesia, Sidomuncul, issued its own Jamu messaging to add to this long-running rivalry (arezeo, [2008](#)). This campaign put Jamu, batik, and Pendet all into the same category of “Truly Indonesia.” Soon afterwards, President Susilo Bambang Yudhoyono, pushed by pharmaceutical companies, proposed the “Jamu Brand Indonesia,” partially in the hopes that Temulawak would become a world-famous super-root like Korean Ginseng (Krier, [2011](#), p. 65). In the same year, Indonesia applied to have Jamu designated as an example of intangible cultural heritage by UNESCO (Primartantyo, [2013](#)). During this time, the conflict between Malaysia and Indonesia over cultural identity sporadically appeared in the media and was always related to UNESCO. In September 2014, the head of the Mustika Ratu (MRAT) pharmaceutical company, Putri K. Wardani, accused Malaysia of stealing the term *Jamu* from Indonesia and urged the government to accelerate its UNESCO application (detikFinance, [2014](#)). In an interview, she referred to the traditional medicine in Malaysia as *obat kampung* (village medicine), refusing to call it Malaysian Jamu. In the future, as laid out in the *Roadmap Pengembangan Jamu* [Roadmap of Jamu Development], the Indonesian government plans on working harder on register Jamu as a world heritage artifact (Kementerian Koordinator Bidang Perekonomian RI, [2011](#)).

The rhetoric of connecting Jamu to heritage was also evident in the discourse of President Joko Widodo. At the opening of the Association of Jamu sellers (GP Jamu) in 2015, Jokowi once again accentuated the importance of Jamu Brand Indonesia and used the term cultural heritage (*warisan budaya*) to describe Jamu (Asril, [2015](#)). It was interesting to see how batik fabrics, a gamelan orchestra, and a gong were displayed together in the opening ceremony, indicating all of these represent traditions of modern Indonesia. In addition to calling Jamu part of the national cultural heritage of Indonesia, Jokowi also promised cross-functional cooperation and warned the audience not to “let other countries claim Jamu as their own”⁵. It is clear that this new wave of nationalism

5 “jangan ada yang diklaim Negara lainnya”



was inspired by its absent opponent, Malaysia. When Jokowi went to the hospital for the medical exam required for all presidential candidates in 2014, he invited three Mbok Jamu (Jamu lady) to come with him and drank Jamu on the spot, suggesting that his stamina and health are from Jamu. After he was elected, Jokowi revealed that Temulawak was an important part of his Jamu recipe (Nugroho, [2017](#)). This acknowledgment of Jamu's importance and efficacy at high levels is not limited to the president. During my interviews with scientists at the RISTOJA program and organizers of the 2018–2019 Temulawak Symposium, they all associated Jamu with Indonesian cultural heritage (warisan budaya Indonesia) passed down from generation to generation. The grammar of invoking nationalism against an implied nation and linking Jamu to national identity has become commonplace in the discourse of politicians, pharmaceutical company owners, and even scientists.

Nationalist discourses have also been mobilized in magazines and documents from the Center for Research and Development of Medicinal Plants and Traditional Medicine (B2P2TOOT). *Warta HortusMed* is an online magazine published by B2P2TOOT which collects Jamu-related articles from a range of researchers and contributors. In addition to medical data and up-to-date research on Jamu, it contains several articles calling for the preservation of Jamu as cultural heritage (warisan budaya), and offers suggestions for passing this heritage on to future generations as well as articles from scientists arguing that the presentation of Jamu must be in the traditional form of dry materials (simplisia) rather than pills (Aqli, [2019](#); Halimah, [2019](#); Santoso, [2018](#); Taufik, [2018](#)). The deployment of such cultural-scientific values is aimed at reinforcing the empowerment of Jamu scientization. In [2010](#), Mr. Siswanto, the chairman of the National Scientization of Jamu Commission, emphasized the primary importance of the scientization of Jamu is to promote nationalism and he stressed that the ultimate goal is to make Jamu Brand Indonesia (slide 17, 19). This indicates that cultural-scientific nationalism is an integral part of the modernization of Indonesia.

Two key state-sponsored actions were performed following the announcement of “Brand Indonesia” in 2008. The first was the announcement that the Temulawak Symposium would be held in Bogor every three years, starting from 2008. The second was the initiation of scientization of Jamu at the Center for Research and Development of Medicinal Plants and Traditional Medicine (B2P2TOOT) in Tawangmangu in 2010. Both of these state-sponsored scientific research programs have sought to mobilize scientists to engage in the process of scientization and develop evidence to scientifically validated local knowledge. It is through the cooperation of scientists in the central institution (B2P2TOOT) and individual scientists carrying out the nationalist project in their labs that the scientization of Jamu has been made possible. B2P2TOOT will be further discussed in the RISTOJA section, but here I would like to explore the Temulawak Symposium and its impact.

The first International Symposium on Temulawak was held in Bogor and was attended by President Susilo. It was at this Symposium that the president announced Jamu would become “Brand Indonesia” (“Temulawak”, [2008](#)). One of the organizers of the Temulawak Symposium (in 2008, 2010, and 2014) commented upon this (personal communication, 2018/2019):

Organizer⁶: *At that time [2008], we all agreed that we should back our traditional knowledge and make it more international. So, we think the scientization of Jamu is the best way. We thought scientific data can make Jamu more international.*

Edward (the author): *Why did the Symposium take the plant Temulawak rather than other plants?*

Organizer: *The first time we just chose Temulawak was because you cannot find this except in Southeast Asian countries. It’s originally from Nusantara, yeah previously it’s Nusantara, but it’s divided into Malaysia then Brunei... There are different types of turmeric but only Temulawak has Xanthorrhizol. All Indonesian Jamu uses Temulawak, even if in small amounts, they put in Temulawak ... so Temulawak is the ginseng of Indonesia.*

6 In my interview, the organizer of Temulawak Symposium stressed that she only uses cosmetics from the Jamu pharmaceutical company Martha Tilaar because they use Indonesian ingredients rather than those imported. One of her research projects is related to the discovery of Indonesian herbs used in aroma therapy that she claims those herbs represent “the smell of Indonesia”.



Temulawak, usually called Java turmeric, has become a nationalized plant carrying particularly nationalist sentiments embodied by scientific research as well as by the performative propaganda of the president. It has recently become possible to differentiate Temulawak from other types of turmeric through the biologically active compound Xanthorrhizol. Nationalist sentiment has been given material form through laboratories, as science has legitimized both the scientific and cultural character of Temulawak.

The second symposium of Temulawak was organized in 2011 and focused on efficacy, technology, and toxicity. The Batik design competition is also noteworthy. When visiting the Institute of Agriculture in Bogor, a batik can be seen hanging on the wall which was top ranked in the design competition. However, the design is not a traditional batik with motifs of the royal courts or styles from the northern coast of Java but instead represents Jamu, including elements such as Temulawak, Jamu gendong, cloves, and papaya leaves. In the 2015 Symposium, there were two cultural events: a Jamu festival which aimed to promote Brand Indonesia and a competition for articles written about Jamu. The writing contest entries were collected in a blog to spread the knowledge of Jamu through social media and endorse Jamu without adulteration of modern medicine (BKO). This writing competition was staged to address the issue of Jamu not being the first choice of medical providers in Indonesia itself (*belum menjadi tuan di rumahnya sendiri*). To raise social awareness of the benefits of Jamu, the articles are printed in newspapers and magazines. A variety of cultural contests have also been integrated for the representation of Jamu.

As part of the opening event for each of the Temulawak symposiums, held in 2008, 2011, and 2015, “Jamu Brand Indonesia” was mentioned repeatedly. The introduction to the 2015 Temulawak Symposium demonstrates how scientists describe Jamu and connect it to modernity: “we decided to strengthen Jamu through science, technology and the scientization of Jamu...with the support of science, technology and evidence-based research, Jamu can be developed not only in Indonesia but the world” (Deny, [2015](#)).

In the 2015 Temulawak Symposium, technological development was stressed, and workshops were established which focused on learning and developing new technologies. Chemometrics and metabolomics are two techniques mentioned by the organizer of the Symposium in the interview. New technologies helped him and his team statistically analyze their database of Jamu formulas to find patterns of treatment for specific ailments. The entanglement of technology, culture, and science under the umbrella concept of “Jamu Brand Indonesia” has been the focus of the Temulawak symposiums.

6 Research Methods

This paper is based on semi-structured interviews performed in 2019 and 2020 with professors involved in the RISTOJA⁷ program (four anthropologists and four botanists), two traditional herbal masseurs (dukun pijat), and the head of the Temulawak Symposium, as well as field-notes compiled during visits to B2T2TOOT. For the fake Jamu scandals section, I interviewed two former employees of a fake Jamu factory in Cilacap and a former BPOM officer who handled all the fake Jamu reports in Central Java. My idea to interview scientists comes from Warwick Anderson's "treating scientists anthropologically" (Anderson et al., [2016](#), p. 216). Therefore, I use archival research and interviews to chronicle their experiences to explore the roles scientists play in RISTOJA programs and the problems they have encountered with interacting with local healers. In addition, I collected materials from Indonesian news reports, official documents, and research submitted to the Temulawak symposiums. In 2018, I joined an international Jamu class in Gadjah Mada University which broadened my understanding of all aspects of Jamu. The languages used in the interviews were primarily English and Indonesian.

7 The RISTOJA Program: Making from Local Wisdom

Jamu Saintifik (scientific Jamu) was a term designated in 2010 by the Minister of Health to enact scientization of Jamu, and appeared on the stage for the first time at the Center for Research and Development of Medicinal Plants and Traditional Medicine (B2P2TOOT) in Tawangmangu. The Center aimed to promote the scientification of Jamu and service-based research. Hortus Medicus was the clinic providing patients with scientific Jamu while at the same time overseeing the examination of clinical trials. Jamu that passes the clinical trials is dubbed Jamu Saintifik; As of late 2019, 13 kinds of Jamu have earned the designation of scientific Jamu (Aprita, [2019](#)).

⁷ Riset Tumbuhan Obat dan Jamu [Research of Medicinal Plants and Jamu]

Figure 1. Jalan Panjang ke Saintifikasi [The Long Road to Scientization]



Note. Illustration by Didie Sri Widiyanto (Didie SW) from (Permanasari & Susilo, [2010](#)). Picture of illustration taken by the author in 2019.

In the same year as the establishment of B2P2TOOT, this illustration from an article titled “The Long Road to Scientization” was printed in *Kompas*, the largest newspaper in Indonesia (Permanasari & Susilo, [2010](#)). It shows a silent and stoic Mbok Jamu positioned under a microscope staring at a group of doctors, who are presumably discussing her situation. It seems to say the microscope is the only way to measure the efficacy of Jamu. Medical theories, ways of preparation, and local wisdom from Mbok Jamu are not empirically applicable, and therefore are not included in the evaluation process. However, this illustration based on imaginative modernity has little bearing on the story to be shared below. This illustration does not reflect the rich cultural background of the scientization of Jamu, which places high value on the role of local knowledge.

The scientization of Jamu requires a database of traditional medical practices while it builds its database in a more nuanced and considered way. In the early twentieth century, one aspect of the revival of the Ayurveda tradition was based on the classic medical texts which imbued the effort with a sense of authenticity. It was shaped by the interpretation of Brahmins in the canonical literary tradition and tended to exclude many actual practices which were not inscribed in the classic texts (Chakrabarti, [2014](#), p. 189). In addition, only Indian *Ayurveda*—no *Unani* or other alternative medicine systems—were explicitly given a state-sanctioned ideological position (Hardiman & Mukharji, [2013](#)).

Unlike India, Indonesia did not make traditional Indonesian medicine classics, like *Serat Primbon Jampi Jawi* and *Serat Centhini*, the main database for the scientization of Jamu. The scientization of Jamu was instead based on the empirical RISTOJA programs in [2013](#), [2015](#), and [2017](#) (B2P2TOOT). The RISTOJA program sent professional mixed groups to collect formulas from 403 ethnic groups and interviewed 2354 traditional healers (Widowati, [2017](#)). It aimed to investigate the medical practices, formulas, ways of knowing medicinal plants and local wisdom throughout Indonesia, including not just those in Java or representing major ethnic groups, but also from the frontiers of the nation. No matter what medicine or ingredient names were used by local tribes or by individual dukun, all the recipes that passed the clinical trials would be renamed Jamu Saintifik (scientific Jamu). This had the same effect as the [1963](#) law designating Jamu as the only name for all traditional medicine within the borders of Indonesia. Therefore, Jamu was again reconstructed as ontologically and empirically Indonesian through the RISTOJA program. It followed the motto of the nation, *Bhinneka Tunggal Ika* (out of many, one), rather than prioritizing only one or two main traditions as the Indian Ayurveda revitalization had.

In *Seeing Like a State*, James Scott ([1998](#)) describes the tragedy brought about by the twentieth century state through high-modernist ideology and confidence in scientific and technical progress. The state-imposed order on society simplified local knowledge to make cultures and society legible. At the end of the introduction of *Seeing like a State*, Scott notes “[t]oday, global capitalism is perhaps the most powerful force for homogenization, whereas the state may in some instances be the defender of local difference and variety.” Under global capitalism and the struggle for cultural identity, Indonesia has not only stayed on the defensive, but has gone on the offensive regarding the advancement of technology and science to secure its legitimacy for the claim that Jamu is Indonesian. Science and modernity have been brought to the fore not at the expense of tradition but in alignment with tradition.

The RISTOJA program was seemingly a top-down approach for controlling local knowledge. The state exercised its power to influence and interpret local wisdom within the national borders. The ultimate goal of the state was embodied in the building of a research center, mobilizing the national universities, and gathering scientists from various professions into the RISTOJA program. The program planners expected scientific Jamu to be accepted by different ethnic groups and ultimately replicate the findings of the research center in Tawangmangu—sending plants, genes, and experimental technique to other islands in Indonesia. The RISTOJA program, however, is far from just a controlling and manipulating form of governance. There are three aspects of the RISTOJA program that explain why it represents a different approach to both



manipulating and respecting local knowledge. The first aspect comes from the definitions of *santifikasi Jamu* (the scientization of Jamu) and *kearifan local* (local wisdom) included in the 2015 RISTOJA report. The second aspect is the professional mix of the specialists who comprised the research group. The third aspect is concerned with how the state justified its legitimacy as it procured local wisdom about Jamu, including specific Jamu formulas, from local practitioners.

Three Aspects of the RISTOJA Program

Regarding the first aspect, there are two phrases which are clearly defined in the RISTOJA report which deserve our attention. The first is *santifikasi Jamu* which appeared with the establishment of B2P2TOOT by the Ministry of Health in 2010, entrusted with the mission of the scientization of Jamu. As defined in the 2015 report (B2P2TOOT): “a process to prove the knowledge of Jamu through service-based research”⁸ (p. 9). Service-based research means using Indonesian patients’ data to prove the healing effectiveness of scientific Jamu. This definition foregrounds the mission of scientization as an ever-lasting search for scientific proof about Jamu that acknowledges Jamu’s potential efficacy. In this sense, modern science has become a way to measure and prove local wisdom.

The second phrase I would like to cite from the 2015 RISTOJA report is in reference to local wisdom (*kearifan local*), which is defined as:

Local knowledge that has been integrated with not only the system of beliefs, norms, and culture, but expressed in the traditions and myths that have lasted for a long time. Local wisdom or traditional wisdom is belief, understanding, insight, customs, or ethics guiding human behavior in ecological community. Local/traditional wisdom constitutes the ethics and morality of helping humans to answer moral questions about what must be done, and how to act specifically in the field of environmental and natural resource management. (p. 8)

Local wisdom acknowledges the existence and ontology of the supranatural (supernatural) and spirits. The RISTOJA project records not only prescriptions and the process of making the remedy, but also in-depth interviews with the people who make them, for example, various sorts of dukuns including dukun pijat (herbal masseur), dukun santet (who may use black magic), and dukun Jamu. The RISTOJA program emphasizes the accuracy of the anthropological interviews conducted and forbade the deletion of any account collected from a

8 “Sintifikasi Jamu adalah pembuktian ilmiah jamu melalui penelitian berbasis pelayanan kesehatan”

dukun or to lightly dismiss any form of knowledge. The field notes produced by the RISTOJA group required the team to chronicle the stories not included in the questionnaires and rituals. The subsequent interviews with RISTOJA program participants discussed the importance of local wisdom.

Interview A with biologist RISTOJA researcher* (2018/2019):

Pak J*: *Let me give you an example, when should we pluck the plants? If we don't pay attention to the time we pluck the plants, it may make us stuck in something unholy (terjebak di sesuatu yang syirik), but it's not like that...you know betel nut leaves?*

Edward: *Yes, Sirih.*

Pak J: *When shall we pluck the Sirih leaves? If we pluck them in the afternoon, we found that the volatile oil will evaporate so dukun tend to pluck it in the morning when the volatile oil is abundant. That's why dukun says if you pluck the plants in the afternoon you will get stuck in something unholy. Dukun in Kalimantan and Java know about this.*

Interview B with pharmacist RISTOJA researcher (2018/2019):

Mbok Sismin: *This is plant A [the plant name is not allowed to be revealed]. My students took it to the lab to analyze its chemical compound and got a positive result for curing malaria, but there are no special compounds in it. However, it's a strong traditional recipe in Maluku to cure malaria. So, let's see how local people use it. They use fresh leaves and drip it directly into the eye without boiling or extracting through ethanol. We dried it and extract it through ethanol, so we don't see anything special...*

In Interview A, local wisdom included “stuck in something unholy” or a way of using medicinal plants, which presented an example of an integrated way of knowing. RISTOJA researchers are generally expected to remain nonjudgmental when faced with reports of mysterious or supernatural events as information provided by dukun is regarded as potentially scientific. The integrity of local wisdom was kept through this thorough documentation, including taboos, the production process, places and time of picking the plants, and ecological geography, thus providing important data for researchers to scientize, interpret, and translate local wisdom.



The second aspect of RISTOJA is based on the professional mix of the research group. Each research group was usually made up of five people: anthropologist group (anthropologist, sociologist), biologist group (botanist, agriculturist, forestry professionals), and health group (doctor, nurse, and pharmacist). When a dukun is explaining the medical practices, everyone must be present to understand the whole process of making Jamu or medicine. In addition to thorough documentation, the work of the anthropologists also includes developing a holistic understanding of local culture and rituals and to win the trust of local healers is the most difficult part of the project. It is not just a division of work within the research group but requires mutual understanding between the different professions. Anthropologists, according to many scientists, are essential in such a group insofar as “Jamu is culture” and “Anthropologists have a better sense about culture and easily get into the minds of locals.”

The third dimension of RISTOJA concerns how the state justifies its legitimacy to procure local wisdom and formulas from the locals through the use of contemporary ecological statistics making the argument that “our nature and culture needs to be saved.” The statistics indicate that that both culture and nature are desperately endangered. The “save our nature” discourse was specifically about deforestation. If the domestication and protection of Jamu-related plants were not done immediately, those medicinal plants were in danger of disappearing completely.

The “save our culture” discourse was intended to save the knowledge of aging dukuns because it was worried that otherwise nobody would inherit their knowledge and it would be lost. In [2015](#), RISTOJA (B2P2TOOT) reported that 49.5% of dukuns or traditional healers were over 60 years old, and only 33.7% of them had understudies or apprentices to inherit their knowledge (p. viii). At the same time knowledge about Jamu was in danger of being lost, it was also in danger of being stolen by commercial interests and other countries. In an interview with a RISTOJA program participant, he discussed how both “save our nature and culture” discourses came together.

Interview C with anthropologist RISTOJA researcher* (2018/2019):

Mbok C*: *We have many developments in the forest areas. What we worry about is the destruction of forests. If the forests are destroyed, local knowledge will be, too.*

Edward: *How do anthropologist persuade the dukuns to share their secrets? If the knowledge is passed down from generation to generation, then why should they pass the knowledge to a RISTOJA team instead of the next generation?*

Mbok C: *We explain patiently and slowly that the photo we take and plants we pick are all sent to Tawangmangu, where it will benefit Indonesia. If we don't do the documentation and make a list of traditional medicine, later Malaysia will take it. It's through the RISTOJA program that we are learning the details of traditional medicine, plants, and the rituals that should be held when picking the plants. Then we respect everything traditional healer does and follow him into the forest to collect raw materials for Jamu.*

Interview C shows the inseparable relationship between nature and culture, or local wisdom, and how these two depend on each other. The RISTOJA program aims not only to conserve the plants and knowledge but to defend it from being stolen. In the [2015](#) RISTOJA report (B2P2TOOT), *biopirasi* (bio-piracy) is defined as:

the stealing of biological resources or traditional knowledge for the sake of business interests violating the rights of other people. Aboriginal communities are fragile because they own lots of knowledge but receive almost no compensation after their knowledge is taken away. (p. 7)

This definition presumes that the appropriator is from another country. Eventually, the Indonesian government secured this knowledge as a national asset in the name of saving it.

8 Science Entangled with Local Knowledge

The RISTOJA project acknowledges the local wisdom which must be respected and recorded in detail. The concept of ecological community includes in the definition of local wisdom constituted as a crucial part of the scientization of Jamu. How RISTOJA researchers interpret and understand ecological communities and personhood is reflected in the interviews I did in 2018 and early 2019. This section is divided into three parts: interviews with representatives of community-based bodies, those with geography-centered herbal knowledge, and interviews with authentic local healers.



Community-Based Bodies

In this section I use the term “community-based body” rather than classifying race or ethnicity to avoid essentialism, as both the concepts of race and ethnicity were constructed in the process of history and are influenced by social, cultural, and political factors (Cornell & Hartmann, 2007). This was to avoid the “looping effect of humankind” (Hacking, 2005), as many scientists ignore how the classification of humans into groups can lead to rigid stereotypes that can be reinforced by their discourse. Community-based body here signified groups of humans with variable bodies, possibly formed as a result of geography or ecological conditions.

Interview with biologist RISTOJA researcher* (2018/2019):

Pak B*: *If people in Java have a problem with diabetes, Javanese will drink bitter Jamu with *Andrographis paniculata*. It's very bitter. If Javanese people want to enhance the immune system, they will use *Phyllanthus niruri* (Meniran) or *Talinum paniculatum* (Som Jawa) but Dayak people use Plant C. Different ethnic communities will use different plants. In Kalimantan Plant C grows a lot more than in Java.*

Edward: *So, if there were a scientization center on Kalimantan, it would use Plant C instead of Meniran or Som Jawa?*

Pak B: *Yes.*

Edward: *So, in the future on different islands there will be different formulas of Jamu?*

Pak B: *Yes. Do you know why Dayak people use Plant C? Because they have gotten used to it. While if Javanese people drink it then Javanese people will be more prone to prostate cancer than Dayak people.*

Edward: *Why?*

Pak B: *That's why an anthropologist should be on the team. Different plants are planted according to different ecological environments. Every ethnic group is unique and special. If we Javanese drink Plant C for a long time we may be prone to prostate cancer, but in Kalimantan the same amount of Plant C may not be enough to harm their health.*

What Pak B emphasizes is that heterogeneous communities in different areas have adapted differently to local plants. The example here is that Javanese people are prone to prostate cancer if they drink Plant C, compared with Dayak people, who are used to it. The body evolves various strategies for diverse ecological environments. As a result, Pak B asserts that scientization centers built on other islands should be concerned with the local communities' own usage of plants. This concern contradicts international or global market discourses that tend to focus on the qualities of products or medicines themselves. This approach would not recognize the influence of a specific geographical and cultural context on the use of Jamu.

Geography-Adopted Herbal Knowledge

Interview with pharmacist RISTOJA researcher (2018/2019):

***Mbok Tian:** In Kalimantan, people use Pasak Bumi to enhance their stamina. In Java, we use Purwoceng and grind its root and then add it into coffee or milk. In Sulawesi, people use Samriko. There are many unique plants on different islands with disparate usages and problems. For example, there are many cases of snakebite in Kalimantan's B area compared with Java. By virtue of diversified geographies and people, the dukuns in B area thus focus on advanced techniques for treating snakebites. Maybe in traditional Chinese medicine it can be generalized to several formulas? It's hard in Indonesia to do so because the medical theories and philosophy in Java and Dayak are all distinct.*

As a result of diversified geographies, different places are confronted with distinct medical conditions and common ailments. The health problems, how the plants are managed, the way to concoct Jamu, and the philosophy behind the dukun's medical care all correlate strongly with geographical conditions. This suggests that if B2P2TOOT plans to open new research centers on other islands, recipes for scientific Jamu may need to be adjusted to meet varied local illness demands.



Authentic Local Healers

Interview with biologist RISTOJA researcher* (2018/2019):

Pak J*: *In the RISTOJA program the local healers must be aboriginals and born in that specific place. They shouldn't be from other places and then become the disciples of the local dukun. If they are originally from Aceh but work in Kalimantan as dukun, then they are unqualified.*

Edward: *So, they must be truly local?*

Pak J: *Yes, they must be local. They must be born in the local area and live in the local area. It's the requirement of the RISTOJA program. We want to know what they eat in their daily lives, on what land they live, the air they breathe, the water they drink, does it contain disease? We can absolutely find the solution to that disease in the surroundings. We try to find the connection between it and local wisdom.*

RISTOJA's concern with the complete local context leads them to this concern about the authenticity of the practitioners they work with. They focused on healers' physical presence in the place throughout their lives as well as their mastery of the local knowledge. This idea corresponded with the notion of ecological communities as a combination of a community and a geographic location in a relationship defined by local wisdom. It underscores the distinctiveness of communities formed from diverse environments coping with diseases through their own strategies and theories. The authenticity of traditional healers constitutes the crucial cultural character of local knowledge and at the same time justifies the authenticity of local knowledge.

The RISTOJA researchers' concept of community-based bodies, geography-centered herbal knowledge, and authentic local healers' narratives collected by RISTOJA researchers implies that scientization requires multi-centered scientization institutions as it expands to new areas. It also suggests that there is actually no unified traditional medical theory for how Jamu can be integrated as a result of the diverse practices of local wisdom. This creates essential challenges for "Jamu Brand Indonesia" as its original aim was to make Jamu international and develop a medicine that would be accepted by every ethnic group in Indonesia.

9 Conclusion

The scandals of fake Jamu have harmed Jamu's reputation. The initial response of the government bodies was either to educate local businessmen or investigate adulteration. However, these responses barely made a dent in the waves of negative reports about adulterated Jamu. The cultural heritage confrontation required Indonesia to show its competence and find a way to promote Jamu as "Brand Indonesia." It was decided that Jamu must be made scientifically and in a form that could be controlled and monitored as it was transformed to respond to the demands of unadulterated medicine and capture the nationalist imagination.

The trajectory of the projected future of Jamu might have to be adjusted in the future. Although the term Jamu is originally from Java, it was reimagined by Java-centric nationalism in 1963 (UU. 7/[1963](#)) to encompass all Indonesian herbal medicine. Jamu was integrated into a Java-centric notion of Indonesian unity and then reinforced in the time of Suharto when all regional branding of Jamu was prohibited. Over the last few years, the RISTOJA program has been collecting formulas from across the nation to create an acceptable Jamu using authentic materials. Jamu has been becoming ontologically and truly Indonesian under the RISTOJA program. Jamu is no longer only seen as a certain combinations of herbal materials, but now also includes taboos, specific brewing practices, adherence to rules regarding the correct places and time that plants can be harvested, and specific rules based on ecological geography. The RISTOJA program's status as a serious scientific project has not only garnered social, medical, and cultural legitimacy, but also remolded the cultural content of Jamu.

The shift in nationalist discourses from history to biology in colonial times is a quintessential example of progressive modernity. Indonesian physicians initially excluded traditional medicines from the new nation-building project. In modern times, the desire for modernity has led scientists and doctors to promote evidence-based medicine that has been proven to be efficacious through clinical trials. Nevertheless, traditional medicine has received renewed support as a result of identity struggles, and scientists have been mobilized to sponsor the establishment of a research center and Temulawak symposium. Eventually, the nationalistic promotion of cultural heritage will work in tandem with science and learn to regard local wisdom as legitimate knowledge worthy of scientific investigation.



Serving as the database for the scientization of Jamu, the RISTOJA program recognizes local wisdom (kearifan lokal), which cannot be classified based merely on its active ingredients. Science is now becoming a technique to complement the local wisdom coproduced by the nation's diversified ethnic groups and their respective local environments. This interpenetration of the practices of science and traditional culture implies that future Centers for Research and Development of Medicinal Plants and Traditional Medicine in other islands may have different forms of scientific Jamu according to the geographic and ecological communities they serve.

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