

Kitchen as the Heart of Indonesian Houses: Re-domestication during the Covid-19 pandemic

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Abstract

The COVID-19 pandemic had forced people to re-center their thoughts, ideas, and bodies at home; this includes their eating and cooking lifestyle. The activities once considered as common and social have become domestic. Working-class groups that used to have their lunch breaks at the offices, restaurants, or public spaces now have to have them at home—some on their own, others with their families. The constant need to have their meals at home has re-ignited the kitchen, or hearth, which was often unutilized, especially when all family members' activities were outdoor-centric. The architectural and historical perspective towards Indonesian kitchens presents their design as ways to fit complex Indonesian cooking. When the government through the Department of Public Works in 1964 standardized public housing size, the kitchen became considerably smaller with minimal configuration. Kitchens used to be an eminent part of Indonesian houses and cuisines have become a mere service area. However, the pandemic has influenced the return of the 'hearth' as the meaning of kitchen in today's houses in Indonesia. The event prompted a question on how accommodating are Indonesian kitchens to this re-domestication phenomenon.

This paper investigates Indonesian kitchens through history and its reality today. We focused on houses particularly in Jakarta, and Java Island, in general, considering the city's location. We took the government standards of subsidized housing as precedence to better visualize the architecture of residences commonly owned by working-class citizens which the subsidized housing were aiming for. The result presents how kitchens in Indonesian houses today face the challenge of accommodating a culture of complex cuisine within a limited space and home-bound pandemic lifestyle. An architectural design approach is also proposed as an option.

Keywords: re-domestication; the COVID-19 pandemic; kitchens; house of today's Jakarta; hearth

Introduction

The COVID-19 had pushed humanity into an extreme transformation. According to the World Health Organization (WHO) data, the virus's first peak was in late 2019 in Wuhan, China. In early 2020, WHO announced COVID-19 as a pandemic, as the issue grew severe and spread rapidly across the globe (WHO 2020a). The announcement was accompanied with advice to take "urgent and aggressive action" (WHO 2020a) to all countries in retaining the outbreak. However, the virus was already carried in global air transportation, and by mid-March 2020 had infected 146 countries worldwide (Gössling et al. 2020). WHO advised several

preventive ways to reduce infection risk, such as maintaining at least 1-meter distance, wearing masks, and avoiding crowded places (WHO, 2020b). Another extreme measurement such as a region or nationwide lockdowns were in effect for several countries, such as China, Italy and India, to flatten the curve. Soon, countries declared travel restrictions, both domestically and internationally.

Indonesia was among countries who were deeply affected by the COVID-19 pandemic. According to John Hopkins University Center for Systems Science in Engineering, there are 758.473 cases where 110.400 are active, and 22.555 deaths in Indonesia (based on data at 3rd January 2021; Dong et al., 2020). To prevent widespread infection, Indonesia's government formed a response team that assists the society in handling the disease and recovering immediately. The government also launched a COVID-19 task force to provide up to date information for the public. In March 2020, the president enforced a large-scale social distancing (Pembatasan Sosial Berskala Besar, PSBB), which was soon effective in large cities of Indonesia eliminating activities in schools and workplaces, religious sites, and other public spaces (Presiden Republik Indonesia 2020). The president suggested working from home (WFH) as a substitute for most businesses and academic activities. The large-scale social distancing was followed by travel restrictions and public space activities limitation since April 2020 (Menteri Kesehatan 2020).

Food delivery services skyrocketed during the pandemic. Transactions in Gofood, a meal delivery service provided by a ride-hailing company called Gojek, increased 20% during the pandemic (Setiawan 2020). Grab Indonesia, another courier service, reported similar news with their Grabfood service and a 22% increase and 21,5% raise in GrabMart and GrabExpress, respectively (Arbi 2020). According to the Director of East Indonesia business of Grab, Halim Wijaya, there was an increase in demand for food delivery, goods delivery, and health consultation (Suryowati 2020). The 'frozen food' keyword became popular later in May to June 2020, and restaurants began to provide 'ready to cook' options other than their regular food services. According to Wijaya (in Suryowati 2020), the increases resulted from people ordering meals in family portions instead of single servings as what they used to do.

A conversation among house wives in a local market in Jakarta hinted that the WFH has increased the amount of food consumed at homes. One of them expressed her happiness for this situation because her home-cooked meals are now always consumed and finished in no time, and she felt grateful that her efforts in cooking them was not wasteful. The conversation indicated that before PSBB or WFH, many people dined outside, making food at home untouched or barely consumed. With the pandemic, people re-domesticated, dining at home became the new normal. Dining is no longer a solitary activity enacted in public places, but an activity involving preparation, cooking, and at the very least heating food. Our question for this research is, how does the kitchen in Indonesian houses today cope with the new norm? It poses the question how the kitchens of Indonesian houses have been designed, from its history to its application today. The focus is on the culture of Indonesian cuisine, its relation to the physical kitchen, and its implementation in the modern society.

Theoretical Background

The word 'domestic' comes from Latin *Domesticus* meaning "to reside in"; which is also the adjective of *Domus* or "a house" (Partridge 2006, p. 860-1). The basic idea of 'house' is a covering or shelter; a dwelling (Partridge, 2006) and when a 'house' is with the land it becomes a 'home' or further defined as "to dwell" (Partridge 2006). Therefore, re-domesticate can be viewed as the activity of residing or dwelling again at a place, which the subject recognizes as home. The definition contains an action of re-doing something and the specific meaning of a place. Meanwhile, Briganti and Mezei (2012) argue that the idea of a home depends on place and time and is affected by factors of religious, cultural, economic, social, kinship structures and gender roles. Amos Rapoport (1969) said that settlements are made to adapt to the climate by using natural resources, which were passed down to generations in a

community to survive. Rapoport (1969) expressed the urgency to look beyond the physical structures and understand that culture also plays a critical role in forming architecture.

Before the Neolithic era, when humans discovered fire, cooking was done using the sun's heat or wildfire in the forest. The discovery made humans feel comfort for the first time and then designed enclosures "to capture and maximize the heat of the flames" (Caan, 2011). People gathered together and soon assembled as a community as the result of fire domestication (Vitruvius, 1914; Caan, 2011). The cooking spaces slowly moved inside into the cave. The fire container is called the hearth, and it became the heart of a home (Unwin, 1997). Its name comes from the function that has never changed since the ancient times (Unwin, 1997), despite the form variation. The fire then was made to last longer as what was aimed by men (Rowley, 2000). Soon new tools such as primitive fireplaces and permanent fires have enabled humans to develop cooking spaces or kitchens (Satriana 2009) from the hearth's basic concept.

The hearth is one of the physical effects of the discovery of fire, and one of four primeval motives as coined by Gottfried Semper (2010) in the 1850s. Hearth-gathering activities are also the first stage of *Bekleidungstheorie*, or the dressing-theory. This theory weaved hearth-gathering with creating wall decorations, tectonic frameworks, and terracing to complete the form (Bauer in Wagner 1988; Semper 2010). The dressing is a symbolic manifestation of preserving lives—the fire—by enveloping it with protective sheets. The cover evolved through time following technological advancements, climate, and natural resources. Eventually, covers also protect us, our family, and our belonging, forming a structure known as a house.

Houses come in many forms such as landed, detached, attached, and high-rise apartments, to name a few. "A house in a big city lacks cosmicity", said Bachelard (1994), referring to houses now stacking up in skyscrapers and detaching from the natural surroundings. Bachelard laments on how intimacy has been reduced to a mechanical everyday routine. When viewed from the pandemic point of view, we perceived our condition prior to the phenomenon. Alongside the shaking of the foundation of politics and economy across the globe, the virus's indirect effect is the people's relation with their house—the place where the hearth-gathering took place.

A comprehensive map of existing research on the topic of kitchen: its architecture, meaning, the spatial value in Javanese and Jakartanese houses; over the past decade enriches this understanding (see Fig. 1). The terms 'kitchen, hearth' 'Jakarta, and Javanese houses' as keywords unravel complex research interests related to this topic. The map indicates that research on spatial arrangement and activities in the kitchen mainly leaned towards archaeological studies; uncovering the growth of civilizations (Ryhl-Svendson *et al.* 2010; Peperaki 2010; Pennell 2016); and in the context of gender (Sciocluna 2017; Giudici 2018). The research objects of the aforementioned themes are mainly located within the western hemisphere's cases, such as Greece, England, and Mexico. Similar studies on kitchens of Asian architecture is limited. On the other hand, the available research on the topic of Javanese houses deal with the physical structure of the entire house, instead of focusing on kitchens only. Commonly utilized themes are cultural and religious symbolism (Kim *et al.*, 2013; Ju *et al.*, 2018; Trisno *et al.*, 2020) and environmental value for conservation (Idham, 2018; Prihatmaji *et al.*, 2014).

This paper provides a novel discourse of kitchen from the re-domestication point of view and how it manifests in the modern world in the circumstance of the Covid 19 pandemic (Figure 1 for a detailed research positioning).

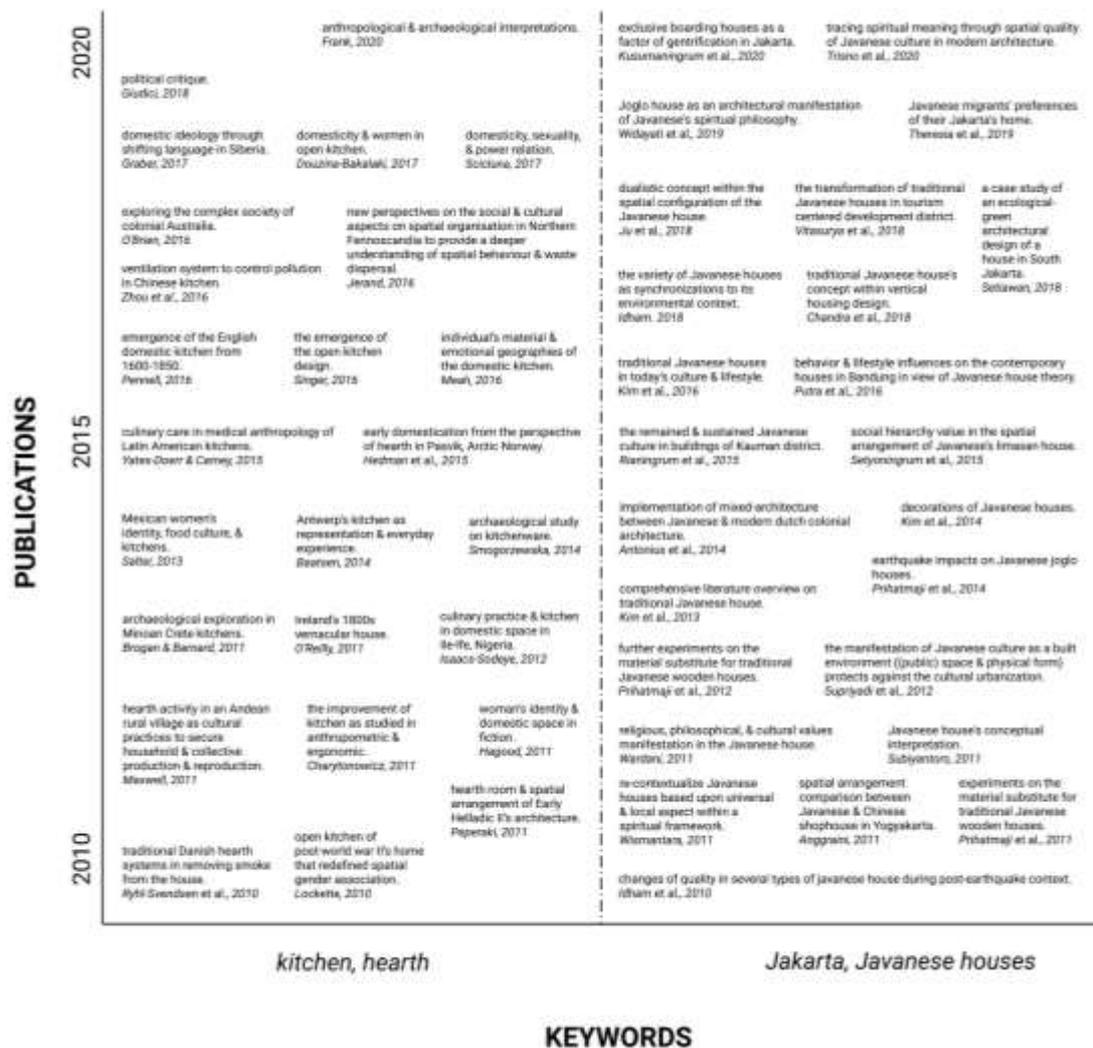


Fig. 1: Research positioning diagram.
Source: Authors, 2021.

Research Method

This is a qualitative research that aims to examine kitchens of today's houses in Jakarta and their spatial appropriateness in the context of the pandemic. The origin, concept, and history of the kitchen are presented through a literature study. The discussion focuses on the aspects and relationships between cooking as an activity and kitchen as a physical form. We looked into Jakarta's houses' kitchens as products of social and cultural values developed from traditional Javanese houses, colonial, and 20th to 21st centuries' houses designs. We consider the position, and size of a kitchen in a house are crucial in this topic. Secondly, we analyzed traditional recipes across Java Island by categories of raw products (animals and vegetables), spices and cooking steps. The recipes' preparation and cooking processes are central to our findings as well.

We then proceed with obtaining the kitchen of today's Jakarta data. We were not able to physically collect the data due to the travel restriction and social distancing policy. Therefore, we looked at government regulation, subsidized house programs, commercial listings, and home renovation videos. The regulations for a subsidized house state that the house should be

at least 21 sq.m and at most 36 sq.m; while land plots should be measured at 60 sq.m up to 200 sq.m (Menteri Pekerjaan Umum dan Perumahan Rakyat, 2020). Based on the Ministry's official website, we found that currently there is no project for subsidized houses located in Jakarta but is plenty in its surrounding areas: Bogor, Bekasi, and Karawang.

The subsidized house program standard was used as precedence for data collection from commercial listings. We accessed two property e-commerce sites in Indonesia¹, utilizing the following criteria: (1) for sale property, (2) landed house type, (3) pricing under IDR 500 million², and (4) located in Jakarta. Even though both websites seemingly provided hundreds of available listings, most of them are irrelevant to this research because of these reasons: (1) "Jakarta" was used as clickbait on the listing's titles, (2) incorrect pricing, or (3) inaccurate for sale/rent information. We also eliminated double listings of the same house unit or listing for different houses located in the same project unless the specified design is different. To better understand how homeowners treat their subsidized, or commercial, housing, we collected homemade, home renovation videos from YouTube. We curated 50 videos and observed how the kitchens are treated in its relation to the other parts of the houses.

We also conducted social media research using hashtag #MasakDiRumahAja (English: better cook at home) applicable to Instagram and Tiktok. The hashtag was the most popular we found on both media applications. However, since the tool to access the data archives is unavailable, we relied more on the Google search engine. The hashtag #MasakDiRumahAja was followed by other kitchen-related keywords such as cooking and recipe; which we further analyzed using Google Trends.

We obtained a popularity timeline and percentage data of 'masak' (cooking) and 'resep' (recipe) related queries through Google Trends. We found a pattern of "how to + cook + (instant food names)" as frequently searched which then led us to investigate the trend on keyword 'instan' (instant). Among the list, the third most related queries were "masak apa hari ini yang simple" (English: what simple recipe to cook today) implying instant and simple meals as popular keywords. We considered the keyword 'frozen food' as worth exploring and seen from the increases of related posts in social media and news reports. We were able to find the peak popularity estimation of those keywords through Google Trends. After the approximate periods were pinpointed, we returned to social media app Instagram to collect data on cuisines-related posts uploaded within the period. These were done to provide information on how the kitchens are used during the pandemic as close to the real phenomenon.

According to Google Trends, the peak popularity for both keywords 'cooking' and 'recipe' occurred within 4 weeks, 26th April to 23rd May 2020. Google Trends defines popular related queries as a Rising or a Breakout. While a Breakout defines the sudden popularity of a new type of content, Rising indicates increased popularity over a particular time. Therefore, we

¹ The property e-commerce sites are www.rumah.com and www.rumah123.com. A subsidiary of PropertyGuru Group runs the www.rumah.com website. According to its official website, the group is a Singapore based property-technology corporation established in 2007. Their market covers five South-East Asian countries, including Indonesia. The website www.rumah123.com was also established in 2007. It was backed by Indonesian conglomerate Saratoga Group before acquired by REA Group. REA Group is an Australian public company which currently operates in seven Asian countries, including Indonesia.

² The pricing parameter is roughly estimated from the property's market price whose specification is similar to the government's subsidized house program. The program is targeted towards families with a combined income of maximum IDR 8 million as stated in the ministerial decree number 242/KPTS/M/2020 dated 24 Maret 2020. The 2019 annual report of DKI Jakarta Province revealed that in 2018 72.86% of total working citizens are categorized as formal workers with an average income of IDR 4.4 million per month while 27.04% are informal workers with an average income of IDR 3.2 million per month (BPS 2019). The province's minimum wage in 2018 is IDR 3.6 million per month (BPS 2019). The statistical data is relevant to what is required in the subsidized house program. The Ministry of Public Works and Housing decree also provides information on the house's pricing and measurement. Subsidized landed houses in Jakarta, Bogor, Depok, Tangerang, and Bekasi areas are priced between IDR 302.4 million to IDR 345.6 million per unit. In contrast, houses at other locations in Java island are priced at IDR 150.5 million.

decided to collect data from Instagram in a certain period before and after the peak popularity. In this case, we added four weeks before and after the timeframe, considering popularity or trends that may be built over time. #MasakDiRumahAja's Top Posts page displays some popular posts tagged with that specific hashtag (Instagram,2021). We recognized that the Top Posts page displayed the popular posts almost in chronological order and relied on Engagement Rate's popularity algorithm (ER). The ER is determined by the ratio of engagement activities such as likes and comments number of the posts to the account's number of followers (Bellavista et al., 2019). That explains why we found a post with likes number as low as 102 and another as high as 32,712 on the same Top Posts page among our 200 collected data.

Considering that the catalyst came from unintended eavesdropping of a housewife's conversations at a neighborhood grocery store in Jakarta, we limited the research objects to kitchens in houses located in Jakarta in particular, and Java island in general.

Javanese kitchens through history

Indonesians' homes come in many forms, architecture, and sizes. There are landed houses, apartments, or dorms available for purchase or rent, for single or multiple families, in modern, traditional, or vernacular architecture. There are also boat houses, huts, caves, even toll road bridges claimed by homeless people as their residence; so does cooking space. In many Indonesian traditional homes, it took the form as open-space kitchens similar to those of the Neolithic Era, such as the Orang Rimba tribe who cook their meals outside their home (Qulub 2016). Meanwhile, in Honai house, the kitchen is a simple multi-purpose room with a fireplace, which also acts as the center of the house (Widiati,2016).

The term 'kitchen as the hearth of the home' is often found in these traditional houses. For example, the Bale Dalem of Sasak tribe utilizes the hearth as a cooking space, heirloom storage and bed for the unmarried daughter (Lukita et al., 2016). In the Badui tribe, the house's core is named Imah, which consists of a kitchen and family room (Sardjono & Nugroho, 2017). However, traditional Javanese kitchens have a slightly different approach. They consider *pawon* or the kitchen as an additional building. Thus, it does not take as much importance as the main building in which construction is prioritized. Even so, the kitchen still took pivotal roles as it serves the family's fundamental needs (Sumitarsih, 2006). More importantly, food has been part of Javanese cosmological beliefs embodied in Dewi Sri, the rice goddess. The goddess is believed to reside in *senhong tengah* or middle room, the very center of a house (Waterson 1997), indicating the significant role of her patronage on food stability in a household.

The kitchen of Javanese house is also a space for a family gathering (Sardjono, 2009). The kitchen is rectangular (Fig. 1, shown in yellow), covering the other buildings' sides: *Jogosatru* and *dalem*. The back of the kitchen is used for either cooking or other household activities. The front side is used for dining and family gatherings. Sometimes a close guest will be welcome at *pawon*. In some cases, there is an additional partition to make an extra room next to the *pawon*. *Jogosatru*, *dalem* and courtyard are connected through the kitchen by a single door.

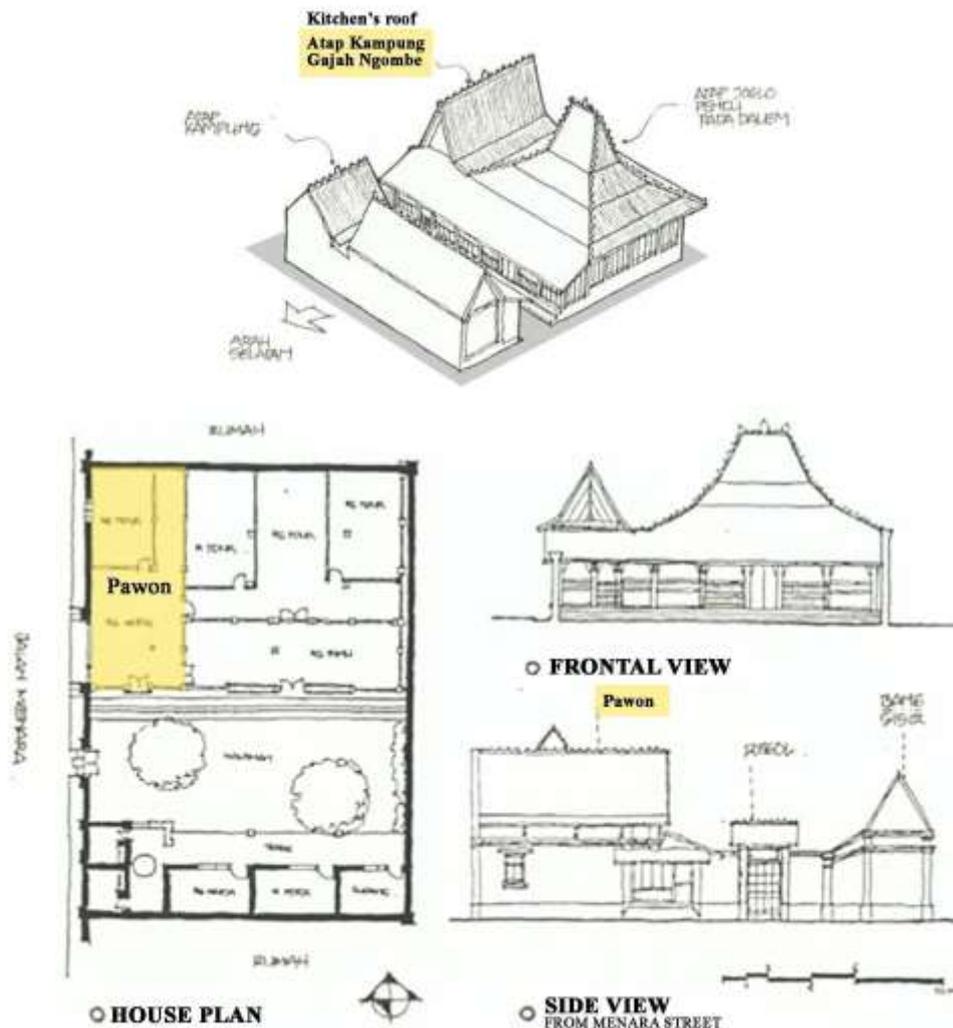


Fig. 2: Kudus Traditional house plan.

Source: Sardjono, 2009

The spatial arrangement of a Javanese kitchen is affected by the culinary culture. As described by Sudjhari and Almatsier in *Mustikarasa* (Tim Komunitas Bambu 2020), cooking is an art and requires careful and orderly planning, and so it does for traditional Indonesian recipes. There are three steps involved in the production of a meal: planning, preparation, and cooking. The process is often tedious; it can take at least 15-30 minutes (half-cook) to hours (to soften beans or meat), and even days (the maximum is four days to make pickles) (Tim Komunitas Bambu, 2020). Although *Mustikarasa* did not explicitly express it, based on an average of 5 steps involved in cooking the main course, we can conclude that spending at least a day in the kitchen is not an exaggeration.

Indonesian recipes also often require a considerable amount of ingredients. Based on the book *Mustikarasa* (Tim Komunitas Bambu, 2020), in Java Island itself, it would involve at least three fresh ingredients such as meat, poultry and beans for the main course. For example, the recipe of *sayur kimlo*, a meat and vegetable soup, has 14 ingredients, the most in the soup/non-soup courses category. Moreover, Indonesian food is rich with spices, as shown from the average amount of spices used for cooking. At least seven spices are required—2 times more than raw products—and a maximum of 18 spices for one recipe. These spices are prepared before cooking, by grounding, frying, or mincing. With extensive time working near the fire,

kitchens in traditional Javanese houses are located near the backyard or other open spaces to allow good air circulation (Fig. 3).

The typology of colonial houses in the 1920-30s developed quite rapidly throughout the Dutch East Indies. This is because the Europeans' brought their habit and culture in settling to the colonized country. It affected the house structure and space configuration in their houses. In general, kitchens and bathrooms in Dutch houses are separate from the main building and are in the back area hidden from guests' view (Worsley,2012). In a sense, this is a similar arrangement with the traditional Javanese but with a more distinct separation to the main house. Fig. 3 showed a clean kitchen that seems to be detached based on the window opening on its left side that opens to a garden.

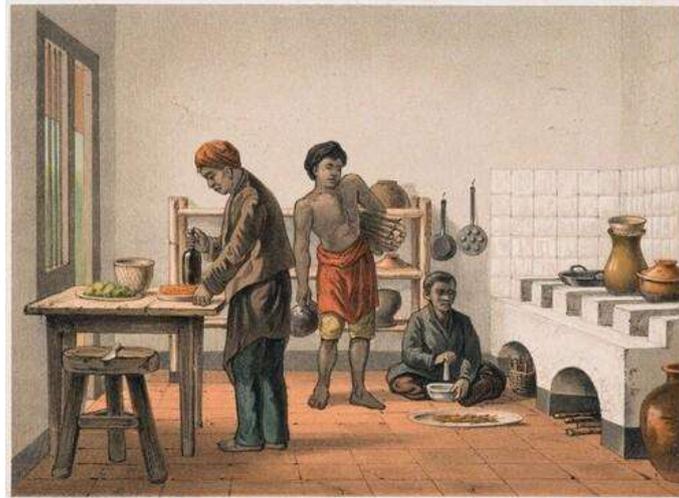


Fig. 3: Watercolor illustration of local workers in the kitchen, Batavia, 1881 – 1889
Source: wereldculturen.nl, <https://hdl.handle.net/20.500.11840/115152>

Gudang, or pantry was used to store raw ingredients that would be kept for some time. The house chef would visit a bazaar once a day to stock this pantry. The pantry was also used to store other household goods such as fuel and cleaning products and was locked up with a key kept by the *mevrouw* or mistress of the house; who would measure the required amounts in person. Usually, a pantry is located near the kitchen, and can also be placed in the same area with separation. The picture of a kitchenette in Fig. 4 also has a function as a storage as we can see the food shelf behind the *mevrouw* and the *bediende* (the help). The cooking area was not shown in this picture.

There were only slight changes in the way kitchens were furnished over the years, following the Dutch colonial period and Indonesia's independence. However, most of them are products of technological advancement. A gas stove would be installed beside the traditional charcoal stove or *anglo*, but the kitchens preserved their simple, sooty appearance, which sometimes formed a strange contrast to the well-groomed interior of the main building. Beside a cement platform for the *anglo*'s, the rest of the kitchen area was empty. Cooking utensils, such as the steamer, pans, *kipas* to fan fire and the *sutils* to stir the food were hung on the wall or placed on the platform. Apart from the culture, the detached kitchen is also designed to consider cleanliness and ease of water installation.



Fig. 4: Mrs. A.B.E. Hulshoff Pol-Bosch and her cook in the kitchen at Lawang north of Malang, between 1912 – 1914

Source: KITLV, <http://hdl.handle.net/1887.1/item:905095>

Average kitchens in today's Jakarta

The first president of the republic, Soekarno, initiated nationwide research for Indonesian recipes in the 1960s. The result is a book called *Mustikarasa*. In supporting cooking activities, the book also discussed several spatial qualities for a kitchen to ensure its safety, relevant to Indonesia's traditional recipes. First, good lighting during day and night (Tim Komunitas Bambu, 2020); this is probably why traditional tribes prefer cooking outdoors, or near a light/fire source (Qulub, 2016; Widiarti, 2016) dark places often become the breeding ground for fungus and germs. It is also vital to have adequate ventilation to circulate the heat from the stove or cooling the air. Lastly, the kitchen's floor and walls must be easily cleaned to ensure hygiene and made of inflammable materials (Bambu, 2020).

The standard for kitchens began to take shape when the newly independent republic worked on public housing projects. The projects aimed to provide housing for locals, rather than the usual Europeans and middle-class citizens, as what was done during the Dutch colonial period (Susanto et al., 2020). A housing project for the low-income citizens in Mlaten, 1926, designed by Thomas Karsten, a renowned Dutch urban planner, had a minimum space of 15 sqm (Colombijn, 2011), which was deemed too small and instilled inferiority among locals. In 1950, Congress on Healthy Public Housing (Kongres Perumahan Rakjat Sehat) planned for low-income settlements, with a design proposed by Soeandi and Soekander. The new design borrowed—or rather copied—from the minimum standard of houses for the European middle class, with the main building of 36 sq.m and an annex of 17.5 sq.m, consisting of a kitchen, bathroom, and toilet (Colombijn, 2011).

Since the 1960s, kitchens are no longer separated but often remain at the rear of the houses. It is common in Indonesia, especially in Java Island, to refer to the kitchen like the back gallery, out of habit. However, the general size for public housing is reduced to a minimum of 15 sq.m in a core domestic house plan on 72-200 sq.m of land (Menteri Perumahan dan Prasarana Wilayah, 2002). The idea is to allow the homeowner to improve and develop their houses by following their financial capability and growth (Susanto et al., 2020).

In terms of spatial configuration, Tjokrowiryo (in Tim Komunitas Bambu, 2020) suggested that the kitchen be placed closer to the dining room and pantry. However, there should be a wall with a window separating the kitchen and dining room to avoid soot and smell entering the house; while keeping the service convenient. The suggested layout for a kitchen is still visible and applied in modern homes in the shape of either a letter U, I, or L (see Fig. 4). Interestingly, *Mustikarasa* added an area to sit on the floor, as seen in Fig. 3 and Fig. 4. This is not uncommon in Indonesian households. To sit on the floor while preparing ingredients or

even while cooking will prevent the draining of the cook's stamina, especially when considering the time-consuming Indonesian recipes. It is not always necessary to sit and work directly on the floor, but this will prevent the kitchen from getting too clustered from a workbench and table. However, this area, labeled as O in Fig. 5, is no longer included in the kitchen design of public housing or even implemented through the country's housing standard guidelines.

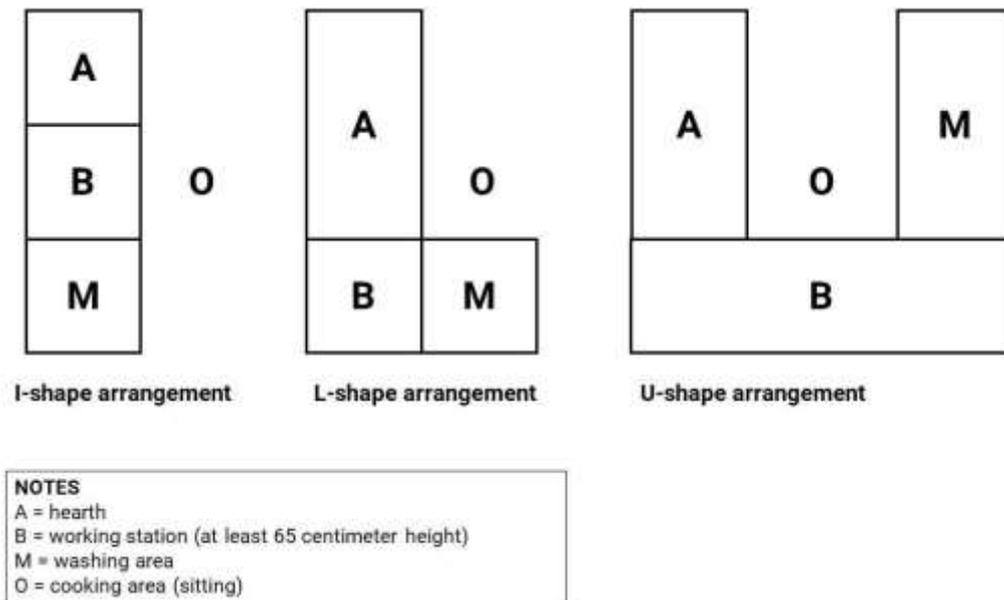


Fig. 5: Arrangement for kitchens in accordance with Indonesia's traditional recipes until the 1960s.
Source: Tim Komunitas Bambu, 2020

Based on subsidized housing parameters, we obtained 46 house listings of which 19 are in the East, six are in the Central region, seven are in the West, ten are in the South, and 4 are in North Jakarta. 11 houses are listed as 'used' property. The smallest building and land plot is a house located at Johar Baru Village in Central Jakarta of only 34 sq.m building and 17 sq.m land plot. Despite the smaller size, it is priced at the higher end of our determined range, at IDR 385 million. From the available photographs, we found that 12 listings are unclear about the kitchen location and two are placing their kitchens at a semi-open area, the rear annex. Kitchens at the other 32 listings are located mainly under the stairways or at the house plan's back end.

Jakarta's commercial listings reflect the land-scarcity and justify the tiny property and land plot sizes despite the government's housing standard. To better understand how commercial properties are built whilst still marketed towards working-class citizens, we looked at a large-scale property development project named Citra Indah located in Bogor, adjacent to East Jakarta. Their official website stated that they had built 22 thousand from a total of 45 thousand house units (Citra Indah,2020). The houses were grouped into smaller clusters. We retrieved information on the smaller and more affordable clusters from the marketing website.

Most of the houses sized 22 sq.m up to 47 sq.m have their kitchens built semi-outdoor. The typical design consists of a small-sized concrete kitchen table with sink and faucet; placed at the rear annex, and accessed through a door from the living room. The intended kitchen has no storage units and is often protected with only a narrow overhang that could not shield the table from pouring rain. Homeowners would have to build their kitchens adding storage as well

as expanding the room structure later. Fig. 6 (left image), indicated by the yellow box, shows the developer's common semi-outdoor kitchen while the right image shows a plan with an indoor kitchen. There is no clear information on the cause of this different treatment. However, the positioning shares resemblance to the suggestion in Mustikarasa, where the kitchen is located near the dining room and with openings for ideal air circulation.



Fig. 6: A 22 sqm house on 60 sqm plot with semi-outdoor kitchen (left) and a 38 sqm house on a 120 sqm plot with indoor kitchen (right) both marked in yellow.
Source: Citra Indah 2020 viewed 03 January 2020 (<http://citraindah.com/produk.html>)

To understand how homeowners follow up with the outdoor kitchen design, we observed home-made renovation videos of both subsidized and commercial houses with similar sizes. From the video sampling, we found that the spatial organization for modern kitchens has followed the suggested configuration in the 1960s. From the 50 videos we found, 36 kitchens applied the L configuration. The U configuration is the least favorite with only two samples. At the same time, 11 shows an I shape, and a combination of L and I. Kitchens with I and L configurations are squeezed between walls or intersected with other activities or functions in the house. Fig. 7 illustrates several examples of those configurations.

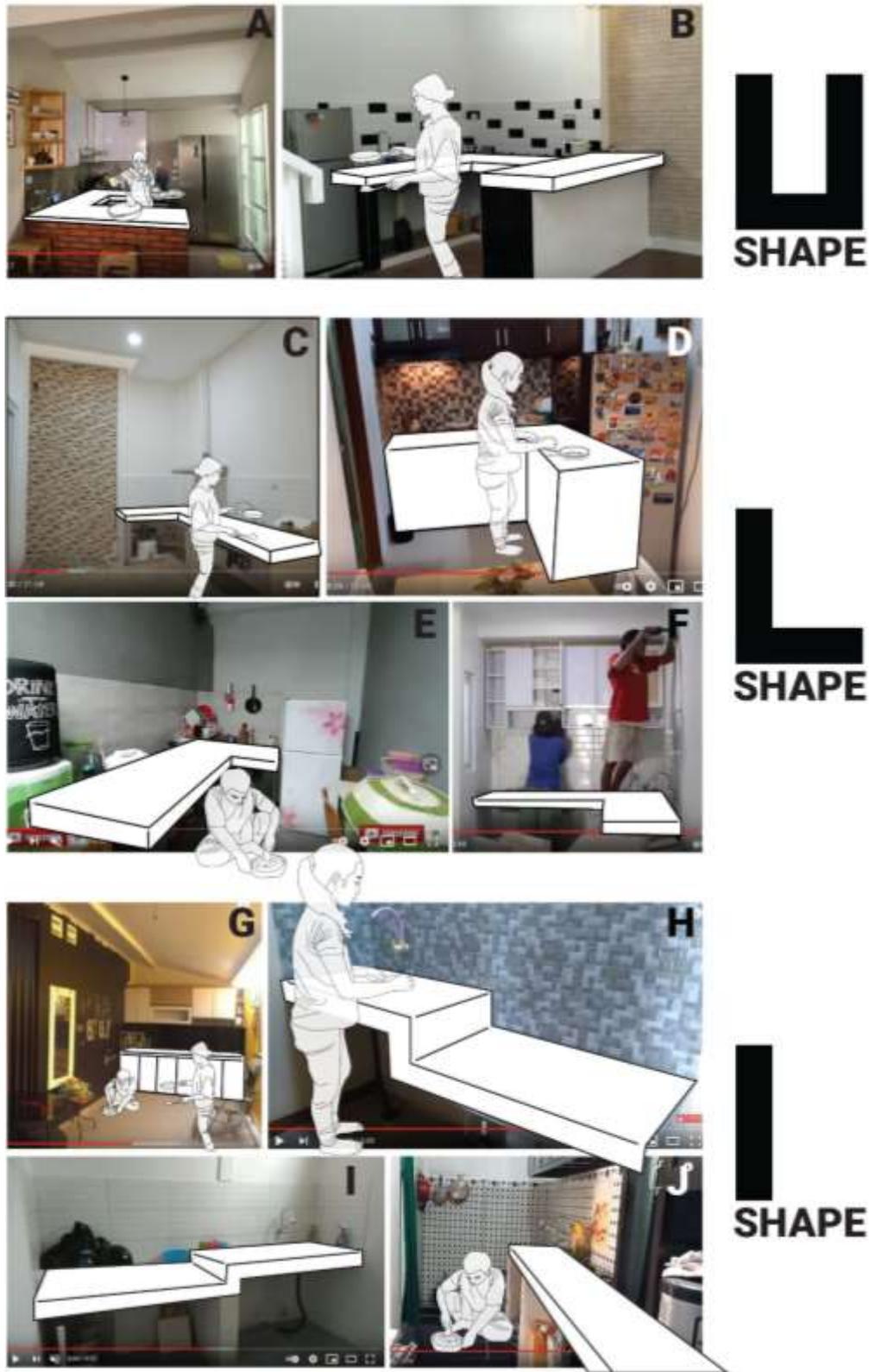


Fig. 7: Example of the current kitchens in Indonesia
Source: Youtube.com (for more detailed reference, please refer to the footnote³)

³ (A) *Home Tour Rumah Subsidi Exclusive | dan Total Biaya Renovasi!!* □ (2020) Youtube video, added by PRINGGITAN CHANEL [online]. Available at <https://youtu.be/pGwEb-YNf28> [accessed: 28 January 2021];

Contrary to the I and L shapes, kitchens with the U configuration are not located in an enclosed space. Instead, the sampling shows that U-shaped kitchens face the living or dining room directly without any partition (Fig. 7, A-B). This indicates that a common perspective on the kitchen is still dominated by the kitchen as a service area that should be located at the rear-end of the house preferably invisible from the house's main entrance. Meanwhile, the U-shaped configuration kitchen tends to treat cooking activities as something that can be done openly.

Another finding can be seen in Fig. 7, example J, where a washing area lower than the sink is available. It refers to the traditional cooking custom where the food is prepared while sitting on the floor. Another indication that sitting on the floor to cook is the open storage system below the countertop. In a traditional Javanese house, a pantry is either located nearby or separated from the kitchen. However, modern kitchens in Indonesia utilize the available space to store cooking utensils or dry ingredients, such as rice due to its limited space.

These small kitchens manage to cater to its inhabitants' needs. The reason behind is that many manual preparation methods today are being replaced by modern utensils such as melting butter using a microwave or grinding ground meat using a food processor (see Fig. 7). For example, activities such as long cooking time can also be replaced by high-pressure cooking pans. For those who do not own certain utensils can also shorten their cooking time by purchasing ready to use ingredients such as pre-prepared seasoning mix for curry, or instant coconut milk packets, in their food. Meat and other animal products can also be purchased in a ready to cook form. These are available both in the modern and traditional markets. Both modern utensils and ready-to-use ingredients enable the cooks to speed up and reduce the need for a sitting area.

We found several videos that showed the situation on-site before the renovation, which usually consists of an outdoor kitchen located at the spare open space at the house's rear-end. By renovating the open space kitchen into an indoor, homeowners have connected the kitchen to the house; similar to the traditional Javanese house. This is the way of making a kitchen as part of the house, albeit perceiving them as service areas. All samples indicate that the kitchen is located at the rear-end without spare open spaces available. Most homeowners opted to use the whole backyard as the kitchen. This resulted in poor air circulation and lighting. There are twenty-one kitchens that apply skylight to the ceiling and only a few have an open void or a sliding roof panel to provide both lighting and flexible air circulation, as shown in Fig. 8. This indicates the priority of having proper lighting rather than access to open air.

(B) *Bangun Ulang Rumah Kontrakan menjadi Rumah Minimalis-Industrial 2 Lantai | Luas tanah 5,5x11m /60m2* (2020) Youtube video, added by Yunita Rahayu Dewi [online]. Available at: <https://youtu.be/XSRydVyOV8k> [accessed: 28 January 2021]; (C) *Renovasi Rumah 1 Lantai Menjadi 2 Lantai (Part 3) Final* (2020) Youtube video, added by Rizki Abadi [online]. Available at: <https://www.youtube.com/watch?v=V7zUPouTnKI> [accessed: 28 January 2021]; (D) *Renovasi Rumah Minimalis 36m Paling Jenius & Instagramable || House Tour Umahabang Ada Rooftop* (2020) added by PASUTRI GAJE HOME TOUR [online] Available at: <https://youtu.be/hWRcKJlmsG0> [accessed: 28 January 2021]; (E) *Kitchen Tour Rumah Subsidi & Review Atap Sliding* (2020) added by Rumah Kayra [online] Available at: <https://youtu.be/aDleH3ljNVQ> [accessed: 28 January 2021]; (F) *Review Baya REnovasi RUmah Subsidi* (2020) added by Imam Fatih [online] Available at: https://youtu.be/_3u7yWcG7_U [accessed: 28 January 2021]; (G) *Biaya Renovasi Rumah Subsidi Rumanesia || Mewah tapi Murah Ko Bisa?* (2020) added by PASUTRI GAJE HOME TOUR [online] Available at: <https://youtu.be/CaKehuW88ag> [accessed: 28 January 2021]; (H) *Renovasi Rumah Kecil Type 36/60 | Dapur Hanya 2x3 Meter dan Ada Kanopi* (2019) added by RudiYana Channel [online] Available at: <https://youtu.be/W1hnZJPPGEY> [accessed: 28 January 2021]; (I) *Renovasi Rumah Subsidi Type 36/60* (2019) added by tiya hijanawati [online] Available at: <https://youtu.be/EQbAXdp061E> [accessed: 28 January 2021]; (J) *Renovasi Rumah KPR Subsidi Type 30/60* (2021) added by Erry Bilqis [online] Available at: <https://youtu.be/1HpNyQkzaTU> [accessed: 28 January 2021].



Fig. 8: Example of kitchens with a direct connection to open spaces and skylight.

Source: (left) Kitchen Tour Rumah Subsidi & Review Atap Sliding (2020) added by Rumah Kayra [online] Available at: <https://youtu.be/aDIeH3IjNVQ> [accessed: 28 January 2021] and (right) *Desain Rumah Minimalis Luas Tanah 60m2 | DRM_VLOG44 Konsep Rumah Minimalis Bangunan 40m2* (2019) added by Desainrumah Minimalis [online] Available at: <https://youtu.be/B2-qYe2Hi-Q> [accessed: 28 January 2021].

As previously discussed, most Indonesian foods consumed a lot of preparation and cooking time. The city's weather reaches up to 36.6 Celsius and humidity levels up to 95% (BPS 2019). To our knowledge, there is no available research on the comfortable level in kitchens, based on temperature. The long cooking time and hot weather would rapidly increase the room temperature. The backyard being fully built into the kitchen, have not only made the kitchen lacking in air circulation, but also trapping the rooms adjacent to it. In many cases, we found the bedroom and bathroom as examples. This is shown in Fig. 7, images F and G, where the other rooms' openings can be seen connected to the kitchen.

Global pandemic locally

The kitchen's inclusion into people's homes is a step of reinitiating the kitchen as a hearth of an Indonesian house. However, relocating the kitchen into the house is a practice that took place long before the COVID-19 pandemic. What about after the pandemic? Is the layout and configuration suitable or a new cooking culture has emerged? According to the national survey, there are 4.7 million formal and informal workers and approximately 10.5 million citizens (BPS,2019). An average household consists of four family members (BPS,2019), and that means on average, half of the family members would be out of the house during working hours. The grocery store visitor's comment on how the food she cooked during these times would be finished instantly indicates that her family eats outdoors on workdays. Before the pandemic, the kitchen was rarely used. When WFH and social distancing policies were implemented, the number of family members spending their whole day at home and the consumed meals doubled. As a result, the small sitting area and poor circulation in a kitchen might no longer be sufficient. Home-cooking is another rising trend due to the pandemic. According to Google Trends, the search engine recorded increases in the use of 'cooking' and 'recipe' keywords combined with 'simple', 'how to', 'instant' and the likes since March. For instance, there was a significant rise of popularity on topics related to the keyword 'masak' such as 'masak apa hari ini yang sederhana dan murah' (simple and cheap menu to cook today) and 'masak apa hari ini yang simple' (simple menu to cook today). Google Trends marked those two topics as a "Breakout" rise, meaning that the topic had a sudden and significant increase because the issues are new

and had seen only a few previous searches. The definition of ‘simple’ was also among the list of instant food names such as ‘sardines’, which increased by 2,100%. The search popularity for keywords ‘masak’ (cooking), ‘resep’ (recipe), ‘instan’ (instant), and ‘resep simple’ (simple recipe) peaked in April to May 2020 (see Fig. 9).

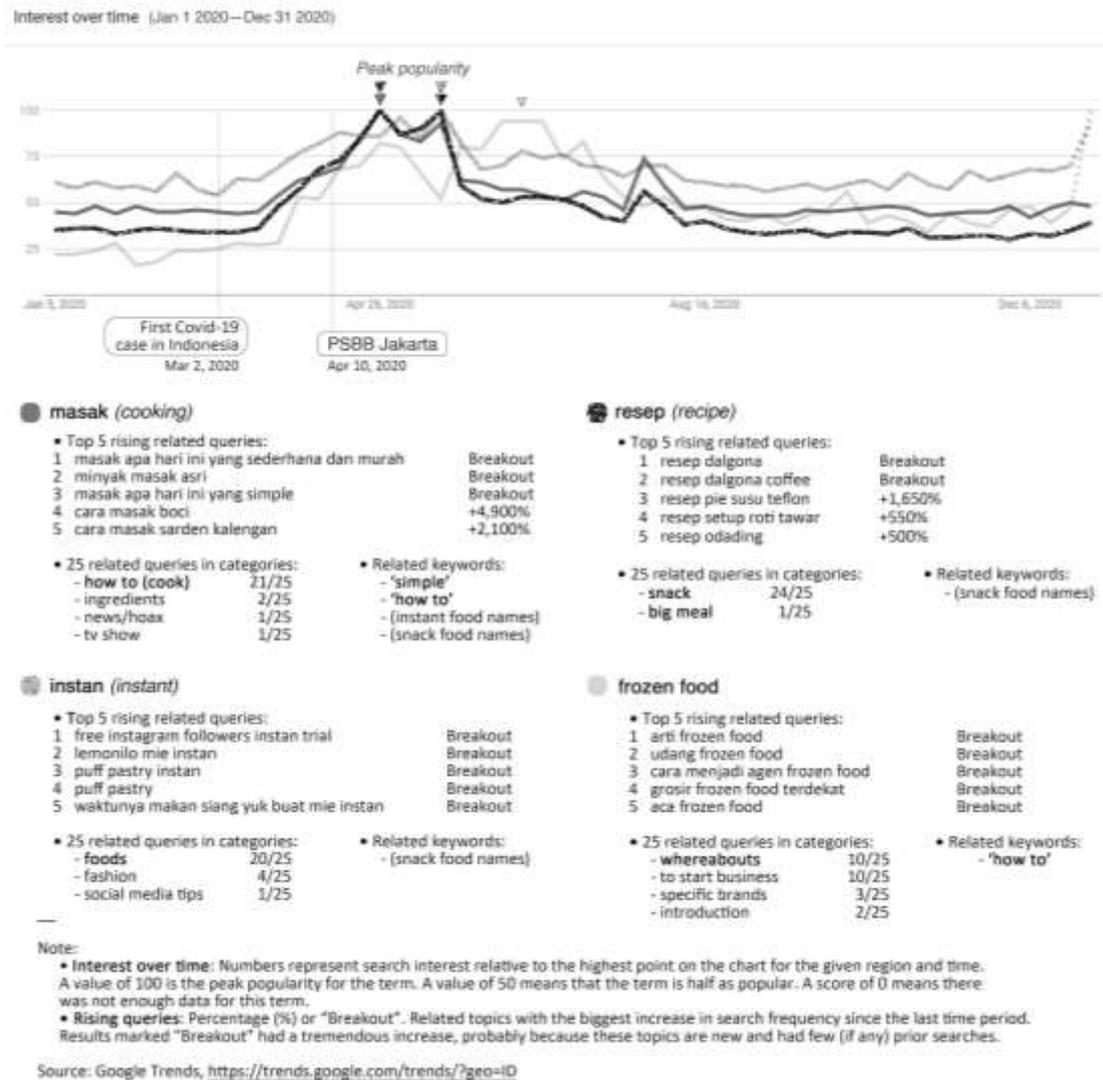


Fig. 9: Search Keywords Popularity in Indonesia, based on Google Trends

Source: By Author, data from <https://trends.google.com/trends/?geo=ID>, accessed on 4 January 2021

We sampled 200 posts, of which 151 are recipes, between 29th March and 20th June 2020. Among the 151 posts, there are 84 posts on Indonesian food, 33 for Western, 24 focusing on Asian food, while the rest are fusion food of Asian-Western. Based on this data, it is clear that Indonesian food is popular during the pandemic compared to other recipes. In these 151 cooking recipes, main courses dominate the sample with 87 posts about it, followed by snacks for 36 posts. Desserts and drinks are among recipes shared on Instagram, generating 13 and 12 posts, respectively. Other sauce recipes also appeared, albeit minimal (Fig. 10).

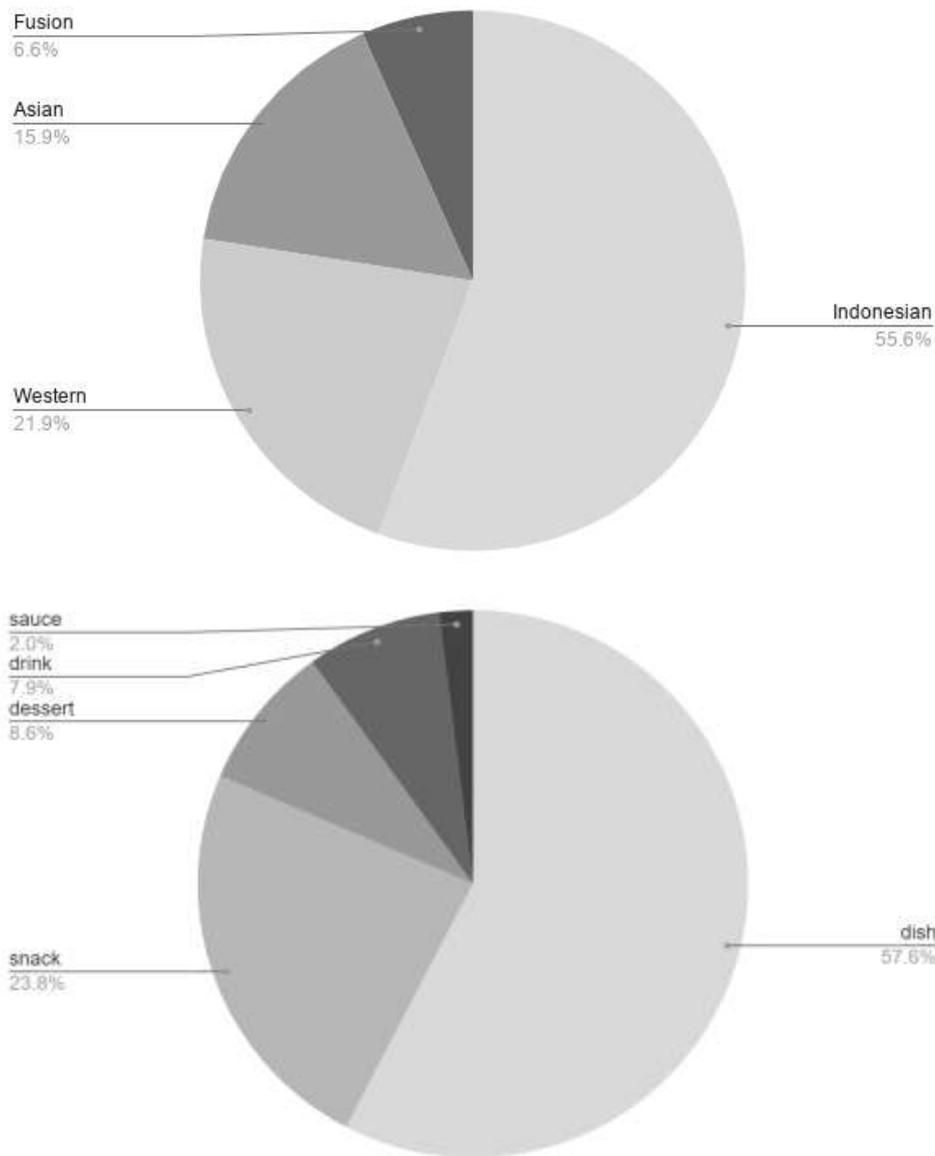


Fig. 10: Posts with Recipe Content Chart: Type of food and its origin
Source: By Author, data from Instagram's Top Posts page of hashtag #MasakDiRumahAja (Apps version).

The trend clearly shows that pandemic and stay-at-home regulation had encouraged people to cook more at home. Moreover, based on the samples of Indonesian foods, around 53 posts show cooking from scratch and 31 posts combine both raw and instant ingredients in their recipes. The increasing number of pre-cooked meals are not reflected in the sample. The result illustrates that kitchens have once again played a significant role in our daily routine during the pandemic.

Conclusions

'Kitchen as the heart of Indonesian houses' is indeed proven, as it is brought from outdoor into the humble abode. Our architecture might be modern, but our kitchens had returned to its vernacular roots. Once excluded outside our houses during the Dutch colonial period, now, kitchens are an inseparable part of our homes. However, a negative view of the kitchen as

a service area is still visible today. Nevertheless, our observations also show that several households utilize their kitchens as a gathering place for family activities.

This research shows us the importance of kitchens in the context of the pandemic. We found that people utilize their kitchen more often, whether for cooking—from preparation to serving—or reheating and storing food. Kitchens that were often neglected in the design indicated from available house listings have returned to its roots as the hearth. The domestic role has been emphasized in the process, as people returned to their kitchens to maintain their lives during these uncertain times.

The proposed kitchen design originally was parallel with the needs of its inhabitants, both spatially and culturally. We saw how complicated recipes resulted in a cooking sitting area design proposed in the 1960s or the semi-open kitchen with extra space that accommodated heat from rigorous cooking activities. Based on our social media research, cooking has become a new normal for Indonesian households. More importantly, Indonesian cuisine is still popular during the pandemic. However, with the increasing sales of pre-packed and cooked meals, our research found out that posts shared were cooking from scratch and not a pre-cooked meal, indicating a dire need for a sufficient space to cook. However, today's kitchen was built with a minimum standard of 36 sq.m, unlike the traditional house that adjusts to its occupant's needs. With smaller house plots, the inhabitants' needs of workspace in a kitchen were also reduced. This indicates that a kitchen design should be made with spatial reasoning and the inhabitant's gastronomy background despite the available space. By designing a kitchen that refers to this issue, the kitchen will be ready to keep the house's inhabitants comfortable at home, mainly when their movement outdoors is limited at times such as this pandemic.

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