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Author/s:

MacRae, G;Reuter, T

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## LUMBUNG NATION

### Metaphors of food security in Indonesia

Graeme MacRae and Thomas Reuter

#### ABSTRACT

Indonesian food security policy suffers from a fundamental internal contradiction – between neoliberal pressures towards more integration into the global market-based food system geared towards profit and an intractable residual belief in national self-sufficiency in staple foods. While this contradiction presents itself in technical and economic terms, it is fundamentally a matter of culture and ideology. The article addresses this contradiction by way of a study of key metaphors of food security, among which the most central is *lumbung* – the traditional rice barn. *Lumbung* of various kinds have been a central pillar of food security across the archipelago since ancient times and still serve in many contexts as a metaphor for food security at various levels. While this ‘*lumbung* culture’ may have ‘hindered’ attempts to integrate Indonesia more fully into wider circuits of market exchange, it has to some extent protected the Indonesian food system from the growing vulnerabilities of climate, resource/environmental stresses, and pandemics.

#### KEYWORDS

food security; food systems; globalisation; politics of food; rice storage; state food policy.

#### Introduction

Successive Indonesian governments have differed on many issues, but one aspiration they have all shared has been an unwavering desire for and policy focus on achieving national self-sufficiency in food, and most especially in rice. This persistent state ideology mirrors an almost universal and deeply taken-for-granted element of shared national culture in Indonesia.

While this attitude may reflect a nationalist aversion to any hint of dependence on foreign largesse, the basic policy approach in fact predates the formation of an independent Indonesian state (Davidson 2018) and seems to have been aimed consistently towards maintaining political legitimacy and power. For the Dutch colonial regime too,

... (i)nterference with the rice trade was a time-honoured feature of colonial economic policy. Its basic aim was a stable, preferably low, price level. Low prices (but not too low) ensured low wage levels, and therefore high returns to western investments, but they also kept basic foodstuffs within the reach of the lower classes, thus preventing famines, migration and revolts.

(Boomgard 1986: 67)

Later, in the heady days of the new republic, the first President, Sukarno said famously that ‘food security is a matter of life and death’ and that the road to food security was through national self-sufficiency in essential crops and commodities (Mears 1984).<sup>1</sup> Later still, as programmes of agricultural development were initiated, many of them included specific reference to self-sufficiency as their primary purpose (Rieffel 1969: 110; Roekasah and Penny 1967: 60). This basic ideological foundation remains present, always implicit and often explicit, in public discourse and state policy and practice today (e.g. Kementerian Pertanian 2020).

Also from the colonial period onwards, there has been a counter-discourse questioning this ideology of self-sufficiency on grounds of economic rationality and efficiency (Rieffel 1969: 132). Since the 1990s, a chorus of (mostly international) expertise has questioned this orthodoxy and called for Indonesia to liberalise its rice markets and move towards a more globalised, market-based approach to food security (Hamilton-Hart 2019; McCullough and Timmer 2008; OECD 2015) citing the high social and economic costs of inefficiencies created by government interventions. This counter-discourse also exists within Indonesia, but only as a minority voice (e.g. Nuryanti et al. 2017). The hegemonic ideology of self-sufficiency is thus routinely contradicted by government pronouncements promoting market-oriented development. Vice-President Yusuf Kalla, for example, has promoted

... financial inclusion ... through value chain innovation, to improve productivity and welfare in the agriculture sector. ... to improve productivity on all fronts, but the main point here is technology. ... also .... how to expand their businesses. Financing is required.

(*Jakarta Post* 2016)

Likewise we find that documents in which assumptions of self-sufficiency (*swasembada*) are deeply embedded not uncommonly also include passages extolling the virtues of new cash crops, market-based development and export orientation. And at the level of policy implementation on the ground, projects for improving local livelihoods by replacing subsistence production of food crops with high-value crops for export, run concurrently with programmes to revive backyard and neighbourhood gardening.

This apparent contradiction, tension, or at least duality of beliefs and assumptions, lies at the heart of Indonesian policy and practice on food and agriculture yet it is rarely recognised, let alone addressed. While these two aims are in themselves well known and need not necessarily be incompatible,<sup>2</sup> the fact that the contradictions between them are ignored or denied, seems to be an obstacle to achieving the aims of either approach, let alone a constructive engagement or compromise between them. The obvious and widely criticised weaknesses of the

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<sup>1</sup> Strikingly similar sentiments have been expressed in China for at least 2,000 years (Will and Wong 1991: 2–3).

<sup>2</sup> Other countries in the region, notably Thailand and Vietnam appear to achieve both ends simultaneously, but this is related to comparative advantages afforded by different demographic, economic and especially geographical conditions of mainland countries, in comparison to island and peninsular ones, which tend also to have similar ideologies of self-sufficiency (Davidson 2018).

current Indonesian food system (Davidson 2018; Dawe 2004 Hamilton-Hart 2019; McCullough and Timmer 2008; OECD 2015), suggest there may be value in a more nuanced understanding of the cultural grounding of this contradiction.

Mainstream discourses of food security and agricultural development tend to approach them as matters of policy, economics, scientific knowledge, technical know-how and practical implementation. But, as countless studies since the 1960s have consistently shown, ‘development’ (agricultural or otherwise) is also a matter of culture – of what people believe, understand, like and want (or not) (Clammer 2012; Pallis 2006). The history of development is littered with stories of well meaning projects which failed not for technical reasons, but because of neglect or misunderstanding of socio-cultural dimensions.<sup>3</sup>

### **Food studies: Culture and Practical Reason**

The anthropology of food and food studies in general tends to begin at the other end of the analytical spectrum – in the cultural or even aesthetic dimensions of food and eating (Aveli 2012; Mintz and Du Bois 2002). This analytical duality, between modes of analysis based on cultural meaning and those based on material politico-economic-technical imperatives was first characterised nearly half a century ago by Marshall Sahlins (1976) in terms of a contrast between ‘culture and practical reason’ but the problem persists. Two decades later, Johan Pottier (1999: 7) made a similar point about the anthropology of food and argued that, to remain relevant, our primary focus should be on the pressing problems of food (in)security. Since then this urgency has only increased. We begin therefore, from the problem of food security, specifically in Indonesia, but our starting point is that it is not only a matter of ‘practical reason’ but also of culture and that these cultural dimensions are often missing from mainstream analyses of food security. The practical is cultural, just as the cultural is practical.

While food security is a contested concept (Burchi and de Muro 2012), our concern here is not with this debate, but with the dominant discourses shared by mainstream institutions such as FAO, the World Bank, and the international agri-food research system<sup>4</sup> as well as most national governments. These have long shared a view of food security as a set of technical problems of production, distribution and access (as Tanya Li 2007: 7 says of development discourse in general) abstracted out of any political, economic and cultural context and to be solved by more or less technical means. More recent and critically informed

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<sup>3</sup> The extreme case is Graham Hancock’s rather sensationalised *Lords of poverty* (1992) but there is also a substantial literature, since the 1970s, documenting failures of aid/development projects.

<sup>4</sup> We use this term as a shorthand for the international network of agri-food institutions that developed mainly during the 1960s and 1970s. At its heart is a group of specialist international organisations coordinated under the umbrella of the Consultative Group for International Agricultural Research Centres (CGIAR), but its key components are replicated in national research systems comprising specialist research centres, agricultural universities. It also includes the FAO and other UN agencies and is sometimes closely linked to philanthropic foundations such as Ford, Rockefeller and more recently Gates. Similar but independent research and development agencies are also found in China.

analyses have shifted the focus towards the politico-economic structures and processes that shape production, distribution and access to food, and associated patterns of inequality and lack of food sovereignty (Friedmann 1982; McMichael 2009). The work of Amartya Sen (see FAO 2013) and others has also influenced the FAO and other agencies to adopt a more nuanced, fourfold understanding of food security in terms of availability, access, utilisation and stability.<sup>5</sup> While all of these dimensions, technical, agronomic, ecological, political, economic, and social are real and important, internationalist discourses until now have paid much less attention to the cultural dimensions of food security – that food itself and especially its quality, quantity, security of supply are all embedded in systems of meaning and specific cultural arrangements and values. Failure to recognise and adequately deal with these cultural dimensions has long bedevilled well-meaning development interventions of all kinds including ones into food systems. When self-sufficiency is a near religious ideological value, as in this case, programmes for the marketisation of the agri-food sector find themselves encountering unexplained resistances.

The more specific aim of this article is to identify and explore a central but obscured cultural complex at the heart of a long-standing tension in food security policy in Indonesia, illustrating the way in which such cultural meanings have real concrete effects on policy and practice in this case. We begin with the essential contradiction outlined above and end with a key metaphor for food security which is found everywhere but rarely recognised – hidden in plain sight. To do this, our argument unavoidably tacks back and forth between historical periods, geographical locations and scales, discourses and practices.

## Food security in Indonesia

Government discourse and policy about food repeat endlessly the duality introduced above – the tug of war between protecting self-sufficiency and increased productive efficiency through market-led development. For example, the first two policy priorities of Indonesia's Strategic Plan for Agricultural development are: (1) 'Improving rice self-sufficiency and increasing production of corn, soybean, sugar, meat, chili, and onions' but also (2) 'Developing competitive, export, and import substitution products as well as bioindustry raw materials' (Rafani 2015: 3). The first paragraph of the (former) website of the Department of Agriculture similarly voices the familiar refrain of increasing productivity and competitiveness in international markets. Then – the very next paragraph is about 'food sovereignty' (*kedaulatan pangan*)<sup>6</sup> and the need for self-sufficiency at a national level, but also

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<sup>5</sup> See, for example: <<http://www.fao.org/news/story/en/item/178014/icode/>>

<sup>6</sup> The Indonesian term *kedaulatan pangan* translates literally as food sovereignty, but it should not be confused with the wider global usage pioneered by La Via Campesina (Agarwal 2014). The Indonesian usage refers to national independence, which in effect means self-sufficiency, primarily in rice.

about bottom-up approaches to food needs and the wellbeing of primary producers of food.<sup>7</sup>

This polarity manifests in contradictions and tensions all through the system – from the policy level down to the local fields and markets in most of our ethnographic encounters. Here are two small but typical examples from Bali in mid 2018.

The first is a neighbourhood close to the tourism centre of Ubud – rural but rapidly urbanising. The Food Security section of the Department of Agriculture has field officers in each sub-district (*kecamatan*). Their first daily duty is monitoring prices of key commodities in local markets (Figure 1). Later in the day they attend to other tasks including implementing programmes and projects originating from offices further up the bureaucratic chain.<sup>8</sup>

One of these is a national programme for reviving backyard gardening, of the kind everybody used to do until a generation ago (Soemarwoto et al. 1985). An extension of this is setting up and supporting local women's gardening groups at a village level. In June 2018, we attended a meeting for official monitoring and review of one such women's garden, conducted by officials from the district office. It was held at a local primary school, which also has a nice little vegetable garden (another part of the programme) so the school principal was there, as was the head of the village, who made village land available for the community garden. The meeting was held in one of the classrooms, with the women of the gardening group seated on school benches (Figure 2) while the dignitaries sat at a long, raised table across the front of the room, subtly reminding all of the top-down formality of relationships between local community and government that persists two decades after the end of the authoritarian Suharto regime. It turns out the programme is going well, but one thing the officials are concerned about is that the project is not meeting government expectations in terms of the number of chickens they are raising. Increasing average protein intakes is a current priority of the National Food Security Policy and hence a box that needs to be ticked. And furthermore, they seem to be keeping their chickens at home rather than at the community garden where they are supposed to. The women defended this on the grounds that they are busy and it is easier to look after the chickens at home. Fortunately these officials are close enough to the realities of village life to understand and accept this.

After the meeting, we all went around the corner to inspect the community garden, and several other groups of civil servants turned up as well. One was from the sub-district office of the agricultural extension service (another section of the same department), whose usual priority is not home gardening but top-down programmes for maximising production and accessing markets. But now the

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<sup>7</sup> This text has since been removed from the website of the Ministry of Agriculture, but parts of it still appear in a number of regional government websites and are also still referred to on the Ministry website.

<sup>8</sup> The administrative system of the Indonesian state involves a fairly standard system of ministries and departments, but replicated at national, provincial, district (*kabupaten*) and sometimes sub-district levels. With the post-Suharto devolution of much decision making and budgets to district level, branches of the same department may have different policies and practices in different districts. The result is complexity, sometimes contradiction, and not infrequently confusion.

service has decided or, perhaps, been instructed to support this project, despite its different agenda. Then a delegation turned up from the Department of Tourism bringing a Mexican expert, who was advising them about the local potential for Culinary Tourism. He gave a short speech in imperfect English which nobody understood but they all applauded politely and he went on his way. Then the head of the village had to leave to go to a meeting with the Department of Public Works about upgrading irrigation to increase productivity of nearby rice fields.

There are several insights we could draw from the agendas criss-crossing in this little event, but our main point is that it illustrates the way in which one agency of government is working on projects for low-tech local self-sufficiency in basic foodstuffs, even as there are traces of other and even opposite agendas swirling around.

A few days earlier we had been in another village in a faraway corner of the mountains of north Bali – where there are few local livelihood options apart from agriculture, although some optimistic tourism enterprises are just beginning. Most people grow a range of subsistence crops and sell any surpluses in the local market. But it is good country for a fruit called *manggis* (mangosteen), for which there is a rapidly growing export market across Southeast Asia and especially China. A few valleys away there is a grower who has become a successful exporter – and he has been buying their fruit, but it is not up to export quality, so the prices are low. The purpose of this meeting was to help a local farmers group get certified for export – which involves dealing with a whole raft of quality control, logistics, storage, packing, and food safety standards. The meeting was held in a local hall, where again the farmers were arrayed as a mass audience, with the experts across the front. The meeting was organised, sponsored, and chaired by a young and charismatic organic food entrepreneur. Three of the experts are agricultural scientists from the main government university, who explained the technical aspects and what farmers need to do to meet the requirements for export certification. A woman from the provincial level Department of Agriculture, explained the bureaucratic procedures involved and how she can help facilitate them. Again – there are several issues here, but our point is that this is an example of the other pole of government policy in action – facilitating access to export markets for cash crops. If it succeeds, within a year or two everyone in this valley will be growing *manggis* for export rather than the local subsistence crops they now grow. If the market holds and no pests or diseases invade the new monocultures, livelihoods will be improved and they will all become wealthier, buy new motorbikes and mobile phones, as well as paying school fees and medical expenses. But in the process subsistence production will decrease and local food security will become more vulnerable in a national market subject to increasing food price volatility.<sup>9</sup>

We could relate countless more cases of these dual agendas, often sitting side by side, but inherently contradictory and in some cases in open conflict (see for example, Nugraha 2015: 39).

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<sup>9</sup> At last report, they began exporting in 2019, but were not able to in 2020 because of the Covid-19 pandemic – but fortunately this setback occurred before they had abandoned their subsistence base.

## Historical political economies of food security in Indonesia

This relationship, between an economy based on trade and one based on self-sufficiency, is not new. The kingdoms and empires that thrived and prospered in the Indonesian archipelago 1,000 or more years ago were the ones that managed this duality most successfully. The ideal model was a port in a safe harbour at a river mouth linking international trade with internal trade but also with a rice-growing hinterland. This productive hinterland was necessary to support large populations, but also to provision the ships of traders from as far away as China and India who came and went on the seasonal monsoon winds. Majapahit, in east Java had the perfect combination. Srivijaya, based in what is now southeast Sumatra, combined its strategic advantage of location at the confluence of a river-mouth harbour and an international trade route, with an alliance with the (early) Mataram kingdom in central Java which had extensive areas of irrigated rice sufficient to provide basic food security for a large population (Hall 1992: 203).

A few decades ago Clifford Geertz (1980) made a brave attempt to persuade us that the basis of pre-colonial Southeast Asian states lay neither in trade, politics or military might, but in ritual performance. It was an eloquent argument for rethinking 'practical reason' in terms of culture, based on his imaginative reconstruction of pre-colonial Balinese states, but he was flying in the face of overwhelming historical evidence that these states were utterly grounded in economies of production, distribution and exchange. The two wings of these economies were rice self-sufficiency and translocal trade, mostly in non-subsistence commodities (MacRae 2005). Anthony Reid's (1984) magisterial description of the wider pan-archipelagic pre-colonial economy likewise emphasised the importance of trade, translocal, inter-island and as far as India and China, especially in agricultural products.

The Dutch colonial regime built on this economic duality of trade and subsistence by separating production of subsistence and export crops into different locations or seasons. This led to a deeply bifurcated economy analysed (and immortalised) in the famous theory of dual economies by Boeke (1953). This dynamic balance between imperatives for subsistence and trade is thus rooted in history, but it also remains deeply embedded in contemporary policy and practice. Within this dual framework, a number of common cultural themes emerge as key metaphors.

### Metaphors of food security

Indonesian cultural metaphors of food security revolve around staple foods and their storage. Traditional food systems in Indonesia have long relied heavily on seasonally harvested crops, stored in secure structures of some kind that in English would be called barns or granaries. These were typically buildings with steep gabled roofs to shed rain and raised on poles to protect against floods and animals, especially rodents. Walls were sufficiently enclosed to keep out wildlife

and often sloped outwards for extra weather protection. Beyond this generic form, they come in various shapes and sizes across the archipelago (and indeed across monsoon Asia and the Austronesian parts of Melanesia). They have distinctive names in local languages, but the generic Indonesian one is *lumbung* (Figures 3a–d and 4).

In neighbourhood economies which relied on indigenous subsistence crops, everybody had *lumbung*, either at household level or collectively. But *lumbung* has, like the English term granary, broader connotations than just referring to a kind of building. It is commonly used as a metaphor for food security and for storage of things of value, including knowledge and community values – like metaphors of bread baskets and food bowls in other societies. This is reflected in the frequent contemporary metaphorical usage of the term, such as *lumbung budaya* (a storehouse of cultural tradition).<sup>10</sup>

What food is stored at the household level and beyond varies historically and regionally across Indonesia, but there is nevertheless a broadly shared concept of the basic necessities of life. *Sembako* (*sembilan bahan pokok*) are the nine basic commodities which every Indonesian household is officially presumed to need. These include rice (or in some parts of the country other staples such as sago, cassava or maize), sugar (despite a national diabetes epidemic), fruit and vegetables, animal protein, cooking oil, milk (despite the fact that until recently few Indonesians consumed milk products), eggs, cooking fuel, and salt.<sup>11</sup>

These and other basic commodities have been at the heart of food policy since independence, and especially during Suharto's New Order regime (1965–1998). In the face of a rapidly marketised culture and economy of food this approach has faded somewhat since, but the idea of essential foods is nevertheless still meaningful, especially in the context of fighting poverty. It forms the basis of an implicit moral contract people feel the government has with them and, when supplies or prices of *sembako* go wrong, they protest in the name of this contract.

In order to fulfil this contract, authorities are expected to take steps to maintain control of the food supply with regards to staple foods. *Swasembada* (self-sufficiency) in *sembako*, especially rice – is always at the heart of government policy as well as popular thinking, despite all the contradictory discourse and policy efforts to boost cash-cropping for exports. Self-sufficiency, and indeed any kind of food security, implies holding reserves for tomorrow and especially for any hard times that may come, such as the current Covid-19 pandemic.<sup>12</sup> This in turn implies systems of storage.

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<sup>10</sup> See for example, *Jakarta Post*:

<<https://www.thejakartapost.com/life/2020/06/10/lumbung-for-the-world-ruangrupa-on-documenta-and-the-pandemic.html>>

<sup>11</sup> These commodities have changed somewhat over the years (e.g. the replacement of kerosene with LPG) but the basic framework has remained the same, and especially the centrality of rice. A closely related concept of *Bahan Pangan Pokok* (essential foodstuffs) is also now more commonly used in government discourse (e.g. Kementerian Pertanian 2017).

<sup>12</sup> For an example of *budaya lumbung* (lumbung culture) being invoked as an ideal in the context of the current pandemic, Mazland (2020) in the *Columnist*: <<https://thecolumnist.id/artikel/dilema-pangan-dan-budaya-lumbung-yang-dibenamkan-722>>

Together these concepts of *lumbung*, *sembako* and *swasembada* reflect a pan-Indonesian model of food security based on systems of storage of harvested crops and sharing of surpluses. This kind of thinking, which we might call a *lumbung*-complex, is common to most agrarian societies, certainly across Asia, but this one has a distinctly Indonesian flavour. It appears everywhere from the household and village to the largest historical empires, and re-emerges in contemporary movements of farmers and activists – as well as contemporary food security policy and practices of agricultural research and administration (e.g. Kementerian Pertanian 2019).

### Traditions of food security in Bali

In Bali, Java and other parts of Indonesia (and indeed most of monsoon Asia), rice has long been the staple carbohydrate – central to subsistence but also to cultural ideas about food, subsistence, livelihood and identity. It was (and to some extent still is) embedded in a cycle of rituals, which look at rice as a divinity (see below). There are at least nine stages of this ritual, from preparation of land and water, through planting, purifying water, the budding of the rice plants, the ripening of plants, harvest, to storage in the *lumbung*. The purpose of all this ritual is quite pragmatic – to ensure that everything goes according to plan and people end up with enough food in their *lumbung*. The ritual is an essential part of the local food security system ‘... *as critical as the labour*’ (Boon 1977: 39).

Whole grain harvested in the traditional way, using a small hand-knife (*ani-ani*), properly dried and stored in a *lumbung*, lasts for months, or even years. Until the changes of the Green Revolution in the 1970s, the stored grain was mostly processed in small amounts for daily use by women using large mortars (*lesung*) and heavy wooden or bamboo pestles which removed the outer husk (*sekam*), but left the nutrient-rich inner skin (*kulit*) intact. Any grain not used remained in the *lumbung* providing a reserve against hard times as well as the best seed set aside for the next planting season.

Households without farmland or *lumbung* could ask for rice from those with surplus and there was a strong moral incentive to give freely. At the same time, there was an equally strong moral sanction against commodification of rice – ‘the path of rice from the paddy to storage in the houseyard lubang [*lumbung*] should not be mediated by a market connection... [this was] near a religious value...’ (Boon 1977: 39–40) – and an oft cited marker of the difference between Balinese and Chinese economic moralities. Local moral economies of this kind were common across most of the region (e.g. Scott 1985). Rice was also a basic ingredient of the essential form of the cycles of ritual central to Balinese culture – offerings to invisible beings of various kinds – from the smallest daily household offerings to the most elaborate ones.

#### *Dewi Sri – Rambut Sedana*

While the storage and sharing of rice was understood in opposition to commercial transactions, it was also understood, along with other fruits of the earth, as the

primary form of wellbeing, prosperity and wealth – embodied in a deity known as Dewi Sri – the goddess who inhabits the growing rice plant, the harvested grain, and the contents of the *lumbung*. The other primary form in which the natural wealth of the earth manifests itself is that of precious metals, especially gold, the ‘very best type of earth’ (Howe 1991: 455) but this form of wealth carries more complex and ambivalent cultural baggage. The fruits of the earth should ideally be given and exchanged freely, but the reality is that some of them have always been bought and sold. While village moral economies across Indonesia are based on subsistence production, gift-giving and reciprocal exchange of subsistence produce, wider Indonesian economic culture is based as much on histories of translocal trade as on village moral economies (Reuter 2019). In Bali, goods that pass through the market process, were traditionally purified by rituals of transformation, embodied in deities known as Ida Ayu Melanting, the goddess of the marketplace, and Rambut Sedana, the god of trade and traders. Dewi Melanting is variously understood as the daughter and brother of Dewi Sri. But Rambut Sedana is also conjoined with Dewi Sri as Sri-Sedana – a couplet of husband and wife, male and female, in a deeply Austronesian concept conjoining and resolving the tension between worldly and primal forms of wealth (MacRae 1997: 429, see also Howe 1991; Wessing 1990).

The essence of these concepts lies in a ritual/moral transformation of wealth corresponding to its material conversion from natural products into money, but for our purposes here, it implies also that rice, like gold and money, is a bearer and medium of value, almost a kind of currency. It is no coincidence that rice was in earlier times used as a measure of value and exchange throughout East and Southeast Asia (Allen 2009: 354). But wealth, like grain, needs to be stored somewhere, and when we consider the wider discursive uses of *lumbung*, it is clear that it is also a metaphor for storage of value in various forms.

Across Indonesia government agencies, NGOs and local grassroots organisations are now framing their plans, programmes and projects for food security in terms of *lumbung*-speak. The general law on food promulgated in 2012, places considerable emphasis on reserves (*cadangan*) of food and explicitly encourages the maintenance of such reserves at all levels of government down the village and local community (Indonesia 2012). In 2009, the Department of Food Security established a Programme of Village ‘Self-Reliance’ (*kemandirian*) in food.<sup>13</sup> While neither of these government initiatives uses the term *lumbung*, both seem to have encouraged *lumbung*-behaviours at a local level.

Even before this law, as early as 2001, several districts in Sumatra had initiated programmes for establishing networks of village-level *lumbung* (Della 2014; Kholiq and Djameludin 2008; Wahyeni 2016). Similar programmes had begun or were planned in other parts of Indonesia (Budiasa et al. 2009; Rachmat et al. 2011). Since 2012 the \*concept of *lumbung desa* (village *lumbung*) has become well known and has spread across the country, apparently independently of direct government facilitation. In central Java, most of the local community and farmers organisations we have been studying are, among various other initiatives,

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<sup>13</sup> The term *mandiri* means (roughly) ‘to stand on one’s own feet’, but its wider meaning implies independence and sovereignty.

establishing systems of sharing and storage of surpluses which they describe as community *lumbung* (MacRae and Reuter, in press).<sup>14</sup>

While the metaphor of *lumbung* carries these wider sets of meanings, the technology of storage after which it is named, together with a moral economy of sharing surpluses, all packaged in a cycle of ritual, historically provided a reasonable level of food security at the level of community as well as household, most of the time. Elements of it remain, but much has changed as well.

### **A traditional system of food security**

Ubud is a small town in Bali. We knew it first as a village, but it has now grown into a busy tourist town and has even been (somewhat absurdly) described as the 'Best City in Asia' (Sandercock 2006). At the end of the 19th century, it was the centre of a kingdom, whose prosperity and power was based partly on an unusually effective system of food security. Ubud today is (among other things) a centre of food tourism, comprising an upmarket sector of international restaurants, an organic/vegan/health-food sector and a modified Indonesian fusion sector, plus an annual food festival. Relatively little of the food for these sectors is indigenous, and even less is grown locally, indeed much of it is imported. But for local people, the staple food is still rice and only two generations ago, most of them lived primarily from subsistence production of it, supplemented with small amounts of vegetables and even smaller ones of meat or fish. Nowadays, diets have diversified, many people are less connected to the subsistence economy and more food is bought. There are now several supermarkets, well stocked with both international and local foods but patronised mostly by foreigners and Indonesians buying for foreigners, restaurants or hotels. Most local people still prefer the traditional market – located where it has been for over a century, at the central crossroads, opposite the palace.

Early in the morning, before the tourists come out, Ubud is an ordinary Indonesian village – with the main street taken over by the market, where people still buy their daily fresh food, partly because it is cheaper but also because they believe it is fresher and healthier. More durable goods, especially rice, they buy through networks of more or less direct connections to farmers or millers. The minority who are still farmers themselves mostly produce just enough rice for household consumption. But food is becoming more expensive, especially in a tourism-inflated economy such as Ubud. According to official data, average households in Bali (and across Indonesia) spend about two-thirds of their income on food and about half of that on rice.<sup>15</sup>

Throughout Bali, land and labour are both shifting steadily away from agriculture to more lucrative sectors (MacRae and Reuter 2019; Sriarta and Windia

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<sup>14</sup> While it may come as no surprise that one of the major national rice milling and trading companies is called Lumbung Padi Indonesia, so also is a Jakarta money-changer called Lumbung Valuta and the tourist accommodation sector in Bali is replete with *lumbung*-names and architectural references.

<sup>15</sup> We heard this from a taxi driver about his own household in mid 2018 and on the same day we saw a media report to the same effect.

2015) but Bali still produces enough rice to feed its population of about 4 million.<sup>16</sup> Maintaining this will be a challenge, however, in the face of increasing conversion of land and labour to other uses, not to mention a whole raft of environmental problems.

But this level of apparent food security has not always been so. Older people remember eating rice at best once a day, usually mixed with sweet potato or maize, meat rarely, and pork only at a big festival every seven months. As late as the 1960s, when crops failed because of rat plagues, diseases or volcanic eruptions, people ate the inner pulp of banana trees to survive. Even earlier it was a different story again. At the time of the Dutch colonial takeover in 1900, Ubud was the most powerful and prosperous kingdom in south-central Bali. How this happened is a long story (MacRae 1997), but one important factor was an unusually effective system of food security.

In pre-colonial times, the most common way of managing land, people, and production beyond the scale of household and local community was a system called *pecatu*. The lord who controlled the land, allowed local people to work it to produce food for themselves, in exchange for providing services to the palace (*puri*) – mainly preparing and taking part in ritual, and military service (Gunning and van der Heiden 1926; de Kat Angelino 1921). This system was essentially a device for using land, still plentiful at the time, as a source of comparatively scarce manpower. When Ubud began to expand in the 1880s, its ruler also allowed local people to farm the land, but they managed the harvest differently. Any surplus was brought to a large central *lumbung*, supervised by a court official called *sedehan*. There were a network of these in each major village and even bigger ones in Ubud itself, near the palace. When this central supply ran short, more was brought in from the network of village *lumbung*, on 3-wheeled carts pulled by men. Together these formed an integrated food storage system across the kingdom, but managed centrally from Ubud. It provided food for the palace, its retainers and its ritual. But it also provided for many of the people of Ubud, who did not have fields and *lumbung* of their own. It also enabled the provisioning of something like a standing army. This in turn was a major factor in the military success that led to control over even more farmland, more harvest and an even bigger network of *lumbung*.<sup>17</sup> Like *pecatu*, this was a system of recruiting and managing manpower, but based on the produce of the land rather than land itself. It thereby enabled control not only over farmers, but over others without direct access to food production.

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<sup>16</sup> Production of rice fluctuates from season to season and consumption per capita is trending downwards, but an estimate, based on official statistics for production and consumption (as well as imports and exports) confirm that Bali is generally self-sufficient in rice. This is also the opinion of a senior agricultural scientist with whom we have discussed the issue.

<sup>17</sup> The historical dependence of local people on the palace for food is common knowledge around Ubud, although the details and mechanics of it less so. The general history of Ubud is documented in detail in MacRae's (1997) thesis. Our evidence for this system of *lumbung* has come to light only recently, and consists largely of a substantial, if not always consistent body of oral accounts by people old enough to remember the physical *lumbung*. The inconsistencies are somewhat baffling, but probably reflect the fact that the palace is not a monolithic institution but a cluster of closely related sub-*puri*. As ricefields are owned by individuals, different sub-*puri* probably had their own *lumbung*, or possibly none at all. Our account here is based on a synthesis interpreted from these accounts.

This was an integrated system of food security based first on household level storage, then a local moral economy of sharing and exchange, then at a larger scale, centralised management of decentralised storage. According to Prof Bambang Purwanto<sup>18</sup> essentially similar systems of centralised collection, storage and management of harvests prevailed in pre-colonial Javanese kingdoms. There is also widespread (although not systematically reported or collated) evidence of collective *lumbung* of various kinds across the archipelago, including ones established by the Dutch colonial regime (Hartartik 2010, Ikbal 2011: 120). According to Boomgard (1986: 77) in 1940 there were some 5,600 village *lumbung* in Java. So embedded in local practice were these state *lumbung* that in 1959, the Indonesian government issued a special law clarifying their meaning and usage.<sup>19</sup> During the 1920s, NGOs such as rural cooperatives and credit associations, also established common *lumbung* both for payment of taxes with grain and for storage of seed for planting. As late as 1984 Professor Purwanto himself encountered extant systems of collective storage in village *lumbung* in Central Java as late as the 1970s.<sup>20</sup> While most of these examples are from Java, there is evidence of similar systems of communal storage across the archipelago. This kind of storage is also not unique to Indonesia – the principles are inherent in the fundamental logistics of grain-based agriculture and essentially similar systems have been identified in grain-based cultures across the world since ancient times (Breckwoldt 1995–96; de Meulemeester 2005: 613; Privatera 2014; Wesson 1999).

In Ubud, while this was essentially a system of unequal patron-client relations, it nevertheless provided a fairly reliable level of food security – until well into the 20th century. In 1942, the Japanese appropriated it to feed their army of occupation – a system they called *rotondo* – and local people went hungry for the first time in decades (see Kurasawa 1983: 59). After independence, the *puri* no longer controlled the local economy to the extent it had before the war, although it still owned large amounts of farmland. Around 1960, a national programme of land reform further weakened aristocratic landholdings (MacRae 2003), and the system began to decline, but the central *lumbung* are still remembered by some older people.

According to one of the more complete oral accounts, there were (as late as the 1960s) six huge *lumbung* in central Ubud, each measuring about 8 x 10 metres. They were of the usual barrel-vaulted shape, but built directly on the ground rather than raised on poles. Their main posts were of *kayu taap*, a very hard and durable wood, and 20 cm square while the walls were of light material, probably woven bamboo (*gedeg*). In them was stored harvested rice (*sepingan*), coconuts, sweet potato (*ketela*), and beans or peanuts (*kacang* – the most common dry-season rotation crop [*palawija*]). One of the senior members of the *puri* had a truck, which was used for collecting harvests from all over the former kingdom.

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<sup>18</sup> Pers. comm., June 2018.

<sup>19</sup> Peraturan Pemerintah Republik Indonesia Nomor 11 Tahun 1959 tentang Pengertian Istilah Lumbung Desa termaksud dalam Pasal 2 Ayat 4 Rijkst Ordinantie 1948.

<sup>20</sup> Unfortunately Prof Purwanto appears not to have written, let alone published about these systems, hence reference to our conversation with him in June 2018.

During the political crisis and widespread violence in 1965–1966 following the fall of President Sukarno, the *puri* organised a system of nocturnal defence against ‘terrorists’ and rice from these *lumbung* was used to feed the volunteer guards. A woman now in her late fifties remembers her mother pounding rice at one of these *lumbung* for use in a *puri* around 1970. But by this time the system was in terminal decline and the central *lumbung* were abandoned and eventually demolished in the mid 1970s, the materials burnt and a hotel was built on the site.<sup>21</sup> The demise of this system coincided with a wider decline in local food security and the times of hunger that old people in Ubud remember. This was also a time of food insecurity across the country and an escalation of the preoccupation with self-sufficiency that has been a part of national political culture ever since.

Governments anywhere who fail to ensure food security, tend to find themselves in trouble. E.P. Thompson’s seminal moral economy argument (1971) sprang from his analysis of riots over the price of grain in England in the late 18th century. In Indonesia, this is what happened to the first President, Sukarno, contributing to the growth of an enormous and influential communist party, and it was a major factor in his progressive fall from power in 1965-1967. Sukarno’s successor, Suharto eliminated the communist party brutally and opened the door to foreign aid and investment, including the package of ‘high-yielding’ rice varieties, fertilisers and pesticides, that came to be known as the Green Revolution. This increased rice production enormously, and self-sufficiency was achieved briefly in the mid 1980s, but at the cost of growing dependence on expensive chemical inputs and a whole raft of unintended side effects, including soil and water degradation, health problems, and growth of rural inequality and landlessness. When subsidies (and trade restrictions) were withdrawn around 1990, the economics of rice farming went into serious decline.<sup>22</sup> Across the country and especially in more prosperous regions such as Bali, both land and labour are progressively moving away from agriculture to more lucrative uses. Nevertheless rice is still grown, but in many places only for subsistence and there is usually not enough to go around, so the country relies on imports, mostly from Vietnam and Thailand.

Food security is managed at a national level by a state-owned enterprise called Bulog. Its mission statement emphasises the priority of food security in general and maintaining reliability and supply of basic foodstuffs.<sup>23</sup> The rest of its website details its various activities and programmes, including supply of subsidised rice to the poor but also its rebirth and self-image as a dynamic trading company rather than a government agency. In this respect it reflects a market-led model of food security. However, what the website does not explain is that its actual modus operandi to achieve all these aims is by interventions into markets – buying and stockpiling basic foods (especially rice) in a network of huge

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<sup>21</sup> This wastage of resources seems in one way extraordinary, but on the other consistent with the practice of cremation of ritual structures after their use. A likely explanation is that the light roof and wall materials were burnt, while the heavy structure was re-used.

<sup>22</sup> Agricultural subsidies were withdrawn, progressively but rapidly, around 1990, in response to pressure from the IMF. By about 2000 though, many of them had been reinstated and some of them, most notably for fertiliser, remain in place today and are a major item of government expenditure.

<sup>23</sup> See <<http://www.bulog.co.id/visimisi.php>>

warehouses across the country, to provide an emergency buffer, and releasing it strategically into the market, via a network of outlets, to help control prices. Behind the new-look ideology of a market-based approach to food security is the reality of practices reflecting traditional *lumbung*-thinking. At the end of each harvest season and especially approaching times of peak demand such as Ramadan, the media routinely report on the size of Bulog reserves and assurances of security of supply and stability of prices (e.g. *Tempo* 2019). This system is, in its fundamentals of collective storage and supply, essentially similar to that in Ubud a century ago – centralised management of decentralised network of *lumbung*. At the time of writing Bulog are reportedly building a further 15 large storage facilities across the country (Alika 2020b). It may be no coincidence that a secondary function of Bulog, as in old Ubud, is to provide subsidised rice to the poor, but also to civil servants and military staff.

But this is not the only place where the metaphor of *lumbung* is re-appearing, long after most physical *lumbung* have disappeared.<sup>24</sup> The NGOs and farmers organisations we have been researching in Java nearly all use the metaphor of *lumbung* as a way of talking about the local networks of sharing, exchange and distribution of crops they are developing (MacRae and Reuter, in press). Government agencies are likewise beginning to use the term. The courtyard in front of the office of the Bali branch of the Food Security Body is the usual sun-baked concrete-paved parking area, save for a small shop marketing farmers' produce directly to consumers. And, on a plinth of the kind usually found in temples and palaces, a beautifully crafted, full-sized *lumbung* richly carved and decorated with gold leaf (also reminiscent of temples and palaces) – an image in little need of words, but with a small plaque nevertheless, proclaiming it to be a 'typical Balinese food barn' (Model *Lumbung Pangan di Bali*). However, the latest and possibly the most spectacular manifestation of official *lumbung*-speak is President Widodo's recent announcement of a new government agency to coordinate development of a huge (165,000 ha) new food estate project in central Kalimantan, which he describes as a national *lumbung* to offset food security threats such as climate change and pandemics (Alika 2020a; Antara 2020).

### **Lumbung nation: Concluding remarks**

*Lumbung* thinking of this kind is fairly typical of large grain-based food systems anywhere and to some extent flows inevitably from the distinctive material and logistical constraints and possibilities of grain-based food systems.<sup>25</sup> But it has also been critiqued by the food industry, development agencies and governments as an outmoded approach in the contemporary global economy – and that countries such as Indonesia should be looking to more market-based approaches (OECD 2015). Resistance to these critiques at all levels in Indonesia suggests that *lumbung*

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<sup>24</sup> While *lumbung* have largely disappeared in Java and Bali, they are still common in parts of Indonesia where agricultural traditions remain stronger, industrial/commercial production is less common, and subsistence is still the norm.

<sup>25</sup> Examples include ancient China (Will and Wong 1991: 2–3), pre-colonial North American (Wesson 1999), prehistoric Iberian peninsula and modern Morocco (de Meulemeester 2005).

thinking still runs deep or, in short, that Indonesia is a *lumbung* culture. James Scott (1985) refers to lowland polities across Southeast Asia as padi-states, but we suggest that Indonesia can be more accurately understood as a *lumbung* state. This way of thinking serves as a deep-seated cultural critique of market-based and especially mainstream market-based approaches to food security, though it does not rule them out.

There is no denying that the contradictions that run across the levels of agri-food policy and practice in Indonesia are inescapably politico-economic ones. But our point here is that they are equally inescapably cultural and need to be understood in cultural terms. The *lumbung* complex that is everywhere and begins to tie the pieces together is an idea, an ideology, and a metaphor symbolised by a powerful image drawn from traditional architectures, with all the customs, ritual and imagery that surround them. We might, following Benedict Anderson (1991) call it an ‘imagined economy’. Dove and Kammen (2001) might call it a ‘vernacular model(s) of development’, which they remind us, are often different from or even contradictory with official ones imposed from the top down. In this case however, *lumbung* culture is so deeply engrained at all levels of society, right up to the President, that the contradictions are built into government itself – at the levels of policy and practice.

Such contradictions may be seen as a hindrance to effective policy and practice according to many, mostly foreign, experts, but it might equally be claimed that the contradictions have in fact protected Indonesia from going wholeheartedly down the path of integration into the global food economy. At the time of writing, as the implications of climate change and the Covid-19 crisis on the global food system and globalisation in general, begin to become apparent, *lumbung* thinking may well be about to come back into fashion. In the meantime it has served to protect Indonesia from over-dependence on what has proven to be a less reliable system of food security than it appeared to be not so long ago.

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### **Notes on contributors**

Graeme MacRae has conducted ethnographic research in Bali, sometimes Java and occasionally India since the early 1990s. His more recent work has focused largely on the intersections of development and environmental issues, including agriculture. He also teaches anthropology at Massey University, Auckland. Email: G.S.Macrae@massey.ac.nz

Prof Thomas Reuter is a Professorial Research Fellow, Asia Institute, University of Melbourne. He has conducted ethnographic research in Indonesia on a wide range of topics, from political elites to indigenous people, religion, social change, development and environmental issues. Contact: thor2525@gmail.com.

## References

- Agarwal, Bina. 2014. Food sovereignty, food security and democratic choice: critical contradictions, difficult conciliations. *Journal of Peasant Studies* 41 (6): 1247–1268.
- Alika, Rizky. 2020a. Jokowi bakal bentuk badan pengembangan lumbung pangan nasional [Jokowi will form national food storage body]. *Katadata* 9 July. <<https://katadata.co.id/ekarina/berita/5f071697a36bb/jokowi-bakal-bentuk-badan-pengembangan-lumbung-pangan-nasional>> Accessed 13 February 2020.
- Alika, Rizky. 2020b. Bulog bakal bangun gudang di lumbung pangan Kalimantan Tengah [Bulog will build warehouse in granary of Central Kalimantan ]. *Katadata* 14 July. <[https://katadata.co.id/desysetyowati/berita/5f0d5633e9a06/bulog-bakal-bangun-gudang-di-lumbung-pangan-kalimantan-tengah?utm\\_source=Direct&utm\\_medium=Tags%20KetahananPangan&utm\\_campaign=BIG%20HL%20Slide%203](https://katadata.co.id/desysetyowati/berita/5f0d5633e9a06/bulog-bakal-bangun-gudang-di-lumbung-pangan-kalimantan-tengah?utm_source=Direct&utm_medium=Tags%20KetahananPangan&utm_campaign=BIG%20HL%20Slide%203)> Accessed 13 February 2020.
- Allen, L. 2009. *The encyclopedia of money*. Santa Barbara CA: ABC-Clio.
- Anderson, B.R.O'G. 1991. *Imagined communities: reflections on the origin and spread of nationalism*. London: Verso.
- Antara News, 2020. Kementan dorong Kalteng jadi lumbung pangan Indonesia [Ministry of Agriculture pushes for Central Kalimantan to become granary of Indonesia]. 15 May. <<https://www.antaraneews.com/berita/1494020/kementan-dorong-kalteng-jadi-lumbung-pangan-indonesia>> Accessed 13 February 2020.
- Avieli, N. 2012. *Rice talks: food and community in a Vietnamese town*. Bloomington IN: Indiana University Press.
- Boeke, J.H. 1953. *Economics and economic policy of dual societies*. Haarlem: Tjeenk Willnik.
- Boomgaard, P. 1986. III. The welfare services in Indonesia, 1900–1942. *Itinerario* 10 (1): 57–82.
- Boon, J. 1997. *The anthropological romance of Bali, 1597–1972: dynamic perspectives in marriage and caste, politics, and religion*. Cambridge: Cambridge University Press.
- Breckwolddt, T. 1995–96. Management of grain storage in Old Babylonian Larsa. *Archiv für Orientforschung* 42–43: 64–88
- Budiasa, I.W., Ustriyana, I N.G. and Anggreni, I.G.A.A.L. 2009. Persepsi masyarakat terhadap kemungkinan pengembangan lumbung desa di kabupaten Tabanan, Bali [Public perceptions of the possibility of establishing village food barns in Tabanan District, Bali]. *SOCA: Jurnal Sosial, Ekonomi Pertanian* 9 (3): 324–329.
- Bulog (Badan Urusan Logistik). n.d. <<http://www.bulog.co.id/visimisi.php>> Accessed 13 February 2020.
- Burchi, Francesco and De Muro, Pasquale. 2012. A human development and capability approach to food security: conceptual framework and informational basis. Working Paper 2012–009. New York: UNDP.
- Clammer, J. 2012. *Culture, development and social theory: towards an integrated social development*. London: Zed Books.

- Davidson, J. 2016. Why the Philippines chooses to import rice. *Critical Asian Studies* 48 (1): 100–122.
- Davidson, J. 2018. Then and now: campaigns to achieve rice self-sufficiency in Indonesia. *Bijdragen tot de Taal-, Land- en Volkenkunde* 174 (2–3): 188–215.
- Dawe, D. 2004. Can Indonesia trust the world rice market? *Bulletin of Indonesian Economic Studies* 44 (1): 115–132.
- Della, C.A. 2014. Muba tambah 70 lumbungan pangan [Muba adds 70 new food barns]. *Sriwijaya Post*. 20 January. <<http://palembang.tribunnews.com/2014/01/20/muba-tambah-70-lumbungan-pangan>> Accessed 13 February 2020.
- Dove, M. and Kammen, M. 2001. Vernacular models of development: an analysis of Indonesia under the 'New Order'. *World Development* 21 (4): 619–639.
- FAO. 2013. Hunger, about more than food production, FAO conference hears. 15 June. <<http://www.fao.org/news/story/en/item/178014/icode/>> Accessed 16 June 2020.
- Friedmann, H. 1982. The political economy of food: the rise and fall of the postwar international food order. *American Journal of Sociology* 88 (Supplement): S248–S286.
- Geertz, C. 1980. *Negara: the theatre-state in nineteenth century Bali*. Princeton NJ: Princeton University Press.
- Gunning, H.C.J. and Heiden, A.J.V. van der. 1926. Het Petjatoe- en Amstveldprobleem in Zuid-Bali [The problem of Petjatoe and appanage fields in South Bali]. *Tijdschrift voor Indische taal-, land- en volkenkunde* 66: 329–394.
- Hall, K. 1992. Economic history of Early Southeast Asia. In Nicholas Tarling (ed.), *Cambridge history of Southeast Asia: from early times to c.1800*. Vol. 1. Cambridge. Cambridge University Press.
- Hamilton-Hart, N. 2019. Indonesia's quest for food self-sufficiency: a new agricultural political economy? *Journal of Contemporary Asia* 49 (5): 734–758.
- Hancock, G. 1992. *Lords of poverty: the free-wheeling lifestyles, power, prestige and corruption of the multi-billion dollar aid business*. London: Macmillan.
- Hartatik, E. 2010. Pembentukan Lembaga Lumbung Desa di Grobogan pada awal abad XX [The formation of a village rice barn association in Grobogan at the start of the 20th century]. *Paramita* 20 (1): 36–44.
- Howe, L. 1991. Rice, ideology, and the legitimation of hierarchy in Bali. *Man* (new series) 26 (3): 445–467.
- Ikbāl, Bahua Mohamad. 2011. Strategi penguatan lumbung pangan desa dalam menunjang pemenuhan ketahanan pangan [Strategy for strengthening village food barns in support of food security]. *Informasi Permasalahan dan Usaha Kesejahteraan Sosial* 16 (2): 117–124. <<https://ejournal.kemsos.go.id/index.php/Sosioinforma>> Accessed 13 February 2020.
- Indonesia, 2012. Undang-undang Republik Indonesia Nomor 18 Tahun 2012 tentang Pangan [Law on Food].
- Jakarta Post*. 2016. The politics of rice. 23 May.
- Jakarta Post*. 2020. 'Lumbung' for the world: ruangrupa on documenta and the pandemic. 6 June. <<https://www.thejakartapost.com/life/2020/06/10/lumbung-for-the-world-ruangrupa-on-documenta-and-the-pandemic.html>> Accessed 13 February 2020.
- Kat Angelino, P. de. 1921. De Robans en Parekans op Bali [The palace retainers of Bali]. *Koloniel Tijdschrift* 10: 590–608.

- Kementerian Pertanian (Ministry of Agriculture). 2017. Ketersediaan dan harga pangan pokok jelang Natal dan Tahun Baru di Medan aman- terkendali. [Supply and prices of basic foods during Christmas and New Year in Medan are securely under control]. <<https://www.pertanian.go.id/home/?show=news&act=view&id=2461>> Accessed 13 February 2020.
- Kementerian Pertanian. 2020. Kementerian Pertanian Republik Indonesia: visi dan misi [Vision and Mission Statement of Ministry of Agriculture]. <<https://www.pertanian.go.id/home/?show=page&act=view&id=5>> Accessed 13 February 2020.
- Kholiq, H. and Djamaludin, M.D. 2008. Persepsi and partisipasi masyarakat dalam pengembangan lumbung pangan di kabupaten Lampung Barat [Public perception and participation in development of food barns in West Lampung district]. *Jurnal Gizi dan Pangan* 3 (3): 217–226.
- Kurasawa, A. 1983. Forced delivery of paddy and peasant uprisings in Indramayu, Indonesia – Japanese Occupation and social change. *Developing Economies* 21 (1): 52–72.
- Li, T.M. 2007. *The will to improve: governmentality, development, and the practice of politics*. Durham NC: Duke University Press.
- MacRae, G. 1997. Economy, ritual and history in a Balinese tourist town. PhD thesis, University of Auckland.
- MacRae, G. 2003. The value of land in Bali: land tenure, land reform and commodification. In T. Reuter (ed.), *Inequality, crisis and social change in Indonesia: the muted worlds of Bali*. London: Routledge/Curzon.
- MacRae, G. 2005. Negara Ubud: the theatre-state in twenty-first-century Bali. *History and Anthropology* 16 (4):393–413.
- MacRae, G. and Reuter, T.A. (in press). State of the grain: grain of the state: the political- and moral-economy of rice in Indonesia. In Richard Vokes and Alison Dundon (eds), *Shifting states: new perspectives on security, infrastructure and political affect*. London: Bloomsbury Academic.
- Mazland, Andreas. 2020. Dilema pangan dan budaya lumbung yang di benamakan [Dilemma of food and culture of food barns is named]. 3 May. *Columnist* <<https://thecolumnist.id/artikel/dilema-pangan-dan-budaya-lumbung-yang-dibenamakan-722>> Accessed 13 February 2020.
- McCulloch, N. and Timmer, C.P. 2008. Rice policy in Indonesia: a special issue. *Bulletin of Indonesian Economic Studies* 44 (1): 33–44.
- McMichael, P. 2009. A food regime genealogy. *Journal of Peasant Studies* 36 (1): 139–169.
- Mears, L.A. 1984. Rice and food self-sufficiency in Indonesia. *Bulletin of Indonesian Economic Studies* 20 (2): 122–138.
- Meulemeester, J. de. 2005. Granaries and irrigation: archaeological and ethnological investigations in the Iberian peninsula and Morocco *Antiquity* 79 (305): 609–615.
- Mintz, S.W. and Du Bois, C.M. 2002. The anthropology of food and eating. *Annual Review of Anthropology* 31: 99–119.
- Nugraha, A. 2015. Bhineka: an ethnography study of farming style in Gianyar, Bali, Indonesia. MSc thesis. Wageningen University, the Netherlands.
- Nuryanti, S., Hakim, D.B., Siregar H. and Sawita, M.H. 2017. Analisis ekonomi politik swasembada beras di Indonesia [Politico-economic analysis of rice self-sufficiency in Indonesia]. *Indonesian Journal of Agricultural Science* 18 (2): 77–86.
- OECD 2015. Indonesia policy brief: agriculture: achieving greater food security. <[www.oecd.org/indonesia/indonesia-agriculture-improving-food-security.pdf](http://www.oecd.org/indonesia/indonesia-agriculture-improving-food-security.pdf)> Accessed 13 February 2020.

- Pallis, F.G. 2006. The role of culture in farmer learning and technology adoption: a case study of farmer field schools among rice farmers in central Luzon, Philippines. *Agriculture and Human Values* 23: 491–500.
- Pottier, J. 1999. *Anthropology of food: the social dynamics of food security*. Cambridge: Polity Press.
- Privitera, S. 2014. Long-term grain storage and political economy in Bronze Age Crete: contextualizing Ayia Triada's silo complexes. *American Journal of Archaeology* 118 (3): 429–449.
- Rachmat, Muchjidin; Budhi, G.S., Supriyati and Sejati, W.K. 2011. Lumbung pangan masyarakat: keberadaan dan perannya dalam penanggulangan kerawanan pangan [Existence and role of community barns in resolving food security problems]. *Forum Penelitian Agro Ekonomi* 29 (1): 43–53.
- Rafani, I. 2015. Strategic plan of Indonesian Ministry of Agriculture: 2015–2019. Taipei: Food and Fertiliser Technology Centre for the Asian and Pacific Region. <<https://ap.ffa.org.tw/article/849>> Accessed 13 February 2020.
- Reid, A. 1984. The pre-colonial economy of Indonesia. *Bulletin of Indonesian Economic Studies* 20 (2): 151–167.
- Reuter, T. 2019. Understanding food system resilience in Bali, Indonesia: a moral economy approach. *Culture, Agriculture, Food and Environment* 41 (1): 4–14.
- Reuter, T. and MacRae, G. 2019. Regaining lost ground: a social movement for sustainable food systems in Java, Indonesia. *Anthropology of Food*. <<https://journals.openedition.org/aof/10292>>
- Rieffel, A. 1969. The BIMAS program for self-sufficiency in rice production. *Indonesia* 8: 103–133.
- Roekasah E.A. and Penny, D.H. 1967. Bimas: a new approach to agricultural extension in Indonesia. *Bulletin of Indonesian Economic Studies* 3 (7): 60–69.
- Sahlins M. 1976. *Culture and practical reason*. Chicago: Chicago University Press.
- Sandercock, L. 2006. Cosmopolitan urbanism: a love song to our mongrel cities. In J. Binnie, J. Holloway, S. Millington and C. Young (eds), *Cosmopolitan urbanism*. London: Routledge, pp. 37–52.
- Scott, J.C. 1985. *Weapons of the weak: everyday forms of peasant resistance*. New Haven CT: Yale University Press.
- Soemarwoto, Otto; Soemarwato, Idjah; Karyono; Soekartadiredja, E.M. and Ramlan, A. 1985. The Javanese home garden as an integrated agro-ecosystem. *Food and Nutrition Bulletin* 7 (3). <<https://journals.sagepub.com/doi/pdf/10.1177/156482658500700313>> Accessed 4 April 2020.
- Sriartha I P. and Windia, W. 2015. Efektivitas implementasi kebijakan pemerintah daerah dalam mengendalikan alih fungsi lahan sawah Subak: studi kasus di kabupaten Badung, Bali [Effectiveness of implementation of district government policy in controlling conversion of ricefields: a case study in Bading district, Bali.] *Jurnal Kajian Bali* 5 (2): 327–346.
- Tempo. 2019. Menjelang Ramadan, stok beras Bulog capai 1,8 juta ton. 15 April [As Ramadan approaches rice stocks reach 1.8 million tonnes.] <<https://ramadan.tempo.co/read/1195834/menjelang-ramadan-stok-beras-bulog-capai-18-juta-ton>> Accessed 15 March 2020.
- Thompson E.P. 1971. The moral economy of the English crowd in the eighteenth century. *Past & Present* 50: 76–136.
- Wahyeni, S. 2016. Nagari wajib miliki lumbung cadangan pangan [Sub-districts required to have food storage barns]. *Valora News*, 4 March. <<http://www.valora.co.id/berita/3292/nagari-wajib-miliki-lumbung-cadangan-pangan.html>> Accessed 5 March 2020.
- Wessing R. 1990. Sri and Sedana and Sita and Rama: myths of fertility and generation. *Asian Folklore Studies* 49 (2): 235–257.

- Wesson, C.B. 1999. Chiefly power and food storage in southeastern North America, *World Archaeology* 31 (1): 145–164.
- Will, P-E. and Wong, R. Bin with Lee, James. 1991. *Nourish the people: the state and civilian granary system in China, 1650–1850*. Ann Arbor: MI University of Michigan Center for Chinese Studies.

### **Captions**

**Figure 1.** Food security staff daily monitoring of prices in markets in Ubud, Bali. Photo by Graeme MacRae, 2019.

**Figure 2.** The women’s gardening group, Ubud, Bali. Photo by Graeme MacRae. 2018.

**Figures 3a–d.** Typical *lumbung* in various parts of Bali. Photos by Graeme MacRae, 2016–2019.

**Figure 4.** One of few remaining barns used to store rain-fed red rice in highland Bali. Photo by Thomas Reuter, 1995.