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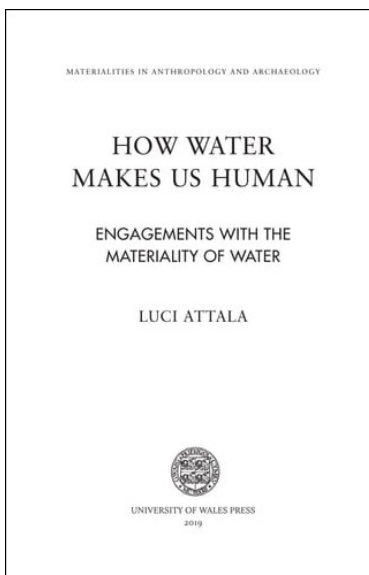
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Human–Water Entanglements in Irrigation Modernization Book Review: “How Water Makes Us Human: Engagements with the Materiality of Water”

Keterikatan Manusia-Air dalam modernisasi Irigasi (Tinjauan Buku How Water Makes Us Human Engagements with The Materiality of Water)

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Book's Content

The book “How Water Makes Us Human” broadly argues that the human relationship with water is co-constitutive, in that humans not only utilize water but are also materially and existentially shaped alongside it. Through the framework of New Materialities (NM), Attala demonstrates that human life is embedded within a broader material network, where the substance of the world is not merely a passive backdrop but an element that actively enables and configures human existence. This book highlights how this liquid matter—water—functions as a connecting medium that physically and conceptually unites the human body with the rest of the material world. The New Materialities perspective, as developed by Bennett, Coole & Frost, as well as Drazin & Kuchler, understands life as the result of mutually influencing material interactions. This approach seeks to transcend the boundaries of individual entities and examines how material relationships produce specific forms of existence. New Materialities acknowledge that social and ecological phenomena are always complex and influenced by various factors, yet this complexity is rooted in the dynamics of matter itself, not merely in political or economic structures. New Materialities emphasizes the co-generative nature of relationships, or “becoming-with,” asserting that the outcomes of these relationships always depend on the physical properties and capabilities of the materials involved.

Research on water that employs the New Materialities perspective is better suited to addressing the need to build sustainable relationships than traditional approaches that view water solely as a resource for humans. This book challenges the notion that humans “use” water; rather, humans are a material entity intertwined with water. While various works of literature acknowledge water’s role in politics, economics, and culture, this book seeks to go beyond that, recognizing water as a material agent, not merely a symbol or a resource. The approach used in this section brings together diverse theoretical currents—multispecies ethnography, more-than-humanism, and posthumanism—to formulate a new framework that places the materiality of water at the center of analysis. By focusing on the material properties, tendencies, and capacities of water, this approach affirms life as a relational network that is fluid, porous, and not entirely bound by traditional ontological categories.

Although water has long been discussed as a vital substance and strategic commodity in discourses on security, supply, and technology, this book takes a different approach: it does not rehash debates about control, infrastructure, or technical solutions but challenges the fundamental assumptions that frame water as a “resource.” The concept of “resource” is considered reductionist because it confines water—which naturally moves and circulates—within an industrial logic that places humans at the center. This perspective is not only intellectually limiting but also reinforces the notion that humans are separate from the material world. Conversely, by adopting a shared vision of materiality, this framework proposes that sustainability can only be achieved when design and policy consider broader ecological relationships, rather than merely human needs. Water is understood not as an object waiting to be managed but as a material entity that plays an active role in shaping practices, landscapes, and life. The New Materialities perspective emphasizes not only that culture gives meaning to water, but also that water materially regulates how humans live; the behavior of water determines social, economic, and ecological practices. It is not merely that humans need water, but that how water behaves determines how humans can live.

This book presents three ethnographies that illustrate the human–water relationship through the lens of New Materialities (NM). The first is the Giriama of Kenya, the second is the Lanjarón of Spain, and the third is Wales. The Giriama people of Kenya demonstrate that their lived experiences are profoundly shaped by the material dynamics of water in a semi-arid environment. Water scarcity not only imposes a daily physical workload but also shapes social practices, gender structures, rituals, and cultural idioms. Thus, the identity of the Giriama people is closely intertwined with the behavior of water that “disappears,” “reappears,” and moves seasonally. These social processes are not merely the result of symbolic meanings or cultural representations of water, but rather the consequence of material correspondences between the body, the landscape, and the physical properties of water. Through the New Materiality approach, these relationships are understood as forms of dwelling—living alongside

the material tendencies of water that actively construct social practices and identities. This approach demonstrates that water is not merely an object of meaning but a material actor that helps regulate the rhythm of life, social organization, and notions of cultural authenticity in Giriama.

In Lanjarón, Spain, the relationship with water relies on encouragement, gentle persuasion, and careful attention to the behavior of water at specific times of the year to ensure that the ecological landscape receives a regular and productive supply. The climate in Spain varies greatly. The north tends to be wet, while the south—particularly the southeastern Mediterranean coast—experiences dry and hot seasons. Mineral water in Lanjarón helps shape the city's identity through its healing properties and its ability to seep into the ground. The traditional irrigation system relies on water's ability to move slowly, freeze, and thaw seasonally. There is a water festival that "floods" the city due to the physical properties of water, where frozen water reserves must be released in the summer to prevent damage to the system.

In Wales, water is abundant, often flooding and submerging the region. British efforts to control, contain, and divert Welsh water out of the region have severed the community's material connection to water, triggered collective memory, and stirred the power of Welsh nationalism. The capacity for water to be held back and collected in dams allows it to become a political force that helps revive Welsh identity. The community's political power grows as the volume of water held back increases, reminding us that human activity is a material activity that is never separate from the material world surrounding it.

Human–Water Entanglements in Irrigation Modernization

Human interaction with water is largely determined by how much people desire it. The human–water relationship, viewed through the lens of New Materialities (NM) (Attala, 2019) in Indonesia is such that the staple food of the Indonesian people is rice. Rice comes from paddies that grow abundantly and are widely distributed throughout almost all regions of Indonesia. Paddy thrives because Indonesia has fertile soil; in fact, Indonesia is known as an agrarian nation (Ernawati & Rusdiana, 2020; Kurniadi, Umu, & Ernawati, 2025; Patiung, Apriyanto, & Ernawati, 2025) membangun, memelihara serta memperbaiki bangunan dan infrastruktur, juga mencakup lingkungan dimana pada dasarnya untuk kemaslahatan hidup manusia. Akan tetapi ketika terjadi pandemi COVID-19, setiap bangsa/negara harus meningkatkan kesiapan siaga untuk mencegah maupun menangani wabah tersebut, yang dilakukan di Indonesia diantaranya dengan lock down, PSBB dan sekarang memulai dengan adaptasi kebiasaan baru (New Normal). Fertile soil alone is not enough to produce rice for food; sufficient water—even in abundances is required for the supply. Given that rice is the staple food of the Indonesian people, it plays a crucial role in the growth and development of Indonesians throughout their lives as a daily staple. Indonesia aspires to achieve food security, food self-sufficiency, and even food sovereignty (Ernawati, 2012; Ernawati, Soekarno, Siswanto, & Suryadi, 2021, 2022; Kurniadi et al., 2025; Munaf & Ernawati, 2014; PUPR, 2024).

To support this, one of the Indonesian government's efforts is to promote irrigation modernization. According to the FAO, irrigation modernization is "a combined strategy of institutional, managerial, and technological change with the objective of shifting from a supply-oriented to a service-oriented mode of operation." (Burt & Styles, 1998; Ernawati, 2025; Wahaj, 2019). The definition of irrigation modernization has been refined to "Irrigation modernization is the process of upgrading the infrastructure, operations, and management of irrigation and drainage systems to meet farmers' water delivery service requirements and optimize production and water productivity" (ICID, 2017). In Indonesia, irrigation modernization consists of 5 pillars (Arif, 2014; Ernawati, Soekarno, Siswanto, & Suryadi, 2023, 2025; Ernawati, Indratmo, Siswanto, Suryadi, & Yadi, 2022; PU, 2011; PUPR, 2020). The government of Indonesia has undertaken the modernization of irrigation systems as one of its key initiatives to achieve food security. This modernization is supported by five main pillars: water availability, irrigation infrastructure, irrigation management, irrigation institutions, and human resources, which serve as the key actors in irrigation management. To assess the readiness for irrigation modernization, Indonesia employs the Irrigation Modernization Readiness Index (IKMI). The pillar of irrigation modernization is water

availability, where water availability is the most critical aspect of the human–water relationship for human sustainability. The values for water availability in Indonesia, in the context of the IKMI (Irrigation Modernization Readiness Index), across the 17 irrigation districts are as follows:

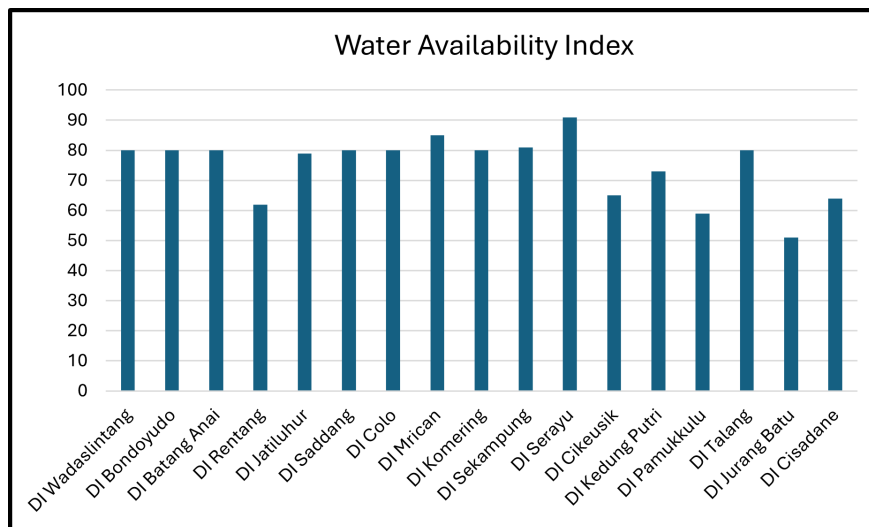


Figure 1 Water Availability Index
Source: Analyzed by the author (Ernawati, 2025)

Water availability in irrigation areas in Indonesia, based on the IKMI index, falls into the “sufficient” category (range 50–79) and the “adequate” category (range 80–100). As shown in the figure, the average water availability in 17 irrigation areas in Indonesia is adequate. To ensure water resources are preserved, the Indonesian government is continuously constructing dams and managing the natural environment to create a well-regulated hydrological cycle, particularly in the face of extreme climate change.

The relationship between humans and water through the lens of the New Materialities in Indonesia: water is not merely for nourishing plants, nor is it merely about achieving modern irrigation; rather, water shapes the growth and development of the Indonesian people, enabling them to embrace and navigate life. Water and the Indonesian people share a close bond that extends beyond mere necessity; it is clearly embedded in the very name “air” (water) inherent to Indonesia. Indonesia is known as the “Tanah Air” (Motherland), a designation that constantly instills a sense of love for the country.

Conclusion

The New Materialities perspective emphasizes that humans and water are physically interconnected and mutually constitutive, meaning they cannot be separated and are always “interdependent.” Water influences the way humans live, while humans, in turn, alter the flow and presence of water. This highlights the material realities that shape life. In various countries with diverse contexts, humans and water remain interdependent for the sake of a better future for humanity and the preservation of water.

References

- Arif, S. S. (2014). *Pokok-Pokok Modernisasi Irigasi Indonesia* [Modul], 1–69. <https://www.scribd.com/document/382683208/2014-Pokok-Modernisasi-Irigasi-pdf>
- Attala, L. (2019). *How Water Makes Us Human*. University of Wales Press.
- Burt, C. M., & Styles, S. W. (1998). *Modern Water Control and Management Practices in Irrigation : Impact on Performance*. Irrigation Training and Research Center.

- Ernawati, E. (2012). Peningkatan Ketahanan Pangan di Daerah Perbatasan: Studi Kasus Kabupaten Belu Provinsi Nusa Tenggara Timur. *Jurnal Siosioteknologi*, 11(27), 169–177.
- Ernawati, E. (2025). *Model Peningkatan Sumber Daya Manusia dalam Rangka Modernisasi Irigasi di Daerah Irigasi Rentang dan Daerah Irigasi Jatiluhur* [Ringkasan Disertasi, Institut Teknologi Bandung].
- Ernawati, E., & Rusdiana, R. (2020). Kontribusi Sosial Bidang Teknik Sipil Saat Pandemi Covid - 19. *Jurnal Komposit*, 4(2), 9–11.
- Ernawati, E., Soekarno, I., Siswanto, J., & Suryadi, Y. (2021). Aspek Sumber Daya Manusia yang Kompeten sebagai Pendukung Utama Urban Farming. *Jurnal Keteknikan Pertanian Tropis dan Biosistem*, 9(1), 1–7. <https://doi.org/10.21776/ub.jkptb.2021.009.01.01>
- Ernawati, E., Soekarno, I., Siswanto, J., & Suryadi, Y. (2023). Readiness of Human Resources Aspects in the Context of Modernization of Irrigation in Indonesia in the Macan Irrigation Area. *The Seybold Report*, 18(7), 2231–2240. <https://doi.org/10.17605/OSF.IO/FBD5G>
- Ernawati, E., Soekarno, I., Siswanto, J., & Suryadi, Y. (2025). The Human Resource Model of Field Officers for Irrigation Modernization in Indonesia: A Case Study of The Rentang Irrigation Area. *Edelweiss Applied Science and Technology*, 9(8), 1874–1882. <https://doi.org/10.55214/2576-8484.v9i8.9730>
- Ernawati, Indratmo, S., Siswanto, J., Suryadi, & Yadi. (2022). Analysis of the Five Pillars of Irrigation Modernization with the Masscote Method in the Macan Irrigation Area. *International Conference on Sustainable Infrastructure and Built Environment*, 236–246. Retrieved from <https://sibe.itb.ac.id>
- Ernawati, Soekarno, I., Siswanto, J., & Suryadi, Y. (2022). *Penguatan Pelaku Irigasi dalam Konteks Modernisasi Irigasi di Daerah Irigasi Macan di Era Pasca Pandemi*. Retrieved from <http://www.hathi-pusat.org>
- ICID. (2017). 23rd International Congress on Irrigation and Drainage, II(October).
- Kurniadi, R., Umbu, K., & Ernawati, E. (2025). *Isu-Isu Ketahanan Pangan*.
- Munaf, D. R., & Ernawati, E. (2014). *Konsepsi Tolok Ukur Ketahanan Nasional*.
- Patiung, M., A., et al. (2025). *Ekonomi Pertanian*. CV. Lingkar Edukasi Indonesia.
- PU. (2011). Modernisasi Irigasi (sebuah Kajian Akademik), 1–144. <https://www.scribd.com/document/495513250/Pedoman-Umum-Modernisasi-Irigasi-Sebuah-Kajian-Akademik>
- PUPR. (2024). Modernisasi Irigasi dan Upaya Menjaga Ketahanan Pangan, 1–12. <https://sda.pu.go.id/assets/uploads/files/Booklet%20Air%20Untuk%20Negeri%20edisi%201%202024.pdf>
- PUPR. (2020). Modul Pengantar Modernisasi Irigasi Indonesia. https://sibangkoman.pu.go.id/center/pelatihan/uploads/edok/2021/12/23438_05._Modul_Pengantar_Modernisasi_Irigasi_Indonesia.pdf
- Wahaj, R. (n.d.). *Modernization of Management, Operation, and Maintenance of Large Irrigation Systems*. Retrieved April 1, 2026, from https://www.fao.org/fileadmin/templates/rome2007initiative/FAO_WB_TCIO_CC_Meeting_May_2011/ROBINA_1.PDF