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ASIAN BIOTECHNOLOGY AND DEVELOPMENT REVIEW

Special Issue on Bioeconomy for the Common Good

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Editorial Introduction

Bioeconomy for the Common Good: A Myth, A Sham or An Inspiration?

Joy Y. Zhang* and Krishna Ravi Srinivas**

Bioeconomy, or the use of biotechnology and biological resources to provide information, products, processes and services to all economic sectors, is key to various global and local concerns. The past years witnessed a significant development in bioeconomy strategies globally: In October 2021, the World BioEconomy Forum, a global platform for sharing ideas on bio-based responsible innovations to promote circular bioeconomy, was for the first time hosted by a Global South country, Brazil. The Forum also concluded with the Brazilian Governor of the Pará State launching Brazil's first dedicated biostrategy (World BioEconomy Forum, 2021). A few months later, in May 2022, China launched its first ever national five-year plan on bioeconomy, with the ambition of raising the value of the sector to 22 trillion yuan (\$3.3 trillion) (Ouyang, 2022). In the UK, in addition to its Innovation Strategy and Genome UK implementation plan, its Human Fertilisation and Embryology Authority continues to 'future proof' its legislations (DSIT and DBEIS, 2021; Office for Life Sciences et al, 2021, Devlin, 2022). In September 2022, President Biden signed the Executive Order on Advancing Biotechnology and Biomanufacturing Innovation (White House, 2022). In April 2023, India's Department of Biotechnology (DBT) released its 'Bioeconomy Report 2022' report (BIRAC, 2022), envisioning bioeconomy's contribution to the GDP will leap from current 2.6% to almost 5% by 2030.

However, with the emerging norms of research organisation, changing geopolitical dynamics, new natural and societal challenges and shifting public values, the conceptualisation and practice of bioeconomy itself is also evolving. The special issue brings together empirical and conceptual investigations on what a fair, efficient and vibrant bioeconomy (may) look like, and on how we could collectively promote it for social and planetary well-being.

We found paradoxes that are created or accentuated by new technical realities. Biosovereignty, for example, was a regulatory outlook that was once celebrated as a resistance to the biocoloniality of power. But, as Joy Zhang's comparative analysis shows, as the role of data evolves in bioscientific development, the assertion of a narrowly-defined biosovereignty may further harm the public benefits in late developing countries. She demonstrates a

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‘precariousness in biosovereignty’, as a result of often ignored fact that power-imbalances and political hegemonies also exist within a nation-state and that not all voices are equally recognised as part of a national collective.

The socio-political nuance within a nation-state and its importance to releasing the full potential of a bio economy is further discussion in Jill and Zhang’s article on the UK’s ‘silent crisis’. That is, a persistent barrier to mobilise non-White communities into actively contributing to and, subsequently benefit from structural and scientific advantages that the UK biobanks and bio-databases can offer. Building on their ongoing research on stem cell donations, they argue that the building of a ‘polyphonic relatedness’, or a thick societal relatedness could help mitigate racial disparity in biomaterial donations. Participation and health equity is also highlighted by Long and Yang. They present a contradiction in which the latest progress in CRISPR-Cas technology opens up new possibilities for addressing health problems related to aging, but individuals from marginalized older populations face barriers in accessing this technology. For them, how to establish and sustain a trustworthy inclusive user participation scheme is a challenge that governments yet to find satisfactory answers to.

There are also chronic conundrums. Long, Waldstein, Wu and Geng’s account on the modern scientific validation on the health benefits of *Centella asiatica* as a tea beverage reminds us of the fraught history of the role indigenous ethnobotanical knowledge played in modern science and the lingering question if a equitable and sustainable path can be taken in translating ethnobotanical knowledge into marketable products.

Another example is Africa’s lagging behind the world in science and technology capacity. Janet Surum’s perspective piece underscores the complexities of harnessing life sciences for the common good. While progress is evident, the challenges of infrastructure, economic disparities, translational research, and the balance between commercialization and public welfare remain pertinent. These challenges are not new. But communities in African countries are not passive either, they are actively experimenting new solutions. For example, Surum shares her experience at the Mawazo Institute in Nairobi, a Kenyan non-government organisation that transforms African science by empowering female researchers. Her article provides unique account on the under-explored value of humanizing science and making it accessible to a broader audience to inspire the next generation of African scientists.

Empirical dilemmas are also venues where conceptual tools can be tested, our socio-technical outlook adapted, and governing alliances and strategies established anew. Tom Douglass’ paper illustrates how regulatory procedures can paradoxically function in ways that primarily favor the pharmaceutical industry, ultimately detrimenting patient and public health. By focusing on three crucial ideas – pharmaceuticalisation, corporate bias,

and the permissive principle – as formulated and employed by Abraham, Douglass argues that they together offer new tools for social researchers to unravel the potential detrimental effects of the industry’s sway, connections, and vested interests on the bioeconomic balance and effectiveness. While his analysis is primarily oriented in the UK context, the discussion was aimed to invite global reflections, extensions and corrections.

In a similar fashion, Di Zhang, a bioethicist at the Chinese Academy of Medical Science, updates the old Chinese wisdom of achieving multi-facet inclusivity and diversity, Jian Rong Bing Bao, with contemporary insights. Arguably, one of the ironies of our time is that while concerns like climate risks, heritable genome editing, and pandemics emphasise a shared future and the importance of safeguarding the common good, we simultaneously inhabit an ideologically divided world, where a distinction between “Us” and “Them” appears to be gaining renewed prominence. Through examining how inward reflections and outward engagement are and can be manifested in contemporary science politics at the national and international level, Di Zhang calls for a more empathetic and prudent balancing acts of science governance.

But how realistic is Jian Rong Bing Bao in global realpolitik? Di Zhang is frank about China’s own struggle with this principle. Érico Sant’Anna Perrella’s short comparative piece on the role of militarisation in biotechnology’s development in Brazil and in the US is itself an expression of anxiety (and perhaps also an ambivalence) from the Global South. Reading in connection with other articles in this issue, Perrella’s piece raises some unsettling and important questions about how positionally and developmental pathways feed into each other.

As a special issue, we do not aim to be exhaustive or conclusive. We can only provide snapshots of some of the views and deliberations that are taking place in different regions. We made an effort in inviting early career researchers (especially those based in the Global South) with experience in policy debates to share their views. What type of cultural-political confidence is needed to recognise what constitute ‘good’? Can diverse interests be ‘commoned’ into a coherent good without evoking an imagined Other (or worse, an enemy)? To what extent is our perception of bioeconomy for the common good shaped by historical legacies? Is the pursuance of common good a myth, a sham or an inspiration for the upcoming generation? We hope the readers can approach this issue as a provocation, an invitation, and as a documentation, which feeds into your own conclusion of the above questions.

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