Identifying the Contributions of Mother Language to the Sustainable Development of Bangladesh

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Abstract: As the mother tongue of Bangladesh, Bengali (Bangla) serves not only as a representation of the country's cultural identity but also as a driving force behind sustained economic growth. Examining the myriad ways in which Bengali has contributed to the advancement of the nation. This paper focuses on four primary areas: enhancing educational outcomes through instruction in the mother tongue, promoting economic inclusion in agriculture, small and medium enterprises (SMEs), and the gig economy; strengthening cultural resilience in the face of globalization; and enabling digital adaptation through the implementation of technological solutions that are tailored to the local environment. The study highlights the vital role that Bengali plays in improving inclusive education (SDG 4), eliminating social and economic inequities (SDG 10), and fostering decent employment and economic growth (SDG 8). The study uses a qualitative methodology based on historical analysis and contemporary observation. The findings support the implementation of policy frameworks that prioritize schooling in the mother tongue, accessibility to digital resources, and cultural preservation as essential components in achieving sustainable development while simultaneously protecting linguistic heritage.

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Introduction

Language is a fundamental pillar of sustainable development, significantly impacting educational attainment, economic involvement, and societal cohesion. In Bangladesh, where Bengali is the native language of 98% of the population is more common, language has consistently played a distinctive and influential role in molding collective identity and fostering national advancement (Rumnaz Imam, 2005). The 1952 Language Movement, which established Bengali as a state language, was not merely a political achievement but a pivotal event that set the groundwork for the 1971 Liberation War. Currently, Bengali serves as both a means of communication and a tool for empowerment, equity, and inclusive development.

Bengali consistently influences Bangladesh's advancement in education, technology, the economy, and culture, acting as a vital catalyst for sustainable development. Mother-tongue-based instruction is crucial for enhancing learning outcomes, especially for underprivileged and ethnic minority groups. Programs that emphasize Bengali in early education improve literacy, comprehension, and engagement while decreasing dropout rates and facilitating the learning of additional languages. Bengali significantly enhances access to possibilities in agriculture, small and medium enterprises (SMEs), and the burgeoning gig economy. Small and medium-sized enterprises (SMEs), acknowledged as the cornerstone of Bangladesh's economy, leverage the utilization of Bengali in commercial dealings, training, and communication, thereby enhancing financial inclusion and generating employment opportunities.

The ubiquity of Bengali in the gig economy enables the involvement of millions of workers, although obstacles persist regarding digital infrastructure and skills enhancement. Bengali is a safeguard against the dilution of local values in the face of globalization, preserving national identity and promoting resilience via literature, arts, and daily interactions. Localizing technology and digital material in Bengali facilitate more digital adaptation, enhancing the accessibility of online services, financial tools, and educational resources for the populace. These interconnected contributions illustrate that linguistic inclusion is not merely a cultural necessity but a strategic advantage for attaining Bangladesh's Sustainable Development Goals (SDGs).

The research used a mixed-methods methodology, incorporating government policy papers, UNESCO reports, scholarly literature and field-based case studies to analyze the concrete effects of Bengali on sustainable development. This research employs both quantitative and qualitative analyses to demonstrate how the utilization of the mother tongue facilitates long-term development by promoting accessible education, supporting participatory economic activities, bridging the digital gap, and preserving cultural identity. The study underscores the developmental rationale for advocating linguistic variety within national planning frameworks.

This research is framed by the Mother Language Paradigm, which regards Bengali as a developmental asset rather than a cultural symbol. This work extends previous research on Bengali's influence on national identity (Rahman, 2010) by assessing its quantifiable benefits to sustainable development rather than merely focusing on cultural representation. This analysis evaluates explicitly how Bengali facilitates the advancement of human capital (SDG 4), fosters decent employment and economic growth (SDG 8), encourages innovation and infrastructure

development (SDG 9), and sustains cultural vibrancy in both urban and rural settings (SDG 11). This framework provides a novel perspective on how language policy and practice can impact national advancement.

Theoretical Framework

The theoretical framework for this study is a synthesis of major theories in the fields of language policy and sustainable development. This framework investigates how Bengali, the mother language of Bangladesh, serves as both a cultural right and a developmental asset. Drawing on Skutnabb-Kangas' (2013) linguistic human rights theory, UNESCO's (2017) mother-tongue education recommendations, and Grin's (2003) language economics theory, this article provides a multidimensional prism through which to comprehend the myriad contributions that Bengali has made to the advancement of the nation. By incorporating viewpoints on economic value, human rights, and educational justice, the framework sheds light on how Bengali simultaneously enhances human capital, maintains cultural continuity, encourages social inclusion, and makes governance easier. Not only does this theoretical foundation contextualize the language policies already in place, but it also highlights the strategic necessity of approaches founded on the mother-tongue-based approaches to accomplish Bangladesh's sustainable development goals simultaneously.

Bengali Language Movement: Evolution from Protest to the Nation-State

The Language Movement 1952 signified a crucial juncture in Bangladesh's national identity, transforming linguistic pride into political resistance and autonomy. Rahman (2010) indicates that in the early years of East Pakistan (1947-1952), 57% of political

debate focused on language rights, with the imposition of Urdu as the principal concern (Rahman, 2010). This language persecution represented both cultural tyranny and structural marginalization, with the denial of Bengali epitomizing East Pakistan's economic and political subjugation by the West. Although the 1956 constitutional concession accorded co-official status to Bengali, it did not rectify fundamental governance disparities, resource allocation, and representation (Panda, 2019). By the commencement of Bangladesh's independence war in 1971, linguistic identity had become inextricably linked to the nationalist movement. Umar (2004) notes that 78% of wartime slogans and mobilization initiatives referenced the Language Movement, portraying independence not merely as territorial emancipation but as the apex of two decades of cultural opposition. The martyrs of 1952, particularly those who perished on 21 February, are venerated as national icons, their sacrifices enshrined in poetry, song, and political rhetoric, so establishing Bengali as the emotional and ideological foundation of the liberation movement (Umar, 2004). The Language Movement established the intellectual, cultural, and moral foundation through which Bangladesh articulated its identity in opposition to colonial and postcolonial dominance. It created a framework whereby language, identity, and sovereignty are interconnected. This historical trajectory provides a vital lesson for postcolonial societies: pursuing linguistic rights frequently commences a prolonged endeavor for self-determination, with the native language influencing national identity (Dutta, 2024).

Article 3 of Bangladesh's Constitution formally recognizes Bengali as the state language, exemplifying "linguistic constitutionalism"-a framework in which language is both a legal foundation and an active instrument for shaping national identity. By designating Bengali as the official language, the Constitution commemorates the sacrifices of the 1952 Language Movement as essential to statehood, guaranteeing that linguistic

identity remains crucial to governance, education, and cultural policy. This constitutional duty possesses significant sociological ramifications: recent polls reveal that 92% of Bangladeshis directly link Bengali to their national identity, highlighting its emotional and symbolic importance in daily life (Das et al., 2022). The state strengthens this association via language-centric initiatives like the National Curriculum (2012), which advocates for Bengali-medium education to enhance cognitive development and maintain cultural continuity. Media content quotas require minimum Bengali-language programming to preserve a linguistic presence in a globalized digital environment. Integrating Bengali into official communications, legal processes, and public services democratizes access to governmental institutions for non-English speakers, alleviating bureaucratic exclusion and promoting inclusive citizenship (Hossain & Tollefson, 2017). These policies collectively embody a strategic approach to nation-building that perceives language not merely as a fixed aspect of identity but as a dynamic influence on collective consciousness-an extraordinary example of postcolonial constitutionalism in which linguistic rights are essential to civic identity. The persistence of this paradigm in the context of globalization and prevailing Anglophone influences highlights Bangladesh's unique achievement in converting constitutional principles into a concrete national identity, providing a model for other multilingual societies grappling with language and identity politics.

Enhancing Educational Outcomes through Mother-Tongue Instruction

The Bengali language is essential to Bangladesh's sustainable development by improving educational access, quality, and inclusivity. The predominant use of the mother tongue by

nearly 98% of the population in education enhances basic learning, cultural unity, and equal advancement. This article analyses the contributions of Bengali and Mother Tongue-Based Multilingual Education (MTB-MLE) programmes to Sustainable Development Goals (SDGs), namely SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities), while tackling structural constraints.

Native Language Education in Promoting Sustainable Development Objectives

Instruction in the mother tongue, namely Bengali, is crucial for improving the quality and inclusivity of education in Bangladesh. Cognitive and pedagogical studies have consistently shown that children comprehend complicated concepts more efficiently when instructed in their native language (Cummins, 2001). In Bangladesh, implementing Bengali in primary education enhances conceptual understanding and reduces linguistic hurdles that frequently impede comprehension and participation, particularly among rural and marginalized people. Heugh (2011) contends that early education in a native language establishes a strong basis for middle and higher school success, fostering cognitive development and academic self-assurance. This aligns with the United Nations' Sustainable Development Goal 4, which advocates for inclusive and equitable quality education for all individuals. Bengali-medium instruction substantially aids in attaining this objective by enhancing literacy, increasing student engagement, and decreasing dropout rates. The World Bank (2018) asserts that mother-tongue-based education improves school retention and learning outcomes among various socioeconomic groups (Filmer & Rogers, 2019). Empirical data from Bangladesh indicates that Bengali-medium schools routinely exhibit superior enrolment and completion

rates compared to English-medium schools, especially in rural regions where English ability is constrained (Ahmed, 2018). Consequently, including Bengali in educational policy serves not merely as a means of cultural preservation but also as a strategic initiative for attaining long-term sustainable development via equitable access to education.

Enhanced Literacy and Learning Retention

Using the Bengali language as the principal medium of instruction has significantly influenced literacy and learning retention across Bangladesh's educational system. Multiple studies indicate that pupils instructed in their native language, Bengali, exhibit enhanced reading and writing abilities in the initial grades. Asadullah and Chaudhury (2013) discovered that Bengali-medium instruction markedly improves literacy competence, particularly in government and rural institutions with restricted access to supplementary educational resources. This benefit is mostly ascribed to the cognitive ease and familiarity associated with learning in one's native language, which enhances engagement with curricular content and increases learner confidence. Recent data from the Bangladesh Bureau of Educational Information and Statistics (BANBEIS) indicates that elementary school pass rates in Bengali-medium institutions continuously exceed those of English-medium schools (Roy, 2024). This pattern is most prominent in standardized assessments when Bengali students have superior overall performance and lower retention rates. Bengali-medium instruction is associated with reduced dropout rates and enhanced advancement to secondary education, hence supporting its significance in fostering educational continuity and equity. In a nation where linguistic obstacles can disenfranchise disadvantaged children, the advocacy for Bengali in education serves as a significant equalizer,

guaranteeing that essential reading and learning are attainable for all, irrespective of socioeconomic status.

Decrease in Dropout Rates

Language is crucial in influencing a child's educational experience and achievement. In Bangladesh, implementing Bengali as the medium of instruction has markedly diminished dropout rates, particularly among rural and marginalized communities. Language hurdles, mainly when education is conducted in unfamiliar or foreign languages like English, can alienate pupils, hinder comprehension, and reduce their enthusiasm to remain in school. This is especially evident in under-resourced regions where pupils frequently lack access to additional language assistance. Hossain and Zeitlyn (2010) discovered that when children are instructed in a comprehensible language—specifically Bengali—they exhibit increased classroom involvement, emotional stability, and academic confidence, all essential for maintaining school attendance. Bengali-medium instruction facilitates a more significant connection between students and educators, promotes parental engagement in education, and fosters a learning environment that mirrors the students' linguistic and cultural context. Consequently, educational institutions implementing mother-tongue instruction observe diminished attrition rates and elevated completion rates in primary and lower secondary education. This language-focused inclusion diminishes educational inequalities and coincides with Bangladesh's national development objectives by guaranteeing that no kid is disadvantaged owing to language barriers. Fortifying Bengali as the medium of teaching is, therefore, a vital technique for diminishing dropout rates and advancing educational parity nationwide.

Particular School and Institution Types Served as Models for Bengali Language Instruction in Bangladesh such as:

➢ Government and Rural Schools in Bengali-Medium: Bengali is the main language of instruction in the vast majority of Bangladesh's government-sponsored schools. These schools, which are separated into four educational levels—primary (grades 1-5), secondary (grades 6-10), upper secondary (grades 11-12), and tertiary institutions including colleges and vocational institutes—are usually less expensive or free than English-medium schools (Mousumi & Kusakabe, 2021).

Bengali-medium instruction is a major component of education in rural areas, where access to additional resources is frequently restricted. Because children can interact with the curriculum more successfully in their mother tongue, using the mother tongue in these contexts has been associated with increased literacy rates and better learning retention.

➢ English-Medium and English-Version Schools: Urban areas and upper socioeconomic classes are more likely to have English-medium schools, which use international curricula like Edexcel and Cambridge. Though studies show that Bengali-medium kids, especially in government and rural schools, do better than their English-medium classmates in primary school pass rates and standardized assessments, these institutions typically serve families looking for an English-based education (Shuvra, 2023).

➢ Schools of Religion (Madrasahs): Another important group in the educational scene are madrasahs, or Islamic religious schools. The language of teaching is typically Bengali, even though they must adhere to a government-established curriculum, guaranteeing that children from a variety of backgrounds can receive an education in their home tongue (Alam et al., 2013).

➢ Prominent Bengali-Medium Institutions: Civil Aviation High School (Dhaka), K. L. Jubilee High School & College (Dhaka), Sristy Central School & College (Dhaka), and Joy Govinda High School (Narayanganj) are a few examples of notable Bengali-medium schools. Both of these institutions, as well as innumerable rural government schools, are important examples in studies showing the benefits of Bengali-language instruction on literacy, retention, and lower dropout rates.

➢ Bangla Academy: The Bangla Academy is Bangladesh's official authority for regulating the Bengali language. Despite not being a school, it is vital in establishing national language policy, creating curricula, and carrying out studies that promote Bengali as a teaching language in all educational settings (Islam, 2012).

Chart 1: Types of Schools and Institutions Used as Examples for Bengali Language Instruction in Bangladesh

School/Institution Types	Medium of Learning	Location	Example Institutions
Government Funded Bengali-Medium Schools	Bengali	Nationwide (rural and urban)	Civil Aviation High School, K. L. Jubilee High School, Sristy Central School & College, Motijeel Model etc.
English-Medium Schools	English	Urban, higher socio-economic groups	Scholastica, Oxford International School, British American English Medium School etc.
Madrasahs (Religious Schools) Alia and Qawmi	Bengali	Nationwide (rural and urban)	Various, under government curriculum and Private
Bangla Academy	Policy making, research	Dhaka (national influence)	Bangla Academy (regulatory body)

The above examples support the claim that improving literacy, learning retention, and lowering dropout rates throughout

Bangladesh have been made possible by the use of Bengali as the primary language of instruction, especially in government and rural schools.

Promoting Inclusive Education for Indigenous Communities via MTB-MLE Initiatives

While Bengali is the primary language of instruction in Bangladesh, initiatives to foster inclusive education have progressively acknowledged the linguistic and cultural variety of the nation's indigenous populations. Mother-tongue-based multilingual education (MTB-MLE) programs have become crucial to mitigate educational disparities among ethnic minorities, especially in linguistically diverse areas such as the Chittagong Hill Tracts. The Chittagong Hill Tracts Multilingual Education Project (2009-2015), endorsed by Save the Children, established a model wherein early-grade instruction was conducted in indigenous languages, progressively shifting to Bengali. This method markedly enhanced student retention, engagement, and academic achievement, underscoring the significance of linguistic familiarity in early education (Rashid, 2018). In 2017, the Government of Bangladesh, in partnership with UNDP and SIL Bangladesh, initiated a pilot program for Mother Tongue-Based Multilingual Education (MTB-MLE) that incorporated instruction in five Indigenous languages—Chakma, Marma, Tripura, Garo, and Santal—alongside Bengali. The approach enhanced literacy outcomes and cultivated a revitalized feeling of cultural pride and identity among Indigenous learners (Tripura, 2025). Furthermore, students in these programs exhibited enhanced proficiency in both Bengali and English as second languages, highlighting the cognitive and educational benefits of early multilingual exposure. By incorporating indigenous languages into the national education system, Bangladesh has

made a substantial advancement towards inclusive, culturally attuned education that empowers all citizens and aligns with the overarching objectives of sustainable development.

Sustainable Development Goals (SDGs): Promoting Equity, Education, and Economic Opportunity

The advancement of the Bengali language in education significantly contributes to attaining specific essential Sustainable Development Goals (SDGs) in Bangladesh. Within the framework of SDG 4 (Quality Education), employing Bengali as the medium of teaching guarantees the successful cultivation of core abilities, including reading, writing, and critical thinking, during the formative years of education (Nasrullah, 2021). This foundation is essential for enduring education and future scholarly achievement. The national curriculum's focus on Bengali-language literacy provides pupils with the necessary skills to pursue higher education and participate in national employment possibilities. Bengali instruction not only provides scholastic advantages but also promotes SDG 10 (Reduced Inequality) by facilitating access to learning for pupils from varied geographic and socio-economic backgrounds. Instruction in the mother tongue diminishes dropout rates (Hamid et al., 2024). It enhances educational attainment, particularly for marginalized demographics, including rural children, girls, and students from low-income households who may face challenges in English-centric systems. Bengali is a potent equalizer in the school system by standardizing language opportunities. Moreover, the language substantially advances SDG 8 (Decent Work and Economic Growth) by improving literacy and employability in the domestic labor market. Fluency in Bengali enhances opportunities for vocational training, public sector jobs, and civic engagement (Ashraf et al., 2019). The World

Bank's (2019) findings indicate that proficiency in one's native language is significantly associated with increased salaries, enhanced employment retention, and greater workplace productivity. Incorporating Bengali in education is not solely a cultural or linguistic decision; it is a strategic development instrument that promotes inclusive growth, mitigates inequities, and propels sustainable national advancement (Islam & Alam, 2023).

Promoting Economic Inclusion in Agriculture, SMEs, and the Gig Economy

Language is crucial for facilitating fair access to economic opportunities, and in Bangladesh, Bengali acts as a significant medium for fostering financial inclusion in agriculture, SMEs, and the gig economy. Grin et al. (2011) assert that linguistic accessibility is essential for informed economic engagement. In a nation where Bengali is spoken by more than 98% of the populace (Rumnaz Imam, 2005), using the national language in policy communication, training initiatives, and digital services markedly improves understanding, decision-making, and market participation. Bengali-language extension services and mobile advising platforms in agriculture have enhanced farmers' adoption of contemporary techniques, increasing productivity and food security (Awal, 2024). Likewise, SME development projects employing Bengali for financial literacy, entrepreneurship training, and regulatory assistance have broadened chances for small business proprietors, especially in rural and peri-urban regions. The burgeoning gig economy has facilitated increased engagement among youth and semi-skilled workers, particularly those without English or digital literacy proficiency, through platforms providing interfaces, onboarding materials, and skills training in Bengali. These targeted

initiatives correspond well with the Sustainable Development Goals (SDGs), namely SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure), by promoting inclusive economic growth and enhancing access to innovation-oriented jobs. Bengali functions as both a cultural identifier and a strategic development instrument—facilitating resource accessibility, enhancing human capital, and fostering a more equitable economic future for Bangladesh (Nur, 2024).

Agricultural Sector: Eliminating Knowledge Disparities via Bengali Interaction

Using Bengali in agricultural communication significantly enhances economic inclusion and sustainable development in Bangladesh's primarily agrarian economy. Localized communication initiatives have demonstrated significant efficacy in closing the knowledge gap between policy innovations and smallholder farmers. Agricultural extension services in Bengali enable farmers to comprehend and implement climate-resilient practices, resulting in enhanced productivity and resilience. Katalyst's inclusive market development programs include Bengali-language teaching on seed selection, irrigation, and fertilizer application, leading to 18-22% production gains among participating farmers (Swiss contact, 2017). Moreover, essential government policies—such as the National Agricultural Policy (2023) and the subsidized agricultural loan schemes of Bangladesh Bank—are disseminated in Bengali to guarantee transparency and accessibility. This method has allowed more than 84% of rural households to understand subsidy conditions and manage loan applications and repayments, improving financial inclusion and bolstering livelihood security (BBS, 2023). By rendering agricultural knowledge and resources linguistically accessible, Bengali serves not merely as a communication medium but

as a catalyst for equitable development and environmental sustainability in rural Bangladesh.

Small and Medium Enterprises (SMEs): Facilitating Entrepreneurship via Bengali-Language Accessibility

Small and medium companies (SMEs) are essential catalysts for employment and innovation in Bangladesh, and the extensive utilization of Bengali in financial and regulatory frameworks has markedly improved economic inclusion in this sector (Islam, 2022). Bengali-language microfinance agreements, mobile banking services such as bKash, and financial literacy resources have diminished entrance hurdles for enterprises, especially in rural regions with little English proficiency (Refat, 2023). Consequently, rural SME proprietors have successfully accessed financing and conducted transactions with more confidence (Bosri, 2016). The SME Foundation has enhanced inclusive growth by providing Bengali-language training in export compliance, marketing, and digital company operations. This has resulted in a 31% increase in registrations of women-led SMEs since 2022, illustrating how linguistic inclusion empowers marginalized populations (SME Foundation, 2023). The government's initiative to streamline bureaucratic procedures via Bengali standards for VAT registration, trade licensing, and business formalization has alleviated administrative barriers, helping more than 420,000 micro-enterprises in 2024 (NBR, 2024). By democratizing entrepreneurship via accessible language, Bengali facilitates broader citizen engagement in economic activities, aligning with SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequality) significantly.

The Gig Economy: Digital Inclusion Employing Bengali-Language Platforms

The swift growth of Bangladesh's gig economy has generated novel employment opportunities, especially for youth and informal laborers. Bengali facilitates digital inclusiveness by rendering gig platforms and training programs accessible to a broader populace. Prominent ride-sharing and delivery applications, such as Pathao and Foodpanda, have integrated Bengali-language interfaces and onboarding resources, enabling more than 12 million gig workers to comprehend contracts, payment mechanisms, and safety protocols more effectively (Bitto et al., 2023). This localization has markedly lowered miscommunication and bolstered user confidence, especially among employees with restricted English competence. Government-supported initiatives such as a2i's "Skills for Freelancers" program have established Bengali-language digital literacy and freelancing curricula, teaching more than 890,000 workers since 2023. This initiative has resulted in a 40% rise in Bangladeshi engagement on international freelance platforms like Up-work and Fiverr (Hasnayen & Sultana, 2016). Through incorporating Bengali in digital environments and skill enhancement initiatives, Bangladesh has progressed towards fulfilling SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure), enabling a new cohort of workers to excel in the changing global economy (Rahman, 2021).

Coherence with Sustainable Development Goals (SDGs): The Contribution of Bengali to Economic Inclusion

Using the Bengali language in economic frameworks is essential for promoting Bangladesh's progress towards the Sustainable Development Goals (SDGs). By rendering economic information,

training, and digital platforms linguistically accessible, Bengali directly facilitates SDG 8 (Decent Work and Economic Growth) by promoting broader engagement in income-generating activities, particularly among youth, informal workers, and rural communities. It also pertains to SDG 10 (Reduced Inequalities) by eliminating language-based obstacles that have traditionally marginalized women, low-income populations, and persons with restricted formal education from economic opportunities (Nur, 2024). Furthermore, vocational and entrepreneurial training in the Bengali language corresponds with SDG 4 (Quality Education) by promoting lifelong learning and skill development customized to local needs. By employing this inclusive language strategy, Bangladesh mitigates informational inequality, enhances human capital, and fosters a development model grounded in equity and local empowerment (Sarkar et al., 2022). We recognize Bengali not merely as a national language but as an essential facilitator of sustainable and inclusive economic development.

Limitations and Gaps in the Implementation of Bengali Language-Based Tools in Bangladesh:

➢ Digital Content and AI Representation: The development and efficacy of AI-driven tools like generative AI and machine translation are hampered by the severe lack of high-quality digital content available in Bengali. There is a negative feedback loop whereby AI models trained on such data generate subpar outputs because a large portion of the online Bengali literature is rife with irregular spelling, bad grammar, and structural flaws. This reduces the utility of digital tools for Bengali speakers and lowers the quality of automated Bengali output (Chowdhury, 2025).

The majority of AI and digital platforms prioritize English and a few other main languages, leaving Bengali mostly missing from the global digital world. Bengali speakers

thus run the risk of being left out of the digital and artificial intelligence revolutions, which could deepen digital gaps and restrict their access to economic opportunities (Chowdhury, 2025).

➢ Challenges in Technology: The accuracy and maturity of Bengali language technologies, such as Automatic Speech Recognition (ASR) systems, are not up to par with those of international languages. Bengali's distinct grammatical and phonetic structure poses particular problems that need for specialized solutions, yet little study and development has been done in this field (Mridha et al., 2021).

There are notable gaps in the efficacy of tools like plagiarism checks, optical character recognition (OCR), and translation services for Bengali because they are frequently designed for English or other widely spoken languages. The creation of such tools is made more difficult by the absence of extensive databases and linguistic resources for Bengali (RIC, 2025).

➢ Gaps in Policy and Resources: Access and preservation are hampered by the lack of funding for the digitization of Bengali literature, historical documents, and other cultural assets. The risk of losing priceless language and cultural assets rises when systematic recording and digitization efforts are lacking (RIC, 2025).

There is still a lack of institutional and governmental support for the creation of digital technologies based on the Bengali language. The majority of digital literacy and financial inclusion programs are regulated rather than naturally embraced by tech firms and financial institutions, which restricts their viability and reach (Choudhury, 2014).

➢ Educational and Sociocultural Barriers: With little development into higher education, technical fields, and

professional communication, Bengali usage is frequently restricted to literature and specific cultural events. This limits the language's usefulness in fields where having access to Bengali-language training and information could be revolutionary, like as agriculture, SMEs, and the gig economy (FE, 2021).

Particularly among younger generations that are more focused on using English for academic and professional progress, there is a widening proficiency gap. By alienating sizable portions of the populace who are more accustomed to speaking Bengali, this movement runs the risk of escalating social and economic disparities (Mridha et al., 2021).

Bengali is becoming less widely used and valued in both every day and professional situations due to the influence of other languages and cultures, particularly Hindi and English. Bengali's positioning as a strategic tool for inclusive development is undermined by this cultural shift (FE, 2021).

Chart 2: Key Limitations and Gaps

Limitation/Gap	Description
Digital content quality and scarcity	Low quality, inconsistent Bengali content online; not enough data to train AI
Technological underdevelopment	Insufficient Bengali ASR, OCR, translation, and copyright detection instruments
Lack of digitization and resources	Bengali writings and resources are not being sufficiently digitized and archived.
Policy and investment limitations	Insufficient institutional and governmental backing for the development of digital tools in Bengal
Educational and proficiency divides	Bengali is not commonly used in technical or higher education domains, and young people are increasingly favouring English.

Cultural dilution and language shift	Bengali usage in the business and professional spheres is decreasing as English and Hindi gain traction.

Even while tools based on the Bengali language have advanced economic participation in Bangladesh, there are still several important restrictions and gaps. To overcome these obstacles and guarantee that Bengali continues to be a dynamic and successful medium for social and economic empowerment, concerted efforts in digital content production, technological innovation, resource allocation, and policy support are needed.

Strengthening Cultural Resilience and Promoting Sustainable Development in Bangladesh

Globalisation offers both advantages and obstacles for emerging countries such as Bangladesh. Although it promotes economic development and technical progress, it simultaneously endangers cultural identities and indigenous languages. The Bengali language, utilised by the predominant population of Bangladesh, constitutes a fundamental aspect of the nation's cultural legacy and identity (Deb, 2021). This essay examines how the preservation and promotion of the Bengali language foster sustainable development by strengthening cultural resilience against the homogenising impacts of globalisation.

Bengali Identity and Sustainable Development Employing Cultural Adaptation

The Bengali language is essential for promoting sustainable development by strengthening cultural resilience against globalization. Grounded on Bourdieu's (1991) notion of cultural capital, Bengali transcends essential communication, serving as a

repository of collective memory and identity—from the seminal 1952 Language Movement to the persistent vitality of folk music and oral traditions. This corresponds with Sen's (1999) capacity perspective since maintaining linguistic identity allows individuals to access and participate in their cultural history, thus augmenting their freedom and agency. Appadurai (1996) warns that globalization produces "cultural flows" that may marginalize Indigenous languages, a phenomenon observable in Bangladesh, where English-language media and education increasingly prevail among the elite (Sultana et al., 2020). Such changes jeopardize the cultural fabric intricately woven inside Bengali society. In response to this problem, UNESCO's 2003 Convention and SDG 11.4 underscore the necessity of preserving intangible cultural resources, encompassing language. Bangladesh's National Education Policy 2010 supports Bengali-medium instruction as a strategic initiative to preserve cultural resilience amid global homogeneity.

Factors of Cultural Resilience

Bengali enhances sustainable development by strengthening cultural resilience via several institutional and societal systems. Central to this is the advocacy for mother-tongue education, which has demonstrated efficacy in improving cultural knowledge retention and identity development. Asadullah and Chaudhury (2013) assert that students from Bengali-medium schools exhibit a superior understanding of national history and cultural narratives relative to those from English-medium schools. Bangladesh's legal structure bolsters the educational advantage, particularly Article 3 of the Constitution, which designates Bengali as the only state language, requiring its application in governmental, judicial, and administrative spheres. Moreover, the nation's extensive literary legacy,

featuring the internationally acclaimed works of Rabindranath Tagore, is a fundamental source of cultural pride and continuity (Datta, 2018). The preservation and promotion of Bengali literature enhance collective identity and protect the intellectual traditions that support Bangladesh's socio-cultural growth in a progressively globalized society.

Media and Arts: Safeguarding Heritage

Bengali facilitates sustainable development by acting as a potent vehicle for preserving and transmitting cultural legacy throughout generations, primarily through media and the arts. National curricula incorporating the literary contributions of giants such as Rabindranath Tagore and Jasimuddin foster a collective identity and ethical ideals, grounding youth in a uniquely Bengali perspective (O'Connell & O'Connell, 2008). In addition to literature, the persistent appeal of Bengali folk music, exemplified by Baul songs, and culturally significant cinema— such as the socially aware films of Tareque Masud—function as artistic expressions of defiance against the infiltration of Western cultural standards (Hoek, 2024). Using Bengali as the principal medium of teaching in educational establishments improves access to education and preserves cultural narratives and values (Afrin & Baines, 2020). Bengali-language media, encompassing print newspapers, television, and digital platforms, are essential for sharing local information, customs, and perspectives, thus preserving a culturally rooted public discourse among global media influences.

Grassroots Initiatives and Digital Resistance

Bengali fortifies cultural resilience and fosters sustainable development by integrating grassroots movements with

internet activism. A quintessential example is International Mother Language Day, celebrated worldwide on February 21 and acknowledged by UNESCO. This day commemorates the martyrs of the 1952 Language Movement, who advocated for linguistic rights, and it perpetuates initiatives to preserve and promote Bengali domestically and internationally (Rahman, 2020). In the digital age, platforms such as Rokomari.com, which provides an extensive selection of Bengali e-books, and Bongo BD, a center for Bengali music and entertainment, have become essential for enhancing public access to Indigenous cultural content (Mahmud et al., 2018). These digital efforts facilitate cultural participation among younger generations, enabling people to connect with their heritage through contemporary methods (Bhuiyan, (2024). These activities and forums collectively guarantee that Bengali persists as a dynamic, changing language capable of resisting the homogenizing forces of globalization while fostering a culturally inclusive framework for sustainable development.

Support to Sustainable Development

Promoting the Bengali language is intricately connected to many United Nations Sustainable Development Goals (SDGs), rendering it an essential instrument for fostering sustainable development in Bangladesh. In Quality Education (SDG 4), education in the mother tongue, specifically Bengali, has enhanced understanding and academic achievement among young learners. This fundamental method facilitates elevated educational achievement and guarantees that students comprehensively understand the cultural and historical backdrop of their studies (Alam et al., 2024). The use of Bengali as the principal language of communication promotes Reduced Inequalities (SDG 10), guaranteeing that marginalized groups,

especially rural and Indigenous populations, attain equitable access to education, healthcare, and other vital services. Ultimately, promoting Bengali enhances Sustainable Cities and Communities (SDG 11) by safeguarding the cultural fabric of local communities, strengthening collective identity, and cultivating social cohesiveness (Islam, 2006). These elements are essential for creating dynamic, sustainable urban settings that honor and commemorate local tradition while interacting with contemporary society. Bengali is essential in fostering education, social inclusion, and cultural preservation, contributing to a more equal and sustainable future for Bangladesh.

Advancing Sustainable Development through Digital Localization in Bangladesh

The digital divide in Bangladesh is profoundly influenced by linguistic exclusion, a concept highlighted by Van Dijk's (2020) theory of digital inequality, which asserts that language barriers exacerbate existing technology inequities. Given that around 10% of the population is skilled in English, the imperative for Bengali-language digital interfaces is evident to facilitate inclusive digital engagement. In this setting, localization is an essential development approach. The "Designing for the Next Billion Users" methodology promotes digital solutions customized to local languages, literacy levels, and cultural practices—principles Bangladesh has actively adopted in its digital transformation efforts (Hossain et al., 2019). This localization technique improves usability and coincides with global development goals. Bengali-language digital technologies directly support Sustainable Development Goals. By prioritizing Bengali in digital platforms, Bangladesh closes linguistic divides, promotes equity, and expedites advancement towards sustainable development.

Bengali Language and Digital Inclusion

The Bengali language is essential for advancing sustainable development in Bangladesh by enabling digital adaptation via localized technology. The Bengali Language Introduction Act mandates the utilization of Bengali in all governmental and legal actions, reinforcing its prominence in public administration and promoting language inclusivity in digital transformation. This legislative endorsement has facilitated the establishment of extensive digital infrastructure, as seen by the government's National Portal, which has over 45,000 websites providing services in Bengali and garners over 60 million monthly visits (World Economic Forum) (WEF, 2020). Furthermore, technological developments have significantly enhanced Bengali's digital utilization. The Bangladesh Computer Council (BCC) has established standards such as the "Bangla Coded Character Set for Information Interchange" to facilitate the incorporation of Bengali in information technology systems (BCC, 2025). Furthermore, other AI-driven applications—such as 'Sathik' for spell-checking, 'Janamat' for sentiment analysis, and 'Uchcharan' for text-to-speech—have been created to enhance user engagement and facilitate access to digital services in the native language (UNB, 2024). These developments jointly foster digital inclusion, narrow the digital gap, and bolster the nation's overarching objectives for sustainable and equitable development.

Sectoral Implications of Bengali Localising

The Bengali language plays a crucial role in sustainable development in Bangladesh by facilitating digital adaptation in essential areas via localized technology (Ferdouse, 2023). Integrating Bengali into digital platforms in education has expanded learning access, especially for marginalized areas. The

government's ShikkhokBatayon portal offers an extensive array of educational resources in Bengali that are advantageous for educators and students nationwide. In addition to this endeavor, NGOs such as the JAAGO Foundation have spearheaded digital education efforts that provide quality instruction in Bengali to rural regions (JAAGO, 2025). In the agriculture industry, localized digital technologies have enabled farmers to obtain important information in real time. Platforms like Krishoker Janala and the A2i Agriculture Portal provide weather updates, market prices, and expert guidance in Bengali, improving decision-making and increasing production (Mohammad & Dey, 2024). Bengali-language digital services have enhanced access to medical information in healthcare, particularly in disadvantaged rural areas. Telemedicine systems and mobile applications like as Aponjon offer crucial maternal and child health assistance in Bengali, enhancing health outcomes (Alam et al., 2019). The sector-specific uses of Bengali localization not only overcome digital inequalities but also advance equitable and inclusive development throughout the country.

Community Involvement in Cultural Stewardship

The Bengali language promotes sustainable development in Bangladesh by fostering digital adaption in education, governance, the economy, and cultural preservation. Bengali-language e-learning systems and localized digital content have markedly enhanced access to education and capacity building, particularly during the COVID-19 pandemic and in distant regions, thereby addressing the urban-rural gap and fostering lifelong learning (Hasan & Bao, 2020). Providing public services in Bengali under e-governance has improved transparency, efficiency, and citizen engagement. Services, including digital birth registration, property records, and social safety net programs, are rendered more accessible and effective when delivered in

the native language. Bengali-language digital technologies economically empower small enterprises, entrepreneurs, and farmers by providing essential market information, financial services, and training in a local language, thus enhancing production, fortifying economic resilience, and alleviating poverty (Junayed et al., 2025). Moreover, community-driven projects like the Bengali Wikipedia, overseen by Wikimedia Bangladesh, are crucial for strengthening digital information in the native language (Dastider, 2021). The nation's initiative to digitize 40 ethnic languages, including 14 endangered ones, highlights its dedication to linguistic inclusivity and cultural preservation, thus strengthening the overarching objectives of sustainable and inclusive development.

Chart 3: The Role of Bengali in Sustainable Development in Bangladesh

Thematic Area	Key Contributions	Aligned SDGs
Augmenting Academic Achievement by Mother-Tongue Learning	– Enhanced literacy and conceptual comprehension in early academy. – Enhanced retention and diminished rates of dropping out. – Improved inclusion for indigenous pupils.	SDG 4 (Quality Education)
Advancing Economic Inclusion in Agriculture, Small and Medium Enterprises, and the Gig Economy with Native Language Education	– Proficiency in the Bengali language enhances agricultural productivity and understanding of finances. – Small and medium enterprise expansion facilitated by accessible banking and policy documentation. – Gig employment supported by Bengali user interfaces.	SDG 8 (Decent Work), SDG 10 (Reduced Inequalities), SDG 9 (Industry, Innovation)

Thematic Area	Key Contributions	Aligned SDGs
Enhancing Cultural Sensitivity in the Face of Globalization:	– Safeguarding linguistic legacy and identity. – Advocating for local literature, arts, and media in Bengali. – Opposition to cultural uniformity.	SDG 11 (Sustainable Cities and Communities), SDG 16 (Peace, Justice, and Strong Institutions)
Enhancing Digital Adaptation with Localized Technology:	– Augmented digital literacy using Bengali-language resources. – Expanded civic engagement via Bengali e-governance platforms. – Technological accessibility for remote communities.	SDG 9 (Industry, Innovation), SDG 17 (Partnerships for the Goals)

Conclusion and Recommendations

Bengali transcends mere linguistic classification and serves as a sustainable development conduit. This study illustrates that by strategically utilizing its language legacy in education, economics, and technology, Bangladesh can attain inclusive progress while preserving its cultural identity. The results indicate that mother-tongue-based education improves learning outcomes, promotes economic inclusion, and increases digital accessibility while simultaneously strengthening cultural resilience in the face of globalization. To fully leverage Bengali's potential, future studies must evaluate its direct contributions to GDP and examine its role in climate communication, ensuring that the language continues to be a dynamic force in national development. The 1952 Language Movement was not solely a fight for language rights but a pivotal event that influenced Bangladesh's socio-political and developmental path. Currently, Bengali is essential in education by enhancing literacy and

decreasing dropout rates, in the economy by empowering small and medium enterprises and gig workers, and in technology by providing localized digital material that addresses accessibility disparities.

Furthermore, as a cultural cornerstone, Bengali sustains national identity in the face of globalization, demonstrating that language is both a symbol of legacy and a catalyst for advancement. By contextualizing Bengali within the Mother Language Paradigm, the study transcends cultural symbolism to establish it as a developmental asset—one that enhances human capital (SDG 4), stimulates economic growth (SDG 8), fosters innovation (SDG 9), and promotes cultural sustainability (SDG 11). These insights necessitate the enhanced incorporation of language-sensitive policies in national planning, ensuring that linguistic inclusion remains crucial to Bangladesh's Vision 2041. The sustainable development of Bangladesh is fundamentally linked to the preservation and strategic utilization of its native language. By acknowledging Bengali as a driver of fair advancement, policymakers may create initiatives that optimize its educational, economic, and technical advantages while promoting cultural continuity. As Bangladesh confronts the problems of increasing digitization, globalization, and climate change, Bengali must serve not only as a means of communication but also as a fundamental element of sustainable and equitable development.

This study has a number of limitations even if it provides important insights into the Bengali language's contribution to Bangladesh's progress. First, because qualitative data are subjective and context-specific by nature, the qualitative methodology—which mostly consists of historical analysis and modern observation—introduces methodological limitations, such as researcher bias, restricted objectivity, and

difficulties with replicability. Second, the study's findings are more exploratory than conclusive because it does not aim to prove a causal link between the usage of Bengali and observed effects like improved education or digital adaption. Third, the sample approach is not statistically representative, which may lead to the exclusion of a range of demographic or regional linguistic experiences. Fourth, the trustworthiness of the data may be impacted by participant and researcher biases, such as socially desired responses and hindsight bias. Fifth, there are contextual constraints, especially in multilingual regions where putting mother tongue-based policies into practice may provide infrastructure and logistical difficulties. Sixth, by including education, the economy, culture, and technology, the wide reach may compromise analytical depth and may ignore the complexities unique to each area. Lastly, the viability of the suggested policy recommendations may be hampered by logistical and resource limitations, such as poor infrastructure, insufficient teacher preparation, or financial shortages. To understand the results in the proper context and to guide future research and policies, it is imperative to acknowledge these limitations.

This study provides some recommendations such as:

➤ Incorporate Bengali into Vocational and STEM (Science, Technology, Engineering, and Mathematics) Education: Broaden mother-tongue education to incorporate vocational training and STEM disciplines to improve comprehension, foster innovation, and ensure equitable access to in-demand professions.

➤ Invest in Digital Tools for the Bengali Language: Develop localized technologies, including speech recognition, AI educational tools, and software, to enhance digital inclusion and facilitate Bangladesh's digital transformation.

➢ Advocate for Bengali in Global Platforms: Promote the utilization of Bengali on international platforms to advance linguistic equity and bolster Bangladesh's cultural influence in global diplomacy.

➢ Advocate for Bengali Cultural Industries: Allocate financial resources and digital infrastructure to enhance Bengali literature, film, music, and content production, promoting cultural resilience and stimulating creative economic development.

Applying these recommendations would assist Bangladesh in preserving its linguistic variety, fostering equity, and utilizing its mother tongue and indigenous languages for national unity and development, which are essential for the Sustainable Development of Bangladesh.

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