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Current Issues and Resolutions

Edited by Sataporn Roengtam



Asian Studies - Current Issues and Resolutions

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Social Sciences

Volume 4

Aims and Scope of the Series

The social sciences, as a form of scientific knowledge anchored on epistemological foundations, theories, and specific methodologies, both in their fundamental and applied dimensions, are paramount for understanding and, consequently, developing instruments that contribute to improving social and environmental living conditions. This Social Sciences book series, based on the concept of the social sciences as key elements in the promotion of scientific knowledge and its inherent consequences, has as its primary goal to be a space for the dissemination of relevant information on various objects of study, aimed at specialists, students, policymakers, and others interested in the challenges facing humanity. Thus, the aim is to promote scientific progress through the sound and rigorous dissemination of studies that, from the perspective of the social sciences, either through a specialised disciplinary approach or through interdisciplinary perspectives, foster a deeper understanding of the objects under analysis, clarifying the issues addressed and their implications.

Meet the Series Editor



Dr. Sandro Serpa is an Associate Professor in the Department of Sociology at the University of the Azores (UAc), Portugal. His career in social sciences and education began at UAc in 2000. He earned his Ph.D. in Education, specializing in Sociology of Education, from UAc in 2013. He is also an integrated researcher at the Interdisciplinary Centre of Social Sciences of the Azores Centre (CICS. NOVA. UAçores). Dr. Serpa has demonstrated a strong commitment to higher education throughout his career. He has served in various positions at UAc, including Head of the Department of Sociology, Director of the Bachelor's in Social Work, Coordinator of the Scientific-Pedagogical Supervision Team for Social Work Internships, Member of the Pedagogical Council of the Faculty of Social and Human Sciences, and Member of the Quality Commission. Additionally, he held the position of Deputy Director of CICS. UAc. Currently, he serves as Senior Editor (Sociology Section) for Social Sciences & Humanities Open (Elsevier), among several other journals. He previously held the position of Senior Editor - Sociology Section for Cogent Social Sciences (Taylor & Francis) from 2020 to 2022. Dr. Serpa maintains a distinguished research profile, evidenced by over 400 publications in international journals, books, and other scientific outlets across a wide range of countries: Brazil, Canada, China, United Arab Emirates, Germany, India, Kazakhstan, the Netherlands, Pakistan, Poland, Portugal, Romania, Spain, Switzerland, Turkey, United Kingdom, United States of America. His research interests encompass Teaching Sociology, Sociology of Education, Sociology of Organisations, Organisational Culture, Scientific Communication, Digital Society, Digital Literacy, Society 5.0 and Sociology of Artificial Intelligence. Dr. Serpa emphasizes the importance of integrating academic knowledge with service to the university and society at large.

Meet the Volume Editor



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Preface

This Edited Volume is a collection of reviewed and relevant research chapters concerning the developments within the Asian Studies field. The book features scholarly contributions from various authors and is edited by an expert in Asian Studies. Each contribution comes as a separate chapter complete in itself but directly related to the book's topics and objectives.

The book includes the following chapters:

1. Educational Equity through Language Support: Meeting the Needs of Ethnic Minority Students in Japanese Public Schools
2. “Life Is a Wilderness”: School-to-Work Transition Dynamics of Individuals from a Liberal Arts University in Hong Kong
3. Northeast India in India's Act East Policy: Economic and Infrastructure Development Key to India's Act East Policy
4. How China Advocated the Early Stage of the Belt and Road Initiative's Development in Europe
5. Future Transportation Development Strategies for High-Population-Density Cities in East Asia
6. India's Quiet Rise in Latin America: Could It Become a Counterweight to China?
7. Territories in Crisis: Is Urban Resilience to Industrial Crises Possible? An Analysis of the Evolution of Land Use in Fukushima since 2011

The target audience comprises scholars and specialists in the field.

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Chapter 1

Educational Equity through Language Support: Meeting the Needs of Ethnic Minority Students in Japanese Public Schools

Michi Saki

Abstract

This study analyzes the experiences and perceptions related to the provision of Japanese language support for ethnic minority school children needing support in Japanese as a Second Language (JSL) at public elementary schools in a city in the western region of Japan. The participants included ethnic minority families, representatives from municipal and prefectural international associations, Japanese language support teachers, and learning support volunteers from both governmental and nongovernmental organizations. This study aimed to interpret the personal voices, observations, and perspectives of stakeholders involved in the education of ethnic minority children who require support in learning the Japanese language. This study aims to analyze the factors influencing current trends and challenges related to the accessibility, implementation, provision, and practice of language learning support for ethnic minority school children. The researcher anticipates that the findings from this research will enhance awareness of the challenges encountered by practitioners assisting ethnic minority children in their education. This study seeks to identify the obstacles that must be addressed to ensure adequate, sufficient, and sustainable educational support for children from diverse cultural and linguistic backgrounds within the mainstream Japanese education system.

Keywords: newcomers, ethnic minorities, children, linguistic diversity, education, public schooling

1. Introduction

In the current state of Japanese society, these new multicultural families face numerous obstacles due to the country's constantly expanding multiethnic population. The education of their children is one of the most significant obstacles they face [1, 2]. As the country's population becomes more diverse, education's role in Japan must change from educating the country's homogeneous society to educating the next

generation's complex and sensitive needs in order to ensure their academic success and Japan's continued status as a major industrial and economic power.

The city in which this research was conducted (hereafter referred to as “City M”) and the prefecture in which the city is located (hereafter referred to as “Prefecture M”) are renowned worldwide as one of the world's most visited tourist destinations and have gained more recognition as a significant center for ancient Japanese culture, the arts, innovative academic research, and entrepreneurship. It is also renowned for its peaceful and secure atmosphere [3]. The prefecture has seen a sharp increase in immigrants as a result of its attractiveness; these individuals are foreigners who come to City M to live there permanently with their families. The vast majority of their children attend the public schools in the area. Research on ethnic minority youth (known in Japanese as *gaikoku no roots wo motsu jidou seito*, or school-age children with ethnic roots abroad) has been carried out in the Kansai region over the past 25 years, especially in the city's neighboring areas, which have high densities of young people who are new immigrants [4, 5]. On the other hand, the city's young immigrant population is scattered and small in comparison. The prefecture and local governments provide little aid for the much-needed cultural and educational support that these children and their families require because of their small numbers dispersed throughout the prefecture where City M is located. Therefore, the majority of the support that ethnic minority adolescents and their families in City M receive comes from grassroots organizations that frequently lack funds and human resources.

In this preliminary research study, some of the present concerns regarding public schooling and the educational demands of ethnic minority kids in the city's prefecture will be briefly discussed. This study looks at some of the particular and personal perspectives of support groups and families of children from ethnic minorities with regard to schooling and learning support.

1.1 Research questions

Specifically, this research study aims to investigate by posing the following queries:

1. What is the educational experience of ethnic minority children in City M's public schools?
2. In order to support ethnic minority children in need of Japanese language support, what are the trends and challenges facing public schools, learning support teachers, and governmental and nongovernmental organizations?
3. What kinds of educational support services and guidance on educational paths are easily available to school children from ethnic minorities and their families in City M?

1.2 Research objectives

The researcher plans to carry out this research with the aim of increasing awareness about social justice and equity in education in Japan and to shed light on why reform of Japan's educational support system for ethnic minority children needing language support is so desperately needed. It is through this study that the researcher

hopes to support public schools, educational institutions, boards of education, and other local populations in their efforts to implement and develop systems that support the academic needs of Japan's new super-diverse generation.

2. Literature review

In an effort to address the labor shortage in his country, Japan's Prime Minister Shinzo Abe announced intentions in 2017 to change the immigration laws to permit more talented and professional foreign workers to enter Japan and to grant permanent residency to qualified individuals [6]. Prefecture M had roughly 75,818 foreign inhabitants as of the end of 2024, which is a considerable rise from the 56,948 recorded in 2017 [7]. With an increasing number of families choosing to immigrate to Japan to live in City M, parents are becoming increasingly concerned about where and how their children will be educated.

2.1 Ethnic minority school-aged children

The new generation of immigrant children comes from a wide range of socio-economic backgrounds and origins, just like their immigrant parents. According to Zhou and Bankston [8], "their economic circumstances, level of education, and health will shape their own future while significantly influencing the futures of their host countries." In Japan, national minority populations who were considered "invisible" for many years are now coming into view as our communities' ethnic diversity grows [9–11]. Murphy-Shigematsu [9] classifies ethnic minority youth in a number of groupings (albeit not exclusively these specific categories) aside from the group of young immigrants who were born and partially raised overseas: (1) children with numerous passports and dual or multiple nationalities; (2) Japanese-born children who are legally foreign nationals or citizens of another country (3) South American Nikkeijin. The 1990 revision of the Immigration Control and Refugee Recognition Act made it legal for younger Nikkeijin, who were third- and fourth-generation Japanese from South America, to work in Japan as unskilled laborers. Other distinguishable categories of foreign nationals during the late 1980s and early 1990s included women from the Philippines, Thailand, and Eastern Europe (who entered Japan on "entertainer" visas); spouses of Japanese nationals due to marriage migration (in particular, women from the Philippines, Korea, China, and Thailand); and workers from countries such as China, the Philippines, Vietnam and Indonesia [7, 12–14].

2.2 Ethnic minority children enrolled in public schools in Japan

It is crucial to remember that newcomer children do not have the same educational rights as citizens of Japan. According to Japan Immigration Services Agency [7], mainstream Japanese students' parents are legally required to take their kids to school, and the school is legally required to educate them. The government does not, however, take on this responsibility in the case of newcomer ethnic minorities, as parents are not required by law to educate their children by sending them to school. For this reason, absenteeism among ethnic minority school children is significantly higher. Compared to other ethnic minority children in Japan, such as Zainichi Koreans, Chinese, and Nikkei Brazilians, these newcomers in particular have distinct educational challenges. Regarding a variety of social and political issues, these

minority groups are all influenced differently by the Japanese educational system. “Human rights, civil rights, citizenship, equity/equality, multiethnicity, multicultural education, and finally school/classroom disorder (absenteeism and bullying) are all included in the sociopolitical axis as it relates to the educational process” [10]. Many Japanese people have a tendency to believe that just because someone looks Japanese, they must also know how to act, speak, and think in Japanese. For instance, Befu [15] further notes that Japanese classmates frequently question Latin American Nikkei youngsters about why they are unable to speak Japanese. These native Japanese children look down on the Latin Japanese children since it is considered that their incapacity stems from their poor intelligence rather than from a lack of enculturation [7]. Regarding the specific communication skills of immigrant minority adolescents in terms of classroom learning, there is more ignorance than just a simple misperception. BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) are the two main categories of communicative language ability that Kojima [16] discusses. While it typically takes 1–2 years to acquire BICS skills, it takes 5–7 years to acquire CALP skills. Therefore, it makes sense to infer that for newcomer ethnic minority children in particular, learning in a Japanese public school requires a significant amount of time and effort.

Befu [15] further argues that the “habitus of homogeneity -an ethnocentric orientation that seeks to exclude other than ethnic Japanese- is fundamentally at the root of the bullying of foreign children within Japanese children, and indeed, of the exclusion of foreigners in Japan.” The differential treatment of the groups manifested in the homogenization of the old minorities and the teachers’ opinion on preserving and developing the ethnic identities of “newcomer” children is also complicated by the cultures of the teachers and the schools themselves in Japan and the perception of the Japanese toward foreigners. Japanese teachers do tend to treat each child as a unique individual regardless of the history, but when it is a minority child, they are also more likely to do so. “They are resisting “blaming it on” a child’s social and economic context... they do not regard the child as belonging to a disempowered sector of the society” [17]. In his study using interviews with parents of Asian and other ethnic minority adolescent students, Miyajima [18] discovered that many parents were under the impression that while their children were ostensibly given wide-ranging basic rights as students at public schools, the level of content of the rights was different. “Students like us are not the main part of Japanese schools; no one listens to our voices.” He explains that “these children have not had the option to live as amongst other Japanese or ‘between’ Japanese and their other ethnic identity even though recent attempts at internationalization in school have somewhat acknowledged their ethnic identity and native language. They are objectified as the ‘other,’ a word that has a negative nuance sometimes in Chinese culture.”

2.3 Equality and communitarianism

Tsuneyoshi [1] explains that “with its ideology of togetherness, which he labels ‘collective communitarianism,’ and its stress on doing things together cooperatively, while at the same time, helping to sustain an image of homogeneity, inside schools, the newcomers are a visible challenge to the assumption of homogeneity.” This is especially true at the primary school level. For instance, children’s socioeconomic class and cultural distinctions are concealed by matching clothes and possessions. According to Shimizu and Shimizu [19], an explanation for the “invisibility” of some ethnic minority children could be that their teachers are labeling them as belonging

to a heterogeneous group and categorizing them into a fixed cultural background. As a result, the teachers are unable to recognize these children or comprehend their true cultural identity. These minority children's unique school issues are attributed to "the family background," "what is happening at home," or "the child's lack of academic effort or concentration (e.g., shameful, unable to concentrate, etc.) or personality" because they are placed in the same category as mainstream Japanese students. This marginalized group of students is therefore referred to as "problem children." Shimizu and Shimizu further claim that the emphasis on "formal egalitarianism," a defining feature of Japanese public school culture (tough rules and regulations, no exceptions for individuality), is the reason why minority youth's individualistic and distinctive identities are disregarded and instead placed in the "heterogeneous group" to survive on their own. In a research study conducted by Shimizu, Yamamoto, and Kaji [20], parents of ethnic minority children were interviewed, and it was found that two parents, in particular, were unhappy with public schools. They shared their opinions about the school's formal egalitarian doctrine and how it affected their kids attending the Japanese school. According to one parent, "my child's multicultural background is disregarded and dismissed because of the school's 'formal egalitarianism' principle." Another parent claimed that because of the egalitarian tenets of the schools, their child was compelled to learn Japanese and become monolingual. Another parent said that even though her child did not speak Japanese well enough, he was disregarded, not given any help, and was simply placed in the same classroom as other Japanese pupils without any extra learning support to meet his unique needs.

2.4 Teaching Japanese as a Second Language in public schools

"Students or students who have not mastered everyday conversation, or who can manage everyday conversation, but who lack terms necessary for study at the grade level, and thus have trouble participating in learning activities, and who require instruction in the Japanese language" is the definition of a student who needs Japanese language instruction [21, 22]. Gottlieb [23] argues that Japanese as a Second Language (JSL) instruction in public schools is of poor or nonexistent quality. He maintains that there is still much to be done in the absence of a recognized multilingual heritage and the necessary educational resources, including personnel and materials (e.g., lack of specialized Japanese language teachers in schools, too few teacher training programs for JSL teachers at universities, absence of government-approved scales for evaluating JSL teachers in schools or JSL students' Japanese language proficiency, and lack of a comprehensive language education policy that considers the needs of both JSL and mainstream Japanese students). Gottlieb explains that the local Board of Education has the authority to determine what kind of help to provide for its non-Japanese pupils, and those schools that are able to provide significant assistance for these children frequently need to rely on a significant amount of community support. 69,123 pupils enrolled in public elementary through senior high schools in Japan needed Japanese language assistance as of May 2023, according to the Ministry of Education, Culture, Sports, Science, and Technology's (MEXT) most recent biennial census. Compared to the previous survey in 2021, which found 58,307 such pupils, this number indicates an 18.6% rise [24, 25]. Of these 69,123 pupils, 11,405 were Japanese nationals and 57,718 were foreigners. Ten percent or so of these kids were not given the extra Japanese instruction they needed [25]. In order to accommodate the expanding number of students from a variety of linguistic backgrounds, these figures

demonstrate the growing need for improved support for Japanese language instruction in public schools [25].

The majority of children who struggled with the Japanese language were Japanese nationals who were having trouble speaking the language, either because one or both of their parents were not Japanese or because they had previously lived abroad and had just returned to Japan [26]. Support and services may be easier to access in public schools in prefectures like Aichi, Shizuoka, and Tokyo, where many foreign students have limited Japanese language proficiency, but in many other cities similar to City M, most public schools only have a small number of ethnic minority students enrolled who actually require Japanese language assistance, making services and support harder to come by. To help these kids with their Japanese language proficiency, these public schools are forced to ask the neighborhood for help. It is almost challenging for schools across the country to address this issue consistently. Although City M offers a number of language schools for foreign students, the prefecture lacks a well-established system for training instructors who can instruct elementary and junior high school pupils in the basics of Japanese.

Japan has made more significant efforts in recent years to assist pupils who do not speak Japanese in its public school system. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) reported in 2024 that 69,123 kids in public schools needed Japanese language training, a record level. Both Japanese and international nationals who require extra language assistance are included in this number. About 10% of these children did not receive the required support in spite of this increase, underscoring persistent issues in the system [27].

In order to improve Japanese language instruction, MEXT has put policies into place to address these problems. These include organizing seminars to equip teachers who deal with JSL kids and providing funds for the creation of JSL curricula. Critics counter that these actions are not enough. They draw attention to the fact that efforts to completely integrate non-Japanese-speaking students into the educational system remain scattered in the absence of a clear national policy [27]. Furthermore, a more inclusive society was the goal of the 2006 introduction of the idea of “tabunka kyosei” (multicultural coexistence). However, other academics argue that this program has not made a big difference in how people view foreign residents—from short-term visitors to long-term citizens. They contend that in order to establish an atmosphere in which all students, irrespective of their linguistic background, can flourish, a more significant shift in societal attitudes and policy is required. In conclusion, experts agree that more inclusive and comprehensive policies are required to satisfy the increasing expectations of a diverse student body, even if Japan has made progress in assisting non-Japanese-speaking students.

3. Methodology

Based on a phenomenological approach, this study used a qualitative research design to investigate how people perceive and interpret particular social and cultural phenomena. The study aimed to understand the lived experiences of participants—those facets of their daily lives that are profoundly felt, embodied, and socially embedded.

Husserl [28] introduced phenomenology, which was further expanded upon by academics like Moustakas [29] and van Manen [30]. Phenomenology focuses on comprehending how individuals view and understand their experiences from a

first-person point of view. This method, which aims to capture the structure or essence of experience as reported by the participants themselves, is especially well-suited for investigating how people negotiate difficult cultural or language obstacles in context.

Through semi-structured interviews, which provided flexibility and depth, study participants were asked to share their personal narratives. The perspectives, difficulties, and insights of the participants within their particular sociocultural contexts were the main emphasis of these interviews. In order to fully engage with the meanings offered in the data, the researcher bracketed preconceived notions and used an iterative process of phenomenological reduction to evaluate the data thematically [30].

The study intends to contribute to larger discussions on identity, belonging, and social integration in multicultural contexts by providing a deep, comprehensive understanding of how the occurrence in issue is viewed via this lens.

3.1 Participants

Five ethnic minority families and representatives from two different support groups participated in individual 45–60 minutes interviews as part of this preliminary and short study. All participants signed letters of consent granting permission to use the information gathered from the interviews, and the university funding the study submitted and approved an ethics assessment. All interviewees' names, as well as their connections and affiliations with other groups, are kept completely private and anonymous throughout this article by employing pseudonyms. Only a small number of similar experiences from some of the participants have been introduced and discussed in this work due to the initial research study's narrow emphasis.

3.2 Design of the research

This study uses a qualitative research design that is exploratory, descriptive, and predictive in character. For this research design, a phenomenological method was chosen in order to focus on the “human experience” and “lived experience,” as the researcher wishes to place a significant amount of value on understanding the individual voices and experiences of my participants (young immigrant immigrants, their parents, their educators, people who support them, etc.) [31]. Phenomenology, according to several scholars, is a methodology that helps one comprehend how one's experiences should be analyzed as they truly transpire on their own terms. Therefore, phenomenology seeks to provide a deeper understanding to assist us in being in better contact with the world rather than to construct a theory that would help us control or explain it [30, 31]. Understanding the fundamental characteristics of a phenomenon being studied is the goal of employing a phenomenological approach in research. Individuals who have lived the experience or who have first-hand knowledge of the topic of interest are the greatest source of information about it [31].

3.3 Data collection

The following participants were interviewed in order to gather data:

1. Parents of children from ethnic minorities who are presently enrolled in elementary public schools. Interviews were conducted with parents of American, British, Indonesian, and Filipino nationalities.

2. Representatives of governmental and nongovernmental groups that assist young people from ethnic minorities. This study intends to document the individual experiences of participants who may be able to broadly represent the majority of their peers on some important and urgent issues by employing a qualitative data-gathering approach. A variety of data-gathering methods, including purposive and snowball sampling, were employed. One method of sampling qualitative research is called “purposeful sampling,” which involves choosing participants or data based on the assumption that they will have unique experiences or features [32]. In order to secure and ensure numerous perspectives and different degrees of analysis, material was collected from the interview transcripts as well as a collection of archive data.

3.4 Limitations

The limited extent of classroom observation is one of the study’s main weaknesses. The researcher was unable to witness a wide variety of primary school classrooms where ethnic minority pupils were actively participating in their education alongside their Japanese language support instructors due to institutional and practical limitations. Since the researcher was unable to record variation across various school contexts, instructional styles, and student-teacher relationships, this limitation might have reduced the contextual diversity of the data.

Furthermore, the children themselves were not interviewed for the study. This choice was made in a methodical and ethical manner. It would have been difficult to elicit nuanced or accurate representations of the students’ sentiments and viewpoints due to their young age and low skill in both Japanese and the researcher’s home tongue. Furthermore, there was a fear that power dynamics and unfamiliarity might affect the children’s responses because the researcher was seen as an outsider or “stranger” to their immediate social and cultural surroundings. This could jeopardize the data’s authenticity and dependability.

Teachers, administrators, and support staff were given priority in the study since they are the adults most likely to share their observations and experiences about the educational inclusion of students from ethnic minorities. The voices of the children themselves, who are the ones most immediately impacted, are lost as a result of this decision, even though it permitted a thorough examination of institutional and instructional procedures. In order to better understand the lived experiences of ethnic minority students in the classroom, future research would benefit from using child-centered or participatory approaches that are developmentally appropriate and culturally sensitive.

3.5 Analysis of data

Qualitative techniques like interpretative phenomenological analysis, narrative analysis, and thematic analysis were used to examine the collected data. Thematic analysis is a qualitative research technique that finds themes by analyzing data from a variety of sources [32]. The goal of interpretative phenomenological analysis (IPA), a qualitative research method, is to prioritize the experiences of participants and their interpretations of those experiences in order to comprehend the “person in context” [32]. The information from the interviews was transcribed and, in certain situations, translated from Japanese to English. The analysis software NVivo will be used to analyze data and code common themes. The purpose of the data analysis and examination was to look for common issues and trends among the various categories of people.

4. Results

The qualitative information collected from interviews was analyzed using an ethnographic methodology. Following the introduction of selected interview extracts, the qualitative data's insights into contemporary pressing issues, shared concerns, and the educational demands of ethnic minority youth are examined and interpreted. Similar patterns and themes of concern were discovered in this preliminary study for both parents and support groups.

4.1 Language support: Quality, accessibility, and awareness

For many ethnic minority children and their families in Prefecture M, language support services—who to ask, how to get them, and how much to expect from them—are incredibly ambiguous and unclear. For example, schools with administrators who are cognizant of or understand the needs of international students typically try to let their teachers know about these services and provide them to students. For pupils who require extra help, some institutions even create a customized curriculum. At many schools, this is not the case. Senior teachers and principals are the ones who often lack such understanding, and they need to be aware of the actual linguistic needs of their students. Proficiency in language is very important for classroom instruction. Ethnic minority children will not have the opportunity to develop strong academic skills if they do not receive the proper academic help. Failure to provide sufficient academic support during this early time in their lives will significantly impact their future academic and professional careers. In Prefecture M, the amount, caliber, and regularity of language services and assistance differ depending on the region, district, and public school.

Jasmine, a translator of Filipino descent and an active volunteer for City M as a translator and mother tongue language advocate, shares her thoughts on the causes of the lack of academic resources available to school-aged ethnic minority children in City M:

Jasmine: A reason why some ethnic minority youth and their families who are in need are not receiving the support that they need is that their schools are not providing the services. The school must make an official request to the board of education to access these services. If the school does not show any concern or make the effort to make a request for the child, then the child and their families are unable to get access to these support services...some teachers may see it as more work for them, who are already overworked as it is, or a 'burden' for them to request such services from the board of education.

In Japan, public school teachers are notorious for their excessive workload and long workdays. In a classroom of 30 to 35 students, many teachers are overworked and lack the time and energy to attend to and care for each and every individual student.

4.2 Assistance for newcomer ethnic minority families and children in public schools

The few primary schools in City M that have a significant number of newcomer ethnic minority youth enrolled may have years of experience offering Japanese language support and may provide easy access to these services, depending on the location. However, the procedure or system for obtaining this support is unclear to

parents and teachers who have never utilized it, despite the fact that the number of pupils in need of Japanese language assistance is increasing. Many ethnic minority families receive assistance from the public schools in their area, where teachers try their best to provide parents and kids with extra support.

Originally from the Philippines, Roberto immigrated to Japan 10 years ago. After settling in with his career in City M, his wife and their two children immigrated to Japan to join him. Roberto claims that their experience at their neighborhood school has been good. Below, Roberto talks about how he feels overloaded with the amount of school-related paperwork his kids bring home to their parents each day, but he also expresses gratitude for the communication his local school gives his family:

Roberto: So many papers...the papers are good because we do not have to ask many questions because the information is already there. But it took me a while to get used to it because the Japanese is very difficult.

Robert confidently responded that he and his wife could rely on the homeroom teacher to help them understand by using a “communication notebook,” typically used in public elementary schools, as a tool for communication between the teacher and the parents, in which they write entries such as reports of any issues of concern, reflection, and questions.

Roberto: “Yeah, actually if I do not understand anything I just write in the book.

And then we just, if they can talk to us through the book they can talk. But if not, the teacher will come to our house and explain.”

When asked if there were any other ethnic minority families at the school, Roberto responded that there were a few families with multicultural roots:

Roberto: ...since they have other multi-cultural families, I think they have experience of dealing with foreigners

Sadie, an American expat who has been living in Japan for about 7 years, described how the homeroom teacher did not directly communicate with her about her child’s need for Japanese language support and that Sadie had to ask for it on her own without the teacher actively providing it:

... (the teacher) kind of let me know that there was a system in place but I just did not know about it...she did it in a nice little roundabout way...so, I think that there’s probably information out there...it seems to me that there’s an information gap where the people at the school do not know what is out there.”

It is possible to infer from Sadie’s remarks that parents are not aware of the option or provision of Japanese language support available. It is challenging for both parents and schools to understand the actual systems in place for this type of support.

4.3 Lack of resources for providing mother tongue language support

In an interview, the lone person in the office in charge of academic support for newly arrived immigrant children, an officer from a prefecture-affiliated group that assists foreign residents in Prefecture M, talked about her experiences. When the Board of

Education makes a request, the organization sends out its team of supporters. During the interview, the officer described the services the organization offered to public schools and to help public organizations and groups. The support project Bogo Shien (mother tongue language support in Japanese) was one topic that was specifically considered. For both language supporters and the schools offering mother tongue language support, informational booklets have been translated into Chinese and Tagalog. To ensure that there are no misconceptions regarding the service's substance, the organization produces brochures for both the service's suppliers and recipients. The organization created this brochure since volunteers cannot receive training to perform this kind of support work. Given that the foreign resident population in City M is so dispersed and that there are not enough resources to cover such a large area. In response to a question concerning the service's accessibility, the representative clarified that the prefecture does not actively promote this service for this kind of help across the whole prefecture. It is assumed that individuals or groups wishing to request this kind of assistance will get in touch with the prefecture on their own. We are unable to establish a supply bank of all the languages that have been requested (including Chinese, Tagalog, Urdu, Russian, Persian, and Nepalese), and it is challenging to locate competent individuals who are native speakers of these languages. These are some of the primary reasons. The prefecture is unable to meet the need for diversified language support due to the rapidly increasing number of new immigrants from other countries living in City M. The city lacks the financial and personnel resources needed to access speakers of these languages in such a short period of time.

Mother tongue language supporter Jasmine talks about what she believes are the causes of the shortage of language support volunteers.

"...one being that the schools in which they are needed are spread all throughout the prefecture so it is very difficult to travel to these schools that are so far away and it is difficult to access by public transportation. Second being that not all travel expenses are covered by the city.

Jasmine responded as follows when asked how she believed City M might enhance its services and support for immigrant students in public schools who require emotional and linguistic assistance:

"Increase the number for Japanese language support volunteers and provide more reimbursement for the volunteers. The Board of Education must also make clearer, more attainable guidelines for the roles of language support volunteers. The problems ethnic minority youth and their families face are not just about language. Though (we) are told strictly to not get too involved with the students and their families (don't exchange personal information, don't provide personal support, etc.), there are some times when the students and their families desperately require more help than just language, and we as volunteers are at a loss as to what to do to help them."

In order to initiate a candid and constructive discussion regarding language assistance services, Jasmine also suggested holding information-sharing meetings with other volunteers.

Jasmine: "There should also be opportunities created for language support volunteers to meet and discuss together about their experiences, have an information exchange to share concerns and ideas, etc."

4.4 Reliance on nongovernmental affiliated language support organizations

Many ethnic minority families still do not have easy access to information about these NPOs and NGOs since they are unaware of the public schools and local organizations in their community that offer such support.

4.5 Lack of training for public school teachers

Although there may be some information provided to educators on the subject of intercultural education and training on teaching JSL to students, the scope of the training and the depth of the content is sometimes unclear, according to the comments made by representatives of governmental organizations and nongovernmental organizations.

Sadie, an American, discussed the lack of training and information provided to educators in public schools regarding how to support students from ethnic minorities needing Japanese language assistance.

“...as for just the services that are available for foreign parents, there’s just teachers that don’t know about the stuff that’s out there. And that isn’t a function of them being a good or bad teacher, that’s a function of the Board of Education providing time for them to have training on that.....I know that teachers’ days are busy...so the teacher on their own...it’s not like they can go and investigate this stuff. They don’t know what they don’t know, so it’s up to the Board of Education to provide them the time and the training for this kind of stuff”

4.6 Intercultural awareness and multicultural education

One could argue that society must first genuinely recognize the ethnic diversity in our communities before it can start to adequately assist the educational needs of ethnic minority adolescents. Children’s diverse ethnic backgrounds are not taken into consideration by society, which prevents them from being accepted into our neighborhoods, schools, and society at large.

Lusi, originally from Indonesia, is a seasoned educator, a mother tongue language supporter, and a long-time advocate for ethnic minority children in City M. Lusi sought the advice of a psychologist employed by a public interest incorporated foundation in City M after discovering from her son’s teacher that he might have a learning problem. Following her son’s evaluation, the psychologist told Lusi that her son showed no signs of a learning problem and suggested that she enroll him in a playgroup for kids from diverse backgrounds.

Lusi: “In order for children to relieve their stress, emotional support groups for children, Japanese children with multicultural backgrounds in particular, is very much needed in this city.”

Children from ethnic minorities are frequently labeled as “slow,” “inattentive,” “forgetful,” or having a “learning disability” based on their academic performance. This may actually be the case for certain kids, and it is a useful and responsible move on the teacher’s side to bring up the concerns with the parent. This is not the case for many of these kids, though, and as a result of their teachers’ lack of intercultural knowledge and comprehension of their pupils’ multicultural and multilingual backgrounds, they are failing them academically and socially. Lusi goes on to say that

in order to foster intercultural understanding, it is imperative that all public schools adopt some kind of multicultural education:

Lusi: "As for support, I think that the easiest and most fundamental thing that needs to be done is to educate school children and the school community that it is okay to be different, that everyone does not have to be the same, not all Japanese need to be the same, and that there are many different Japanese in Japan. Diversity education is needed to be taught at schools for the children, school teachers and parents."

4.7 Policy reform

Representatives from public interest incorporated organizations gave unsupportive and unfavorable answers when asked about the prospect of reforming educational policies and systems to assist ethnic minority youth education. The city and prefectural affiliated organizations that oversee education at the city and prefectural levels were characterized by some representatives as "unprogressive," "overly cautious and protective," and concerned about preserving "national identity," with their priorities being shifted away from immigrant education. They went on to say that when teachers often switch schools, public schools are unable to develop the expertise and understanding necessary to instruct children from ethnic minorities. In order for schools and the community to have at least the fundamental knowledge and abilities to serve ethnic minority children's learning requirements, the Ministry of Education must take a stand on its priorities.

Miyako, a Japanese civil engineer who is employed by both domestic and foreign government agencies, is married to an American and has a bilingual and bicultural child who was enrolled in a Japanese public elementary school in City M. When asked why policy reform in Japan is so challenging and takes so long, she expresses her opinions and personal perspectives:

Miyako: If (Japan) changes policy they (also must) change so many other things. Then government officers, they shift every two, three years. They keep quiet for two years, then they get transferred. They do not like to be criticized, I think. They do not want to be, and if you change (something), you have to change everything. It's a lot of work to do, change...all the sections, departments, all the budgets, are all closely and intricately interconnected with each other.

The lack of understanding and general interest in the current concerns by education policymakers may be largely held responsible for the problems of inadequate language assistance systems and policies, not only in Prefecture M but throughout Japan. However, the relationship between current Japanese ideals and moral institutions may be the fundamental cause of policymakers' resistance to reforming policies and processes. To better understand the causes of Japan's resistance to reform and policy change, more research must be done on the country's views on national identity, culture, and the organizational design of its governmental structures.

5. Suggestions for improving support for ethnic minority children in Japanese language education

The researcher suggests several key challenges and offers targeted recommendations to improve Japanese language education and support for ethnic minority

children in public schools in Japan. The following areas are identified as priorities for development.

1. *Enhance the quality and quantity of Japanese language support:* Develop standardized national curriculum guidelines for Japanese as a Second Language (JSL); increase funding for specialized language instructors; launch multilingual awareness campaigns to inform families about available support.
2. *Develop and improve the accessibility of support and services:* Establish multilingual orientation programs, create culturally responsive counseling services, and provide community-based liaisons to bridge communication between schools and newcomer families.
3. *Increase resources for mother tongue language support:* Introduce dual-language programs where feasible; fund supplementary classes or cultural clubs for mother tongue maintenance; collaborate with embassies and cultural organizations for resources.
4. *Collaborate and integrate services provided by nongovernmental language support organizations:* Integrate NGO services into public systems through partnerships; offer government funding or accreditation to ensure consistent service quality and accountability.
5. *Develop mandatory training programs for public school teachers:* Mandate preservice and in-service teacher training on language acquisition and cultural diversity; include modules on second-language pedagogy and teaching immigrant students in national teaching certification requirements.
6. *Increase and incorporate programs on intercultural awareness and multicultural education in public schools:* Incorporate multicultural content into textbooks and curricula, promote classroom activities celebrating cultural diversity, and facilitate exchange programs and multicultural events within schools.
7. *Reform policies to better support linguistically and culturally diverse students:* Create a unified national framework for supporting linguistically diverse students; mandate language education policy at municipal and prefectural levels; collect and publish regular data on ethnic minority student needs.

6. Conclusion

The qualitative data from this study aimed to briefly illustrate that ethnic minority children's concerns require far more attention than educational institutions, government representatives, and even the children's parents may believe. First, there is a mismatch between supply and demand. The number, caliber, and accessibility of services for mother tongue language support and JSL support differ significantly. Second, not only is the identity of ethnic minority children not recognized and acknowledged, but there is also a lack of knowledge about the local ethnic variety or multicultural community both inside and outside of school communities. Each child has unique academic demands, problems, and hardships that must be recognized and

supported, depending on their ethnic and socioeconomic background. In order to raise awareness of the multicultural identity in Japan and to clarify the reasons behind the pressing need to enhance services and support for this new generation of diverse youth, research will continue to examine the experiences of ethnic minority youth and their families as well as those of individuals, groups, and organizations that work to assist them.

Conflict of interest

The author declares no conflict of interest.

Other declarations

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“Life Is a Wilderness”: School-to-Work Transition Dynamics of Individuals from a Liberal Arts University in Hong Kong

Shan He

Abstract

This chapter explores the school-to-work transition process of individuals from a liberal arts university in Hong Kong, drawing inspiration from the metaphorical notion of “Life is a wilderness.” The controversy surrounding liberal arts education stems from an ongoing debate between its proponents, who advocate for its holistic approach to cultivating well-rounded individuals with broad knowledge and transferable skills, and its critics, who question its practicality and economic value in an increasingly specialized and job-market-driven society. Through qualitative research involving in-depth semi-structured interviews, this study aims to unravel the multifaceted challenges these individuals encounter as they move from the sheltered environment of a liberal arts education to the professional realm. By analyzing the journeys of five local individuals who earned their first degrees at University X—a liberal-arts-oriented institution—the findings reveal that these individuals have achieved significant personal growth thanks to their university education. However, situated in a society characterized by rapidly evolving social and economic realities, individuals’ career development has been confronted with various expectations and psychological struggles. Yet by employing strategies including enhancing strong points, redefining career goals, and reshaping social identity, these graduates have sought to navigate their transition with prudence, confidence, and perseverance. This chapter adds to the existing literature on the career transitions of liberal arts graduates while underscoring the importance of personal agency, institutional support, and societal context in shaping individuals’ transition experiences.

Keywords: liberal arts education, school-to-work transition, career development, qualitative research, social identity, Hong Kong

1. Introduction

The school-to-work transition is the process by which young individuals progress from completing their education to securing their first stable or satisfactory job, requiring the ability to make informed decisions that lead to employment paths, which improve their quality of life [1]. A variety of factors, including gender, location, educational background, social status, economic conditions, and cultural norms, contribute to the inconsistent linearity or sequential nature of transition trajectories. In Hong Kong, this process is further complicated by the region's economic structure, intense job competition, the fast-paced urban lifestyle, and a unique blend of Eastern and Western cultural influences. In the aftermath of the pandemic, Hong Kong's primary objective is to reclaim its status as a vibrant international nexus for finance, maritime activities, and commerce. Employers are increasingly seeking talent with the necessary technical expertise, soft skills, experience, and adaptability to traverse the evolving business landscape, particularly individuals who can deliver quick results [2].

Liberal arts education (LAE), an approach implemented by some institutions in Hong Kong and worldwide, embodies nonutilitarian values and promotes intellectual breadth over practical applications. However, the tension between sticking to the ideals fostered under an LAE and pursuing immediate economic benefits creates a fundamental philosophical divide. Questions emerge regarding whether the LAE model offers the vocational specificity necessary for success in a city marked by continuous competition for limited positions and resources [3]. In relation to this, the study reported in this chapter focuses on the dynamics of the school-to-work transition for individuals graduating from a liberal arts university. Drawing inspiration from the metaphorical construct that “Life is a wilderness,” it explores the social and psychological transformations these graduates encounter as they navigate the intricate paths from academic life to the workforce. It also uncovers the interplay between individuals' aspirations, social pressures, and the role of LAE in shaping the career trajectories and life outcomes of these graduates. By doing so, this study highlights the contemporary relevance and efficacy of an LAE, deepening the understanding of the factors influencing the school-to-work transition in this distinctive city-state.

The chapter begins by clarifying the meaning of the underlying metaphor and proceeds to provide a brief overview of higher education in Hong Kong. It then introduces the concept of liberal arts education and its implications within the labor market framework, following two theoretical positions that underpin the debate over employability. After describing the adopted methodological approach, findings are presented in three thematic categories, emphasizing the narratives of five selected individuals from a liberal arts university. Then, the impact of personal, institutional, and contextual factors that facilitate or impede their smooth transition is analyzed. Finally, the chapter concludes by illustrating multiple issues, imparting insights to educators, policymakers, and prospective graduates alike.

2. About the metaphor

In recent years, the phrase “Life is a wilderness, not an orbit” (人生是旷野,不是轨道) has gained considerable popularity on Chinese mobile social media platforms. This expression emphasizes the dynamically changing nature of life and the importance of independent exploration, interpreting the essence of life as embodying the

openness and uncertainty of untamed land while transcending the traditional linear perspective of existence [4]. The concept of "orbit" is understood as a life trajectory that aligns with conventional expectations in education, career advancement, and family. In contrast, "wilderness" serves as a symbolic construct representing non-linear career routes, a diversity of experiences, and personalized self-actualization. This representation resonates with the contemporary desire for autonomy among the youth demographic in China. It reflects the values and aspirations within the modern society, where young individuals are increasingly motivated to break free from traditional molds and pursue more unique and self-directed paths [5]. The dichotomy between "orbit" and "wilderness" captures the shift in social attitudes toward a more fluid and self-determined life approach, challenging the long-standing norms and anticipations that have historically guided individuals through various stages of their lives.

The metaphor also raises questions about the "track-based thinking" engendered by industrial civilization, which is fundamentally rooted in the principles of mass production, mechanization, and standardization. Factories operate on assembly lines under strict control, where workers are assigned specific tasks and follow a predetermined sequence of actions [6]. This highly structured order necessitates a mindset that adheres to established procedures and guidelines. In East Asia, conventional values such as collectivism, conformity, and deference to authority significantly shape social and political behavior. These views, often influenced by Confucianism, attach significance to harmony, group interests, and social hierarchy [7]. Individuals are expected to actively engage and conduct themselves within their communities, often following a clearly defined track, where deviations from social rules are discouraged. In the workplace, a collectivist organizational culture often results in longer work hours and fosters closer relationships among colleagues, creating a distinctive atmosphere that may compromise work-life balance [8].

3. The heights of higher education in Hong Kong

Hong Kong, officially known as the Hong Kong Special Administrative Region (HKSAR), is situated in Southeast China along the coastline of the Pacific Ocean, displaying a special contrast where East meets West. Having been a British possession since 1842, Hong Kong's sovereignty was returned to Mainland China in 1997; however, its characteristics are safeguarded under the "One Country, Two Systems" policy. Following China's reform and opening-up, Hong Kong played a vital part in the mainland while evolving into a global financial hub and a key player in international trade and commerce [9]. Over the past two decades, the Hong Kong government has promoted the "Four Pillar" industries—trading and logistics, financial services, producer and professional services, and tourism—to "foster the development of other sectors, give impetus to economy, and create employment" [10]. In addition to diversifying Hong Kong's economic structure, the "Six Industries" have been developed since the early 2010s, including cultural and creative industries, education services, environmental services, and more. These attributes enhance Hong Kong's appeal as a destination for both domestic and international high-caliber talent.

Apart from being a vibrant business center, the Hong Kong government strives to establish the city as "a regional education hub" through "the internationalisation of the higher education sector" [11]. As a former British colony, the primary objective of Hong Kong's higher education system was to meet labor market demands and ensure

steady economic growth. Due to its rapid socioeconomic progress and its emergence as a global business and finance center in the 1980s, Hong Kong adopted a binary policy in higher education, categorizing its universities into two groups: (1) funded institutions, which focus on scholarship and research, and (2) polytechnic colleges, which emphasize vocational training [12]. At present, there are nine publicly funded universities (including eight UGC-funded institutions) and thirteen self-financed institutions. Students who have completed secondary education are “able to apply for the full-time publicly funded degree programmes provided by the eight UGC-funded institutions,” which “cater for about 18% of the 17–20 age cohort” [13]. By 2010, the participation rate in postsecondary education at self-financed degree-awarding institutions had doubled since 2000 [13]. For outstanding students and those in need, various levels of financial assistance are available, on condition that the attended program is recognized [14].

Moreover, a few Neo-Confucian scholars have introduced the concept of general education, 通識教育, aiming to integrate traditional Chinese culture with the global experience of liberal arts education by initiating programs at the Chinese University of Hong Kong [15]. Influenced by the British education system, however, Hong Kong still maintained a market-oriented approach to cultivating professional expertise, which played a crucial role in addressing the practical needs of society [16]. By contrast, liberal education and pure science subjects did not receive the same level of governmental attention or resources as the applied disciplines.

4. Liberal arts education and graduate employability

Throughout history and across diverse cultures, the essence of a liberal arts education has manifested in numerous forms, establishing itself as a cornerstone of core educational objectives. In contemporary times, liberal arts curricula have been adapted into different regional frameworks, each characterized by distinctive academic heritages, structures, and cultural nuances [17]. The liberal arts education philosophy usually focuses on a comprehensive curriculum spanning the humanities, social sciences, natural sciences, and mathematics. Its objective is to foster students’ critical thinking, communication skills, problem-solving abilities, and ethical judgment, thereby equipping them with the knowledge and competencies required for diverse life circumstances [18]. Within the liberal arts curriculum, general education serves as a universal component for all students, offering a broad overview of various disciplines and forming the basis for the development of vital intellectual and civic capacities [18].

After Hong Kong’s reunification with China, higher education institutions in the territory were directed to develop new orientations and special “internal dynamics” to succeed in local, regional, and international competition [12]. Starting from 2005, the eight universities funded by the University Grants Committee (UGC) embraced general education curricula, gradually phasing out the specialized British model of university education [19]. A particularly significant shift toward a liberal arts model in Hong Kong universities was the incorporation, since 2012, of an additional foundation year featuring a common core curriculum of liberal arts and sciences courses for all students [20]. These courses aim to cultivate students’ “critical thinking, ability to tackle novel situations, communication and collaboration skills, intercultural understanding and global citizenship, and leadership and advocacy for improvement of the human condition” regardless of their chosen major [20]. Nowadays, all UGC-funded

institutions in Hong Kong "enjoy academic freedom and considerable institutional autonomy," balanced with their "public accountability" to the community within the legal framework [21]. As the rise of materialism and utilitarianism in certain parts of Asia poses potential risks to the moral construction in higher education, universities in Hong Kong are perceived to preserve traditional Chinese values and demonstrate a stronger commitment to humanism [22].

Several employability models in the current literature have been discussed and evaluated as suggestive references to assist graduates in seizing employment opportunities. Despite its varying conceptualizations among different stakeholders, employability can strongly impact individuals, faculty, institutions, and society as a whole [23]. Notably, liberal arts education emphasizes the development of "transferable intellectual capacities" in individuals, preparing them to adapt to a wide range of new challenges in society. This form of education prepares students with the important skills for various life situations and is considered a solid foundation for vocational and professional training [22]. Admittedly, it is found that in Mainland China, graduates with a liberal arts education may exhibit greater flexibility and possess more promising long-term career prospects due to their well-rounded skill sets [24]. Nevertheless, the impact of liberal arts education and its employability can only be assessed in relative terms, as critics argue that the disconnection needs to be bridged between the expectations of individuals, the institution, and the faculty [25]. Hong Kong, in particular, is viewed as a utilitarian city marked by intense competition for positions, where addressing employment concerns and achieving upward social mobility are considered as priorities [26]. Therefore, the concept of liberal arts education and its implications for the labor market represent a heated yet contentious problem in the current understanding of the school-to-work transition for some graduates, necessitating the interpretation within specific frameworks and contexts.

5. Consensus and conflict theory

Consensus and conflict theory post a dualistic framework for understanding social dynamics and decision-making processes within groups and organizations. Grounded in the interaction between differing interests and unified agreements, these theoretical perspectives enable an exploration of how power relations, ideological disparities, and collaborative endeavors collectively shape group outcomes [27]. They further illuminate the role of individual agency in navigating these conflicts: while societal norms and structural constraints influence the possibilities, individuals are able to resist, adapt, and forge new meanings and pathways.

Consensus theory stresses "stability within society and the socialization of community members into norms and values on which society agrees" [28]. It assumes that cohesion is the fundamental order of society, where all social members share common goals and beliefs. This type of societal organization is closely linked to the functionalist perspective, which, as outlined by Parsons, led to the effective integration and operation of diverse institutions in a society [29]. Functionalism was originally developed by the French sociologist Émile Durkheim, who compared modern society to a system of organs, where all components are interconnected and function collectively and stably as a whole [30]. He introduced the term "organic solidarity" to illustrate the division of labor and the interdependence among different social roles. Based on these consensus views, natural and gradual social change is anticipated as a result of population

growth, technological advancements, or other forms of social change. Similarly, in a society that places a high value on education, there is often a consensus among stakeholders—including families, educators, and employers—about the importance of securing a professional career after graduation. This agreement largely determines the aspirations and behaviors of university graduates, guiding their decisions and strategies as they prepare themselves for the workforce.

Conflict theory, on the other hand, asserts that society is characterized by an ongoing state of conflict over the control and access to the limited resources available to its members. This dynamic fosters competition and collision among social groups and individuals, who experience inequalities in their access to wealth, status, and power. Marx, a foundational conflict theorist, argued that society was organized and sustained through the domination of power, which exploited those with less power and fewer resources [31]. Specifically, conflict theorists advocate for sudden and radical social movements that challenge or transform inequalities and the established societal structure, which typically benefits only a limited number of individuals within society. They contend that social change is necessary and can be intentionally pursued to address current social issues and deficiencies in economic and political systems [32]. In this context, social institutions and organizations are viewed as creations and reflections of elites who maintain their power and positions by any means necessary [33]. This can be reflected in liberal arts graduates' transition from university to work, as they may encounter difficulties when the reality does not align with their interests and career aspirations. Also, the competitive job market and the rapid changes in the global economy can intensify these conflicts, resulting in feelings of frustration, anxiety, and disillusionment.

6. Qualitative inquiry into the school-to-work transition process

6.1 Research context and methodology

The purpose of this study is to examine the primary challenges faced by liberal arts graduates during their school-to-work transition in Hong Kong, as well as the strategies they employed to advance their career development. This research adopts an interpretivist paradigm and utilizes qualitative methods within a case study framework to collect data appropriate for qualitative analysis [34]. The case study was conducted at University X, a liberal arts-oriented institution in Hong Kong. As a member of the Alliance of Asian Liberal Arts Universities (AALAU), University X has upheld a unique liberal arts tradition over the years. Unlike many Western liberal arts colleges that prioritize undergraduate education, University X values and promotes excellence in both teaching and research. In particular, while some Western liberal arts colleges are often private and regarded as “elite” institutions, University X is one of the eight publicly funded universities in Hong Kong and receives financial support from the government through the University Grants Committee (UGC) for its undergraduate and postgraduate programs. Compared to other universities in Hong Kong, University X claims that it is equally inclusive in its student recruitment and admission preferences.

In addition to its academic offerings, University X distinguishes itself from other Hong Kong institutions through additional features: (1) despite having three faculties—arts, business, and social sciences—students are encouraged to explore a comprehensive range of disciplines beyond their major; (2) the university intentionally

maintains a small student body, fostering close interactions between students and faculty; (3) as the only university in Hong Kong that provides a fully residential environment, students have the opportunity to apply for 4 years of on-campus housing; (4) by combining elements of both Chinese and Western liberal arts education, the university advocates for an internationalized education, mainly through global learning programs; and (5) with the motto "Education for service," the university encourages social responsibility of its students to create positive impacts for the betterment of humanity. Based on its teaching, learning, scholarship, community engagement, and emphasis on global citizenship, University X has expanded its influence beyond the Asia-Pacific region, contributing to a more interconnected and enlightened global community.

The author was fortunate to participate in a short-term visit under the PhD exchange program organized by University X, where she had the opportunity to stay for 5 months. This extended period allowed her to become more familiar with the institution and to collect empirical data. For this study, she used purposive sampling to recruit individuals deemed suitable for addressing the research questions related to the school-to-work transition for liberal arts graduates [35]. The participants included: (1) students in their third or final year of studying liberal arts majors at University X, and (2) recent graduates of liberal arts majors at University X who had less than 2 years of work experience. Specifically, the author targeted individuals from the Faculty of Arts and the Faculty of Social Sciences. The Faculty of Arts, recognized as the best faculty at University X, offers majors in culture, translation, philosophy, history, and other disciplines within the arts field. The Faculty of Social Sciences includes majors in psychology, economics, sociology, social policy, and political science. After recruiting participants, semi-structured, in-depth interviews were conducted, centering on their educational achievements, job search efforts, encountered difficulties, coping strategies, and career plans. Detailed accounts of five individuals are presented for a more profound analysis of the practical and psychological adjustments made by graduates as they entered the world of work. This methodology enabled an empathetic understanding of the lived experiences of these individuals, shedding light on the often overlooked aspects during their transition into the professional realm.

As a visiting fellow from Mainland China conducting field research in Hong Kong, the author's empirical exploration along the city's subterranean Mass Transit Railway system has evolved from a simple logistical task into an endeavor of broader significance. Each unexpected yet friendly encounter has endowed her study with the dynamics of youth cultures, educational practices, and the intricate interplay between individual agency and societal forces. Through these interviews, the author has witnessed the self-reliance, resilience, and diverse perspectives of Hong Kong's young adults, who, despite being propelled by the city's fast pace, remain steadfast in their pursuit of meaning and self-expression.

6.2 Profile of participants

This paper reports the results of data gathered from five highly distinctive participants from University X. The following summaries detail their demographic and academic backgrounds, plus their career plans. Some of these descriptions are based on their own narratives, while others are the author's interpretations after analyzing their interviews. This section sets the stage for comprehending how these individuals address the issues that will be discussed in the subsequent sections.

6.2.1 Alex (year 3)

Alex is a third-year student majoring in sociology, with a personal passion for the performing arts. He has been actively involved in related campus activities since primary school. By junior high school, he realized the importance of theater in his life and pursued it with determination, believing it would benefit his future development. In his own words, “People have two lives: the first is given by their parents, and the second is when you discover how to live and what your life’s purpose is.” For Alex, his second life began in the third grade of junior high school, marking the establishment of his life goals. He describes himself as “amphibious,” with social work serving as the primary career—a stable backup to ensure his livelihood—and acting as a secondary pursuit that enriches his life.

6.2.2 Cindy (working)

Cindy has been interested in liberal studies since high school and chose to major in cultural studies at University X, one of only two institutions in Hong Kong offering this program. In her final semester, she developed a particular fascination for creative writing, which ignited her passion for writing and publishing. Upon graduation, she began her career as a journalist for a media company. However, due to the rapid change of local social media trends, the company underwent a transformation, prioritizing click rates and page views to bolster its market bargaining power. This shift intensified the pressure on Cindy, leading her to consider further studies as a way of escape. During her current gap period, she works as a freelance media professional. According to her, Hong Kong’s relentless pace and constant demand for productivity make it challenging to take a breath. She hopes to change her environment and allow herself some time to unwind.

6.2.3 Eric (year 4)

Eric is a fourth-year social policy major known for his adaptability in interacting with others and resolving the problems faced by vulnerable groups. He has long recognized his preference for roles that involve working with people rather than purely administrative tasks. He self-identifies as a “liberal” individual, which contrasts with Hong Kong’s prevailing job-oriented, utilitarian social values. He finds University X to be a good match for his personality, as it provides diverse activities and opportunities. As an active member of student organizations, Eric has a wide range of interests, with a particular passion for science and astronomy. Over the past few years, he has integrated his social policy major with this field by volunteering, taking on freelance jobs, making work plans, and teaching astronomy classes at local schools. He has completed more than one service learning course and has an urge to help others by using his knowledge and skills.

6.2.4 Gloria (working)

During high school, Gloria was a high achiever in both Chinese and English and ultimately decided to improve her proficiency in these languages by majoring in translation. She also possesses a strong interest in the arts, including painting, drama, film, and television series, which has led her to aspire to a career in arts administration while seeking a balanced lifestyle. Gloria declares that both translation and the

arts require creativity, which is cultivated through the accumulation of life experiences and emotions gained from continuous reading and writing. She observes, "Without a rich life, one cannot translate well." While at University X, she had ample opportunities for reading and writing. However, her current job has greatly limited her time for creative pursuits, adversely affecting her personal growth and inspiration. Frequently working overtime, Gloria is eager to transition to a position that gives her more space for creative expression.

6.2.5 Marcus (*working*)

Since primary school, Marcus has felt a stronger sense of belonging to his country compared to many of his classmates. In high school, he excelled in Chinese and Western history, and when it came to selecting a college major, his passion for history outweighed any other concerns. Despite the obstacles many history graduates encounter in finding suitable employment, Marcus claims that those who pursue history are driven by a genuine desire to contribute their expertise to society. At present, Marcus is responsible for compiling moral education textbooks. He and his colleagues aim to integrate civic and moral values into history classes, blending these principles with the curriculum students need to learn and prepare for exams in their daily studies. Through his self-designed teaching materials and the activities he engages in, Marcus hopes to foster a deeper understanding of China's history and the development of Hong Kong among teenagers.

7. Transition dynamics of individuals

7.1 Conforming to the "orbit"?

In scientific and mathematical terms, an orbit refers to the elliptical path of an object, such as a planet or satellite, around a central point. In the metaphorical sense used here, an orbital existence suggests following more defined career paths and social norms in Hong Kong, a business-oriented society characterized by high pressure, profit-driven motives, and specialization. Therefore, individuals with genuine motivations in the arts, culture, and other non-applied fields may struggle to balance their practical needs with their personal interests. Alex, for example, displayed frustration when discussing his passion for theater, which has given him a sense of purpose in life:

Hong Kong is a homogeneous society. Economic prosperity is primarily driven by the financial and investment sectors. Non-commercial activities face limited development prospects. If I were an artist seeking to hold performances, I would find it hard to thrive here because of the lack of income and government support. (Alex, year 3)

In Alex's view, his deep appreciation for the arts contrasted sharply with the "orbit," including the immediate demands for practical skills, measurable outcomes, and rapid adaptability that are highly valued in Hong Kong. He noted that these societal expectations hinder individuals' ability to explore more diverse career paths, as financial success is closely linked to obtaining professions in fields such as medicine, law, or accounting. Deviating from these norms may be perceived as detrimental to their future prospects.

Secondly, the curriculum for a liberal arts education often involves a wide spectrum of career options without imposing strict limitations on job selection. Nevertheless, when recruiting employees, many employers in Hong Kong may favor technical skills over a broad-based education. In the finance and technology sectors, for instance, liberal arts graduates find it hard to compete with candidates from business or specialized programs, often feeling underqualified for their desired jobs. Available paths, such as administration, positions in nongovernmental organizations (NGOs), or teaching assistant roles, tend to offer relatively lower salaries and uncertain career outlooks. This led many graduates to pursue occupations in fields unrelated to their majors:

I am acquainted with six individuals, including myself, who studied history. However, only one of us is engaged in research at [a local research institute]. He is the only member of our group whose job is directly aligned to this academic field. The others do not have any professional connections to their fields of study. Overall, graduates from history programs tend to enter the industry of education or pursue roles in administrative or financial sectors. (Marcus, working)

According to Marcus, upon graduation, the popular career choices Hong Kong graduates consider mainly include: (1) civil service roles, particularly in uniformed groups such as firefighters, police officers, and customs officials, which have gained increasing interest over the years; (2) careers in finance and banking, which are perceived as more promising and financially rewarding; and (3) positions in education and teaching, often regarded as more stable and comfortable, with a special preference among female graduates.

In the workplace, individuals also face the difficulty of reconciling their humanistic values with the profit-driven mindset prevalent in the commercial world. For example, Cindy was hesitant to work for sales-oriented companies, where the pressure to maximize profits could conflict with her ethical concerns regarding the long-term social impacts of business practices. This tension between liberal arts principles and utilitarianism led her to wish for greater autonomy within the corporate culture, envisioning an inclusive and respectful environment that would, in turn, attract more creative individuals. She expressed her preconceived notions about the corporate workers and articulated her reluctance to conform to their standards:

They may exhibit higher levels of obedience. I do not view this as a negative trait but rather as a reflection of differing personality types. In my eyes, they possess strong observational and social skills, and a significant aspect of their behavior is their adept understanding of the game system. They demonstrate a keen interest in exploring the mechanics of the rules and derive enjoyment from engaging with the game. I believe they represent a typical archetype fostered by the educational system. (Cindy, working)

Furthermore, Eric revealed that Hong Kong's cultural and social narratives strongly focus on achieving success in a worldly sense, often emphasizing personal striving, hard work, and economic prosperity as key elements in defining one's worth. Thus, those who are seeking employment face pressure to quickly obtain high-status jobs and gain a competitive edge in both professional and social settings. In addition, for those who hope to start a family, it is also a prerequisite to own a house—a goal that Eric pointed out is extremely challenging, almost impossible—which is why he

believed that society's adherence to predictability is starting to undergo transformations. In spite of his responsibility to save money for his parents' well-being and ensure they lead a stable life, Eric did not believe that an abundance of material possessions was a necessary condition for his happiness.

7.2 In retrospect of university life

Before visiting University X, the author perceived the eight UGC-funded institutions as largely equivalent in prestige and popularity, with only minor differences. However, after interacting with more participants, she discovered that many high school students in Hong Kong do not consider University X as a top choice. Some students enroll due to insufficient scores on the Hong Kong Diploma of Secondary Education (DSE), viewing it as a last resort, while others see it as a pathway to achieving their desired tertiary education. As a result, students arriving at University X may initially hold negative perceptions influenced by their parents and friends who attended more prestigious universities. However, based on the interviews, many participants expressed positive feedback regarding their educational experiences at University X after 3–4 years of study. They highlighted a few aspects, including the interdisciplinary curriculum, close student-faculty relationships, dormitory life, and abundant extracurricular activities:

The campus is a very cozy place. The type of education offered here is idealistic and does not dispel some of your fantasies. During classes, the teacher shared a wealth of knowledge with us. He clarified relevant concepts, guiding us to a deeper understanding of various issues and how to navigate them. (Alex, year 3)

Similarly, Cindy enrolled in the cultural studies major at University X due to the inspiration she gained in high school. There, she was encouraged to read thought-provoking articles authored by professors from University X, which sparked her interest. Motivated by their scholarly work, Cindy believed that attending University X would offer her more chances to interact with esteemed professors. The academic environment at University X did prove to be an advantage throughout her and her classmates' educational journey:

We don't feel as much pressure on our studies. For example, our professors assign us a substantial amount of reading. But during class, when they ask if we have completed the readings, I would admit that I tried very hard to read ten pages, but I couldn't continue. In response, my professor would say, "Oh, you are really impressive; you managed to read ten pages. Most people don't want to read another page after the first one". When it comes to grading, they do not implement a strict curve where only 10% receive an A, and so on. Instead, they evaluate the progress we have made since we first started and gave marks based on that. We do not have a strong competitive atmosphere. Instead, we organize reading clubs together. Since we often struggle to understand the readings, we gather to read, sometimes covering only two pages in an entire afternoon, and then discuss them. (Cindy, working)

Within their academic programs, participants reported acquiring a series of interdisciplinary skills, such as policy numeracy and proficiency in the English language. Notably, critical thinking emerged as the most frequently mentioned skill among

participants, as the common core curriculum includes logic and critical thinking courses, encouraging students to make judgments based on diverse viewpoints rather than relying solely on common sense. Moreover, in reading and writing tasks, students are required to develop generic skills to search for and select materials that will help them construct well-founded arguments:

Different from other universities, the History major in [University X] concentrated on students' ability to analyse issues. (Mike, working)

I would say critical thinking skills, because you have to analyze the pros and cons of a policy. (Eric, year 4)

When Eric entered University X, he had limited knowledge of the institution and primarily looked forward to completing his 4 years of study. During his freshman year, Eric was exposed to various activities and engaged in several of them. He quickly uncovered numerous possibilities that aroused his passion and aligned perfectly with his interests. Eventually, he gained much experience through his volunteer work, funded exchange programs to Northern Europe and the United States, as well as extensive social networking during service learning activities:

I often tell my friends that I would exemplify the benefits of a liberal arts education because I am very open-minded and hope to explore different interests. [University X] has a relatively small student population, which has also resulted in increased funding per student. Some students here may be passive, allowing the more proactive ones to access resources more easily and have greater freedom to pursue their interests. In comparison, attending other universities may come with more constraints. (Eric, year 4)

Another feature of University X is its mandatory residential requirement, which encourages all undergraduate students to reside on campus throughout their studies. This policy cultivates an immersive learning experience, facilitating interactions among peers from different academic and cultural backgrounds. On the other hand, the structured residential life is conducive to developing self-reliance and time-management skills, which are crucial for their academic and professional development. For instance, Gloria indicates that a full-time university life has given her opportunities to calm down and engage more in creative thinking:

I cherish the opportunity to live in the dormitory. At other universities, you may only have the chance to reside in the dormitory for one semester, as is the case at HKU, where there is a vibrant dormitory culture. Their hall system is robust, requiring students to be highly involved and participate in various activities, making it essential to be sociable in order to live there. This can be quite stressful, and I doubt I could manage it. (Gloria, working)

7.3 The promise of “wilderness”

In the context of this study, “wilderness” can be seen as a metaphor for the intricate, multifaceted, and often unpredictable nature of life. It signifies an environment where individuals must forge their own paths, confront unforeseen obstacles, and seek meaning within the vastness and uncertainty of existence.

This term encapsulates the essence of the human experience as a journey defined by exploration, self-discovery, and the complex negotiation of personal and existential boundaries. For many liberal arts universities, research and service are core components, where students are nurtured to develop their personalities and well-roundedness, rather than being driven solely toward "secular" success [22]. In this case, students' perspectives and experiences may extend beyond the quantitative measures of the university's quality, which often lead to an obsession with rankings. Therefore, a dilemma may also arise from the discrepancy between graduates' qualifications and societal perceptions: individuals must conform to anticipated professional paths by acquiring qualifications, vocational training, and practical experience, or stick to their personal ideals, risking marginalization in a market valuing immediate results.

Participants from University X may not be as academically or occupationally competitive as those from other universities in Hong Kong in the short term; however, some of them have forged a mindset rooted in humanistic spirit and a commitment to the common good, which can contribute to Hong Kong society in alternative but equally valuable ways. For example, Alex aspires to attain prominence within the realm of acting. In his eyes, the pursuit of recognition is not dependent on monetary rewards or superficial accolades; rather, it is about conveying a positive message to the wider audience:

My goal is to make the world a better place, and I have chosen to focus on social services and theater. I aim to empower individuals and instill a sense of hope in them. When people attend my drama performances, they will often see reflections of themselves in the roles I portray. These performances are designed to provide strengths, and foster positivity and optimism among the audience. It is about sharing uplifting and encouraging messages about life. (Alex, year 3)

Alex has strategically chosen to rely on the social enterprise sector as a "refuge" in his career. Should he face adversity and encounter setbacks in the theatrical aspect of his life, he can take comfort in knowing that he can always return to this support system with confidence.

Cindy, who considers drawing and writing to be comfortable forms of self-expression, hopes to publish her picture book within the next 5 years. She views this endeavor as a significant affirmation of her personal exploration and identity. In addition to this goal, she has taken on the management of an online store that specializes in selling tool bags crafted by her mother. This strategic approach has allowed her to not only sustain her primary pursuits but also celebrate her mother's artisanal expertise and craftsmanship effectively:

Academic training has instilled in me certain values, such as the importance of realizing each individual's abilities and the importance of respecting everyone. This awareness has made me appreciate the value of the skills possessed by my mother and many other older individuals in their later years or after retirement. That is why I opened an online store for her—to help her maintain a cheerful spirit. (Cindy, working)

Cindy acknowledges the precarious nature of freelancing in Hong Kong and the necessity for a high level of self-discipline. During her career as a journalist, she undertook various freelance projects, including video editing and illustration design,

while also publishing articles across multiple media platforms. These efforts provided sufficient financial support for both her and her family.

Similarly, Eric's 4 years of experience have clarified his genuine aspirations for the future, which focus on helping others. This social goal has become the foundation of his guiding principles and ambitions:

If I were to identify a single ambition, it would be to promote astronomy in Hong Kong through different activities, such as stargazing and other astronomy-related events. I also aim to integrate concepts of life education into these initiatives. This could involve exploring people's values, their perspectives on life, their personalities, and their views on death. My goal is not to transform a large population but to make a meaningful impact within a community, and help individuals in that community. (Eric, year 4)

During his first year of university, Eric participated in a mentorship program in collaboration with an external social organization. He has maintained ongoing communication with this organization, as well as several others, to cultivate relationships with individuals both within and beyond the university. He believes that fostering these connections will be advantageous for him in pursuing future job opportunities and other relevant occasions, and therefore, this tactical approach is both helpful and mutually beneficial.

Another workforce entrant, Gloria, has gradually noticed the subtlety of communication skills, which are essential not only for expanding one's professional network but also for building meaningful relationships with important figures. She thinks this requires the demonstration of proactivity and the ability to engage in natural but meaningful conversational topics. Additionally, she mentioned her previous internship experience at an NGO, where she was involved in translation tasks, which she found to be highly rewarding. She also has classmates who work in NGOs and have backgrounds in translation.

As a history major and leader in a student association at University X, Marcus continues to play a role in facilitating exchange and cooperation activities between Hong Kong and Mainland China, all while managing his full-time position. He expanded his professional network across these two regions, recognizing its importance for enhancing his career prospects and strengthening the ties between the younger generations from Hong Kong and the Mainland. Marcus derives immense satisfaction from incorporating moral values into secondary education, which he asserts is a far-reaching contribution to the promising future of Hong Kong's youth. Besides, he has actively invited experienced history graduates to deliver lectures, conduct workshops, and participate in mentorship dinners aimed at illuminating various career options for current history students, who might otherwise overlook numerous potential opportunities.

In summary, when confronted with possible rejection in the labor market, participants have developed a few coping strategies to sustain and advance their careers. They include skill enhancement, networking, self-reflection, flexibility in career planning, and emotional resilience. It can be seen that a liberal arts education has empowered individuals to move beyond the limitations of meritocratic benefits, encouraging them to engage in introspection and explore diverse intellectual pursuits. Through this process, individuals can cultivate a deeper sense of purpose and make a greater impact on personal and societal development.

8. Dual task of personal growth and social integration

As previously mentioned, a consensus theory approach to employability agrees that the accumulation of human capital—such as skills and knowledge—improves an individual's employability and facilitates career development. This perspective is consistent with human capital theory, which views education as a primary means of cultivating a high-quality labor force and improving production standards. As participants gain more experience at University X, their self-awareness evolves, enabling them to better identify and articulate their interests, values, and preferences, which may not align with mainstream perspectives. They are also prompted to actively participate in extracurricular activities that enhance their social involvement within the broader community. Consequently, University X has fostered individuals' agency in making choices both academically—allowing them to explore their motivations—and in a broader context—developing employability skills and strategies, as well as determining the direction of their future growth. Involvement in various social practices, both formally organized and those arising informally from the prevailing social context at the university, can also engender strong ideals conducive to the formation of one's personality. Thus, a liberal arts education has imparted diverse meanings to each participant, with value that extends beyond mere academic achievement and employability. Their growth often manifests as career exploration, skill improvement, and the cultivation of a strong sense of identity and purpose, encompassing their internal journey toward self-actualization and the refinement of longer-term aspirations.

The real test of individuals' growth, however, lies in how they harness these attributes in the face of real-world challenges and opportunities. In this respect, conflict theory suggests that employability "represents an attempt to legitimate unequal opportunities in education and the labour market at a time of growing income inequalities" [36]. This implies that individuals with greater social and cultural capital possess an inherent advantage in achieving better job prospects compared to those who lack such capital [37]. During the interviews, however, participants shared their working-class family backgrounds and how this is reflected in the general statistics regarding UGC-funded institutions: the higher the university ranking, the fewer students apply for a tertiary education finance subsidy scheme. At University X, a high proportion of students have applied for "grant-loan" and "non-means-tested" government schemes, showing that university enrollment has somewhat divided and categorized students based on their social positions. Even though they have benefited from various components of a liberal arts education and received institutional support—often differing from their initial expectations—they also experience a sense of disappointment, feeling that they are not entitled to achieve greater success or make more choices in the real world, despite these enriching experiences. Thus, University X has played a contradictory role: it serves as both a catalyst for change—offering a platform for the cultivation of individual interests and aspirations within a broader context—and a mechanism for perpetuating social inequalities and maintaining the status quo. Unfortunately, the participants' lack of social and financial capital has potentially diminished their enthusiasm, restricting their employment prospects and social mobility.

On the whole, the question of whether to follow the "orbit" or enter the "wilderness" transcends mere skill acquisition; it transforms into a profound exploration of identity negotiation. For graduates under an LAE, this process is complex due to the emphasis on interdisciplinary knowledge, critical thinking, and international outlook

that distinguishes their educational backgrounds. The transition to the workforce, therefore, entails a delicate balance between leveraging these unique strengths and adapting to the often more specialized and structured demands of professional environments. Graduates must reconcile their personal and professional goals within the competing narratives of LAE and commercial imperatives. Yet still, the LAE experience has helped individuals discover their true selves—it provided University X graduates with a unique position in the labor market, allowing for self-identification, recognition of their own value, and a sense of identity both locally and globally. Some were able to endure low salaries, challenging environments, and social stigma as long as these factors reassured their identity and facilitated social integration in response to change. This strategy is employed by many people to enhance their social cachet: aligning themselves with the latest marginalized identity trend, which allows them to be perceived as more morally aware, virtuous, authentic, or rebellious against mainstream power structures.

9. Imagination, pride, and persistence

The data collection procedure has initiated a chance to revive the cherished memories of University X participants, who eventually outgrew these innocent, non-calculative, and nonutilitarian encounters. Many of them expressed a sense of genuine joy and fulfillment that contrasted with academic or practical achievements. While some participants felt disillusioned by the professional world, which did not match with their original expectations and the spirit of hope nurtured by University X, others believed it was necessary for one's unrealistic ideas to be acknowledged and embraced by the university before entering society. Indeed, the university can be a place that fosters students' wild, creative, and idealistic thinking, which may be stifled by societal pressures that demand calculations and strategic thinking for self-protection and survival in a competitive landscape. It is argued that the university's role is to integrate experience with imagination—an endeavor that “enables men to construct an intellectual vision of a new world” and “preserves the zest of life by the suggestion of satisfying purposes” [38]. These satisfactions were paramount in participants' reflections, demonstrating how this liberal arts university can nurture, influence, and witness the psychological journeys of these young adults and their generation of original ideas.

With an increasing number of talented individuals who have attained tertiary degrees entering the workforce, competition in the Hong Kong job market has intensified [39]. The goals of university students in Hong Kong, under a liberal arts education, are to make a positive contribution to society and embody a commendable synthesis of intellectual engagement and civic responsibility [15]. This educational foundation equips them with the necessary tools to address complex social issues with empathy, nuance, and a commitment to justice. Individuals' decisions to align their future endeavors with the betterment of Hong Kong reflects a deep sense of local attachment and an understanding of the vital role that active citizenship plays in shaping societal progress. By adopting the ethos of public service, these participants demonstrate an awareness that knowledge, when combined with a desire to effect change, can serve as a potent force for social good. Their ambitions embody a collective vision of utilizing abundant educational experiences to address challenges such as social inequality, cultural preservation, and democratic development. As they embark on the paths to commit to the well-being of Hong Kong society, they stand as

testaments to the enduring power of intellectual pursuit in fostering a more equitable, informed, and cohesive local and internationally-recognized community.

The findings also suggest that liberal arts universities in Hong Kong need to strike a balance between providing a broad-based education and equipping students with specialized skills. This could involve providing more interdisciplinary programs that combine liberal arts with professional training or additional career-centered courses within the existing curriculum. This study has also underscored the importance of universities in preparing graduates for the realities of the job market. Liberal arts institutions may consider incorporating more career-oriented initiatives, such as mentorship opportunities and skill development workshops, to enhance students' practical skills for the transition. Career guidance services for liberal arts graduates can be made more comprehensive by not only focusing on job search skills but also helping them build a clear career vision, understand the job market, and make informed career decisions.

10. Conclusion

Hong Kong, a unique context where existential and material needs may overshadow young people's educational aspirations and humanistic pursuits, has created numerous social dilemmas for them. The popular Chinese phrase “Life as a wilderness” serves as an apt metaphor for the school-to-work transition, where imagination collides with reality, idealism is tempered by experience, and self-doubt coexists with moments of profound self-discovery. While higher education is a crucial component in promoting social inclusion, the focus on graduates' employability should be expanded to include the benefits of universities that extend beyond immediate economic productivity. It is imperative to acknowledge that university graduates can exert considerable social and ideological influence, independent of their success as employees in the workforce. Much like wilderness flora that thrive without rigid frameworks, individuals can recognize their value and potential outside of predefined boundaries. Overall, by examining these dynamics, the qualitative investigation reported in this chapter draws implications for both the reform of liberal arts education and career guidance for graduates, giving advice to educators, policymakers, and career counselors seeking to better support liberal arts graduates as they navigate the complexities of the modern workplace in Hong Kong. Future research could continue to explore the long-term career trajectories of these graduates and the role of institutions and other contextual factors in facilitating their transitions.

Conflict of interest

The authors declare no conflict of interest.

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Northeast India in India's Act East Policy: Economic and Infrastructure Development Key to India's Act East Policy

Priya Suresh

Abstract

India's Act East Policy is a substantial shift from its former Look East approach. It places greater importance on strategic integration with Southeast Asia and the Indo-Pacific region while simultaneously promoting Northeast India as an important gateway for regional involvement. In this chapter, we argue that the success of the program is contingent on resolving the North East's dual status as both a geopolitical asset and a historically marginalized fringe. By effectively implementing connectivity infrastructure, commercial corridors, and cultural diplomacy in the Northeast, India may strengthen its position as a net security provider in the Indo-Pacific region, therefore combating the influence of China while simultaneously supporting subregional stability, according to the theory. One of the most important topics is the examination of the policy's transition from economic diplomacy to a security-oriented approach that includes maritime domain awareness and relationships with Quad states. This chapter evaluates several transnational initiatives, including the India-Myanmar-Thailand Trilateral Highway and the Kaladan Multi-Modal Transit Transport Project. These projects aim to circumvent the "Chicken's Neck" bottleneck, yet they face challenges like local insurgencies and uneven development. The research discusses current developments in rail connections, investments in semiconductors, and job creation in the northeast that are driven by tourism. It also places these developments within the perspective of the larger Indo-Pacific power dynamics. This chapter asks if regional goals are in line with national strategic goals. It does this by looking at how India's eastern border may change Asian geopolitics.

Keywords: North East India, act East Asia, infrastructure development, Indo-Pacific, chicken neck

1. Introduction

The Act East Policy represents a significant change in India's approach to engaging with Southeast Asia and the larger Indo-Pacific region, uplifting Northeast India from a geographical appendage to a region of geostrategic importance. India's foreign policy

has undergone a significant transformation over the past decades evolving from the Look East to a more proactive Act East Policy. The Act East Policy was launched in 2014 amid efforts by New Delhi to revive the significance of Southeast Asia in India's foreign policy agenda [1]. The new policy designed to convey India's active interest in raising its strategic profile in the Indo-Pacific region. The primary goal behind the Act East Policy are thus two fold aims to (a) promote India's economic growth and development and (b) respond to the growing influence of China in the region [2].

The change in policy is a major shift in how India interacts with the east, expanding from just economic partnerships to include security, strategic teamwork, and better connections. In spite of the renewed emphasis, Northeast India is in a dual position, as it is both a geopolitical asset that is essential to India's regional ambition and a marginalized region with unresolved developmental issues since independence [3].

The central argument is that despite significant central government funding and policy initiatives, Northeast India lags behind in economic development and regional integration. There is persistent gap, ineffective fund utilization, lack of social instability, and historical marginalization. The long-standing neglect has created vulnerabilities for the external powers to exploit. China is the most critical representation of a country that has capitalized on these gaps to advance its economic and strategic interests. Chinese action not only challenges India's sovereignty and regional ambitions but also deepens Northeast's fragility, making it very critical in India-China rivalry.

The chapter argues that Northeast India's development and integration are inseparable from the region's security environment and the strategic contest with China. India's Act East Policy is both a response to integrate Northeast India into a broader Indo-Pacific framework, with a focus on trade, connectivity, and security. The study employs a descriptive method to examine the importance of Northeast India in India's Act East and the Indo-Pacific policy. By examining the existing literature in terms of books, journals, and government websites, the chapter provides a comprehensive overview of the importance of Northeast Region in India's Act East Policy.

1.1 The importance of north-east region in India's act east policy

What are the prospects and advantages for the Northeast in India's Act East Policy? The eight states of the region comprising Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim, and Tripura occupies an important position both in the context of strategic outreach, economic partnership, and security between South and Southeast Asia [4]. The Northeast India is critical to this vision, as the region acts as the single land bridge linking Southeast Asia. But this uniqueness is characterized by porous and sensitive borders to the north highlighting the strategic importance of the region [5]. The modern Act East Policy aims at fostering regional development to strengthen India's engagement in the Indo-Pacific. By synergizing the geostrategic significance of the location and the economic potential, Northeast India can become the fulcrum of India's Act East Policy and also an effective counterweight to China in the region. China's increasing footprint in the India's Northeast and its periphery remains a potential challenge to India's geostrategic, economic, and political interest [6].

The unique and complex nature of the region, its long-term socio-economic challenges, political isolation, and geographical vulnerability had a significant impact on India's outreach to the neighborhood [7]. Several reasons can be attributed to the lack

of growth and the need for an wholistic policy in the Northeastern region: (a) absence of political will and strong policy to safeguard the region against confrontation from across the border with China. (b) Despite the flow of funds from the Central government, no significant development had occurred in the region. (c) Poor infrastructure, lack of market accessibility, recurring insurgency, and violence resulted in economic stagnation of the region. Several government schemes and initiatives aimed at developing Northeast India since independence have faced significant challenges and have not achieved its intended impact. Several post-independence strategies primarily aimed at security-centric policies such as the Armed Forces (Special Powers) Act AFSPA. These approaches failed to create a sustainable development resulting in very minimal industrial and infrastructure development. The result was chronic underutilization of funds.

The present government positioned the Northeast at the gateway of Southeast Asia, encouraging connectivity and infrastructure development, paving way for economic and strategic partnership with the neighborhood countries integrating Eastward engagement into India's foreign policy [8]. The government initiated new schemes such as UNNATI (The Uttar Poorva Transformative Industrialization Scheme 2024 (UNNATI) with Rs.10,037 crores spread over a period of 10 years and the construction of the strategic Sea Tunnel project that connects Tezpur in Assam to Tawang in Arunachal Pradesh [9]. The government in the process of building Vikas Bharat announced to complete the pending projects such as the Saraighat bridge, Dhola-Sadiya Bridge, and Bogibeel Bridge. Under the PM-DevINE scheme, emphasized the government's commitment to growth and development in the Northeast region. Several key projects such as the foundation stone for the construction of a medical college and hospital in Guwahati, significant investments in oil and gas sectors, infrastructure and connectivity signifying proactive approach fostering socio-economic progress in the region.

The PM-DevINE (Prime Minister's Development Initiative for North Eastern Region) Scheme was announced in the Union Budget 2022-2023 with a total outlay of Rs.6,600 crores. The key projects under the scheme included health, education, connectivity, smart water supply, and ropeway connecting Pelling to Sanga-Choeing and Dhapper to Bhaleydhunga, Sikkim [10].

Prime Minister Narendra Modi in 2014 rebranded India's Look East Policy to Act East Policy, placing Northeast region at the heart of this vision. He referred this region as "Suvarnabhumi" (land of gold) and based it on the twin pillars of peace and development [11]. Northeast therefore remained top priority, and the region received an increase in the budget outlay from Rs.36,108 crores to Rs.94,680 crores in the fiscal year 2023-2024 including welfare initiatives [12]. In terms of infrastructure, there has been an increase from 96 crores to 2491 crores improving rail, road connectivity, and air and inland waterways as an alternate mode of transportation and to facilitate trade with neighboring countries such as Bangladesh, Bhutan, and Nepal and thereafter to access the global markets (**Table 1**) [11].

One of the key initiatives of the Act East Policy is to enhance greater region's connectivity with its neighboring countries. This has been achieved through developing multiple sectors such as energy sector, agriculture and horticulture, manufacturing and industry, tourism, transport, and logistics act as a strategic creating an integrated economic corridor linking Northeast India to South East Asia. This has been achieved through major infrastructure projects such as India-Myanmar-Thailand Trilateral Highway linking Moreh in Manipur with Mae Sot (Thailand) *via* Myanmar, and this will be expanded to Cambodia, Laos and Vietnam and the Kaladan Multi-Modal Transit

Schemes/Initiatives	Year/Period	Focus Areas
North Eastern Council	1971–Present	Multi-sectoral development
10%GBS (Gross Budgetary Support) & NLPCR (Non-Lapsable Central Pool of resources)	1990s–Present	Financial Resource Allocation
NERSDS(Northeast Road Sector Development Scheme)	2015–2016 onwards	Road Infrastructure
NESIDS(Northeast Special Infrastructure Development Scheme)	2017–2018/2022–2026	Road Development, tourism, social sectors
RCS-UDAN	2017 onwards	Air connectivity
NETDC	2017 onwards	Air Connectivity
Pm-DevINE	2022–2026	Infrastructure, social livelihood
Sambhav	Recent	Basic Service in villages
Act East Policy	2014 onwards	Connectivity, trade and economic integration
Swadesh Darshan, Kaladan Project	Ongoing	Tourism and multimodal connectivity

Table 1.
Major government schemes for development in the Northeast region.

Transport Project and the Bangladesh-Bhutan-India-Nepal (BBIN) initiative [8]. Another significant initiative of the Act East Policy has been its effort in harnessing the Northeast regions economic potential, especially its abundant natural resources, renewable energy potential and rich biodiversity. These resources provide significant opportunities in terms of investment in key sectors such as energy, tourism, agriculture, and manufacturing. An example of this initiative is Advantage Assam 2.0, held in Guwahati in February 2025 aimed at deepening economic, strategic, and cultural engagement with Southeast Asia and the Indo-Pacific [13]. This initiative attracted global investors and facilitated greater investments in the field of manufacturing and semiconductor factory in Assam with an investment of Rs.27000 crores [14]. This region is described as “India’s growth engine and aligns with PM Gati Shakti” focusing on infrastructure development and seamless connectivity through constant funding [15]. The Northeast Region (NER) positioned in the crossroads of South and Southeast Asia is of immense significance. It represents the sole land route for establishing connectivity with ASEAN countries. The growing significance of the region can be understood with the government sanction of projects towards infrastructure development, road and air connectivity, and digital empowerment [16]. India has recognised the need to strengthen the Northeast as the linchpin of its Act East Policy. This is evident in sustained political attention, sharply increasing funding, transformative infrastructure projects, cultural engagement, trade facilitation and efforts to ensure peace and stability. Northeast India is now positioned not just as a corridor, but as a vibrant, integral partner in India’s engagement with the Indo-Pacific and Southeast Asia.

1.2 Geostrategic relevance of Northeast India in India’s act east policy

China has systematically exploited the development and economic neglect by undertaking massive infrastructure projects in the Tibet autonomous region along the

Line of Actual Control (LAC) and construction of Xiaoping border defense villages designed for both civilian settlement and military use opposite to the Lohit valley and Twang sector in Arunachal Pradesh both of which are in Northeast India. These Xiaoping villages are strategically important in China's claim for territorial claims reinforcing China's sovereignty and claim over the LAC. Through massive infrastructure projects, such as China-Myanmar Economic Corridor, military engagement in Bangladesh, and hydropower development in Nepal, China fundamentally challenges India's sovereignty and strategic interest in Northeast India. China's Pacific interest and assertive actions directly impinge India's security, economic interest, and regional aspirations, and this calls for greater integrated and domestic response. India's Act East Policy positions the Northeast region as a strategic gateway to Southeast Asia, making the region very critical in countering Chinese influence in the region.

China's growing footprint in India's Northeastern region and its periphery remains critical in reshaping the geopolitical and strategic interest of the region. Two major concerns dominate India's concern, the first is the Siliguri Corridor called as the Chicken Neck Corridor serves as the only land route connecting the Northeast and any impact on the corridor will have detrimental effect in terms of both military mobility and logistical access to its eastern territories [17]. The second aspect is the long-standing territorial dispute over Arunachal Pradesh and China's counterclaim over the disputed area has left India in a strategic discomfort. China's People's Liberation Army (PLA) is inadvertently offering support and training to Naga and Mizo rebel groups indirectly supporting insurgent activities within India. Further China's economic investments around Northeast Region through its Belt and Road Initiative (BRI) has evoked concerns for India. The type of Chinese investments include infrastructure development in neighboring countries such as Bangladesh, Myanmar, and Nepal. Furthermore cheap Chinese goods ranging from automobiles, garments, and electronics have been flooding the region both legal trade points and illegally through porous borders. This systematic Chinese incursion in the Northeastern periphery have presented a major challenge in terms of both domestic security and India's growing regional ambition. Such challenges in the light of India's Act East Policy call for greater concern for broader foreign policy oriented regional initiatives. New Delhi has developed a twofold strategy actively pursuing to embed the Northeast Region into India's broader regional framework. Firstly, New Delhi is pursuing aggressive infrastructure development in the region. The Government of India in 2017 approved the Northeast Special Infrastructure Development Scheme under the new Central Sector Scheme wherein 100% funding is provided to the state governments of Northeastern Region for the projects such as infrastructure, connectivity, tourism, education, and health [18].

1.2.1 Enhanced connectivity and infrastructure development

Ever since 2014, 1824 kms of new railway tracks have been laid along with 478 flyovers and passes to enable greater regional connectivity [19]. Under the Amrit Bharat Stations Scheme 92 railway stations have been revamped. The Bhairabi-Sairang railway project in Mizoram is expected to be complete by July 2025 (**Figure 1**)

Almost 64% of the rail tracks have been completed by 2024, and further, the Union Budget 2025–2026 has sanctioned 2.65 lakh crore for infrastructure development in the NER [18].

The Ministry of Road Transport and Highways (MoRTH) has allocated Rs.19,388 crores for National Highway (NH) projects in the Northeast Region (NER) for the financial year 2024–2025 [20]. Tremendous efforts has been made to expedite

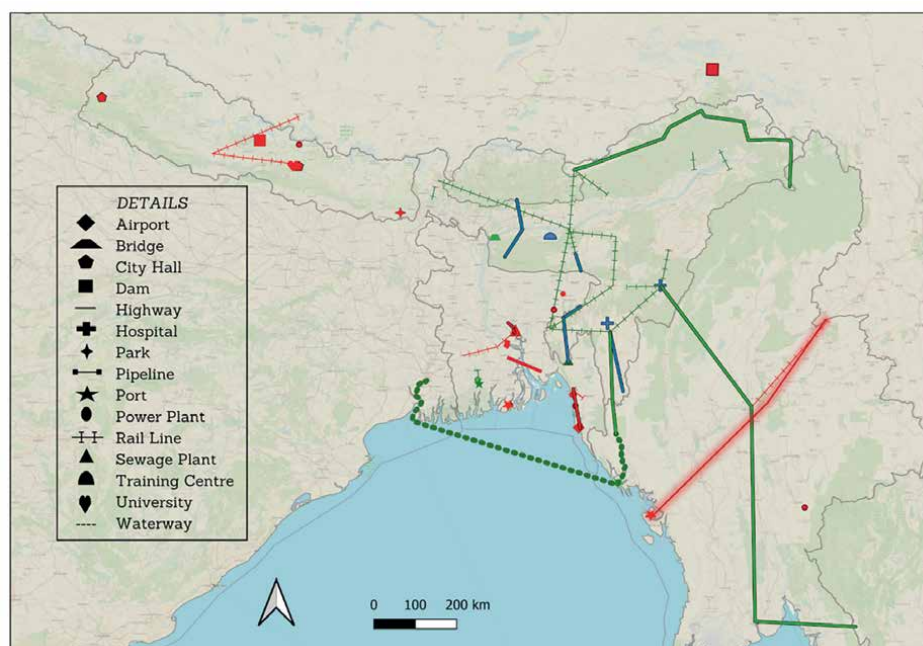


Figure 1.
Project in and around Northeast Region [19].

projects and have completed stretches across Northeastern states including 1012 km in Assam, 819 km in Manipur, 737 km in Mizoram and 487 km in Nagaland, 471 km in Arunachal Pradesh, and 346 km in Tripura [21]. India's proactive approach to engaging Northeast region is evident from Japan's investment of over 231 billion yen for the construction of national highways and forest management.

The second dimension to India's engagement in the Northeast is strategic. New Delhi aims to develop the region as an important gateway to Act East Policy by integrating cross-border trade and developing infrastructure. The Imphal-Mandalay-Muse Trilateral Highway project connecting Myanmar with Thailand is critically important for Northeast India and the Act East Policy [22]. Additionally, India is collaborating with Bangladesh to develop infrastructure projects such as development of the Inland waterways facilitating faster movement of goods [23]. Additionally, the development of the construction of a 65 kilometer broad gauge rail route connecting the Khulna-Mongla port rail line at a cost of US \$388.92 million and the rail link will establish connection with Siliguri in India through Panchagarh and Bangladesh in the North [24]. The Agartala-Akhaura railway project between Northeast and Bangladesh will provide additional connectivity between India and Bangladesh encouraging trade between the two nations and reducing the time and distance of travel [25]. The two railway projects are expected to boost movement of goods and people between Bangladesh and India's Northeast region. Furthermore, the Ministry of Tourism has launched initiatives such as Swadesh Darshan 2.0 by strategically selecting destination [26]. As a part of the initiative the Ministry of Tourism, Government of India designed to highlight the tourism potential of the Northeast Region (NER) to foster collaboration and interaction between buyers and sellers and other stakeholders [27]. To stall the infiltration of cheap Chinese goods into the local

economy of the Northeast, the Indian government has initiated schemes such as the North East Industrial Development Scheme (NEIDS), to promote industrialization and boost employment and generate income in the Northeast [28]. The development of cross border markets, Integrated Check Posts (ICP), and new routes are changing Northeast India into a dynamic trade gateway to Southeast Asia [29]. These initiatives help not only in boosting trade volumes but are delivering tangible benefits to local producers and traders thereby improving market access, reducing costs and fostering regional economic integration.

1.2.2 Security and defense cooperation

The proximity of Northeast to China makes it the most critical region in India's Security calculus as the region is connected through the narrow 22 kilometre Siliguri Corridor. In the geopolitical and strategic framework, the region has evinced great relevance and sensitivity. Chinese approach to Northeast India can be divided to four aspects: (a) China can advance its influence through overland strategy through the LAC to keep India off balance. China has been intruding into the Northeast right from the 1962 war to the 2017 Doklam standoff; (b) as a part of ocean strategy, China will endeavor to access North Bay of Bengal through Bangladesh and Myanmar; (c) China will try and support insurgent groups in the Northeast keeping the region in a current state of instability; and (d) China is constructing 14 dams across the Brahmaputra river very near to the LAC and this would impact the lower riparian rivers of India and Bangladesh, a deliberate attempt to weaponize water by China [30]. China has been actively supporting insurgent groups injecting instability in the Northeast Region. China's support to military juntas in Myanmar and other ethnic armed groups has spilled over instability into Manipur [31]. China has been directly supporting and training the Mizo National Front from the early 1970s and providing armament support and training of Manipur's PLA [31]. China has been offering such constant support by creating a non-conducive environment towards development in the Northeast Region. India has been seeking support from neighboring countries such as Myanmar and Bangladesh, yet China's connection has been increasing over the years. For China, Northeast is a vulnerable periphery, and therefore, supporting activities that can impact India's internal stability are critical in deterring growth and prospects of the region. The development of physical connectivity and trade in the Northeast remains critical in India's Act East Policy. An attempt has been made to address the development deficit that the region has been facing since India's independence in 1947. Attempts have been made under Act East Policy to renew trade and connectivity with neighboring countries in Northeast Region by participation in sub-regional initiatives, but China factor continues to dampen much of these activities. China's fast-paced development on the border is increasingly visible, and this has compelled Indian government to undertake fast paced infrastructure development. India has adopted a comprehensive strategy to protect the Northeast. India has enhanced its defense posture in Arunachal Pradesh, deploying SS-400 air defense systems known for its advanced radar, and intercept capabilities has been placed to cover Arunachal Pradesh [32]. India has constructed all-weather roads to ensure troop mobilization and to maintain strategic preparedness has conducted military exercises in Arunachal Pradesh. To counter Chinese threat, India has combined a robust military development consisting advanced weapon system and infrastructure development.

1.2.3 Trade diversification, economic integration, and tourism

The Act East Policy has had significant implication for Northeastern India, a region strategically positioned at the crossroads of India's Act East engagement making it an integral part of regional economic integration [33]. The current state of trade between Northeast India and ASEAN accounts to a meager 5%, a region geographically positioned to ASEAN countries and at the core of India's Act East Policy completely underutilizing the region [33]. The result is the rise of informal economy, rampant narcotics trade, illegal weapons trafficking, and rare animals and poaching [34]. Over the years, the unprotected and porous borders have created informal trade and rise of insurgency. The result is low Foreign Direct Investment (FDI) into Northeast. This leaves the NER at a low level of trade flow when compared to the rest of the country.

The key aims of the Act East Policy is to improve economic cooperation, aimed at integrating regional market that identified and promoted products with high export potential for example the Arunachal Pradesh Kiwi fruit, Assam tea and silk, Manipur's black rice and Meghalaya's turmeric can be unified under single Northeast brand thereby leveraging Geographical Indication Tags (GI) can increase visibility in the international market [35]. The recent 6th ASEAN-India Trade in Goods Agreement (AITGA) Joint Committee Meeting held in New Delhi has been aimed at renewing focus on the importance of Northeast Region as an important player in India's Act East Policy [36]. Despite low trade contribution, there has been substantial amount of coal, limestone, and stone chips from Meghalaya exported to Bangladesh. The other products that are exported are bamboo, tea, handicrafts, forest products, and petroleum from Assam [35].

Tourism industry remains one of the key drivers in the regional integration and development strategy under the Act East Policy. Northeast endowed with nature and rich biodiversity, is famous the one horned rhino at the Kaziranga National Park situated on the southern bank of Brahmaputra, the Manas, Pobitora and Orang sanctuaries are place for endangered species attracting several tourist world over [37]. The region attracts tourists and has potential for generating income and employment in the Northeast. The constraints are the geographical isolation, growing insurgent and militant activities, ethnic strife, and also lack of proper tourism and development policy.

1.3 Conclusion

The Act East Policy is having a national focus, and it shares only 2% of its borders with the Indian mainland and the rest of the 98% with neighboring countries like China, Bangladesh, Myanmar, Bhutan, and Nepal. The Northeast serves as a link between South and Southeast Asia. The geostrategic positioning of the region makes it very important in India's Act East Policy. Over the years, there has been several government funding and initiatives towards the development of the region, for example, the Kaladan Multimodal Transit Transport Project and the ASEAN Highway Project. The Indian government is working on improving air connectivity that can promote economic and tourism between India and ASEAN countries. The Act East Policy has effectively promoted several programs such as promoting educational collaborations such as the India-ASEAN scholarship fostering academic partnerships. In order to facilitate cultural engagement and art forms, several conferences and festivals have been organized. For the Northeastern states, these annual events are way of showcasing India's soft power. The Act East policy has also facilitated cross border trade and investment opportunities

and has led to the establishments of Integrated Check Posts (ICP) and enhancement of border checkpoints. This approach has benefitted various industry, agriculture, textile, and handicraft in the region. The Act East Policy has strengthened ties with ASEAN, ARF, East Asia Summit, Asia Cooperation Dialog, Mekong-Ganga Corporation, and BIMSTEC [38–40]. Since both India and China have overlapping strategic interests in South and Southeast Asia, the economic diversification and engagement not only has a positive benefit towards the Northeast Region but also acts as counter strategy to contain Chinese influence in the Indo-Pacific. India's Act East Policy competes with China's Belt and Road Initiative (BRI) reflecting geostrategic and political rivalry.

India advocates a free and safe Indo-Pacific region based on cooperation and collaboration and rule based order. Through the Act East Policy, India's growing engagement with Japan is noticeable. Overall, India's Act East policy is a proactive approach to India's engagement with South and Southeast Asian countries. Overall, the Act East Policy has shown significant progress in improving connectivity, promoting trade and tourism.

Despite progress, integration of Northeast with the South and Southeast Asian countries as a part of India's Act East Policy is yet to be fully recognized. The Northeastern Region faces issues of concern such as ethnic conflicts, territorial disputes, and cross border insurgency exacerbating tension and negative perceptions about the region. Minimal consultation with the indigenous stakeholders such as the Nagas, Mizo's, and Meiteis have resulted in little success in terms of policies. A comprehensive and regional approach should be the way forward by the Indian government. Most effective way of integrating Northeast India with India's Act East Policy is by education, promoting representation in decision-making, and maintaining peace and stability of the region. Full potential of Act East Policy can be realized until and unless the stability, development, and peace is ensured in the Northeast Region.

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Chapter 4

How China Advocated the Early Stage of the Belt and Road Initiative's Development in Europe

Gustav Sundqvist

Abstract

Shortly after its launch in 2013, Europe became a prioritized geographical region in the development of the Belt and Road Initiative (from now on BRI). This chapter applies the concept of *geopolitical code* to analyze how the BRI's development in Europe was presented in official Chinese reports and media articles during the initiative's first 7 years. The study finds that, in the early stages of the BRI, Chinese official sources advocated using the initiative as a tool to counterbalance U.S. influence in Europe as well as to foster stronger relations with European countries—particularly with states in Central and Eastern Europe.

Keywords: China, BRI, belt and road initiative, geopolitical code, geopolitics, Europe

1. Introduction

Since its introduction in 2013, China's Belt and Road Initiative (from now on BRI) has caused concern in Europe. Many European leaders, media organizations, and citizens are wondering to what extent the initiative is motivated by geopolitical intentions or strategies, denoted as *geopolitical code* in this paper. Given China's opaque political system, this question is not easy to answer. One first step for deepening the knowledge about China's intentions is to investigate how the initiative was advocated in China's open, official media channels during the early stage of the initiative. The aim of this chapter is to deepen the knowledge about how China used geopolitical arguments when advocating for the development of BRI in Europe between 2013 and 2020. To reach this aim, content analysis of official reports and official media is conducted.

2. The belt and road initiative and Europe

China's President Xi Jinping first announced the Silk Road Economic Belt and the Maritime Silk Road during two foreign visits to Kazakhstan and Indonesia in September and October 2013, respectively. The initiative's official name "Silk Road Economic Belt and the 21st-Century Maritime Silk Road" (丝绸之路经济带和21世纪海上丝绸之路) was initially abbreviated as "One Belt One Road" (一带一路),

but the English translation was changed to “Belt and Road Initiative” in 2016 [1]. Geographically, the coverage of the initiative has expanded from peripheral areas outside China such as Central and South East Asia, to Eurasia and then to the whole world ([2], p. 1169). The official purpose of BRI is to promote trade, international exchange, and investment, primarily in infrastructure. Institutions such as the Silk Road Fund and Asian Infrastructure Investment Bank (AIIB) have been established in order to finance BRI-related projects ([3], p. 364). However, corruption, environmental degradation, and political backlashes ([4], p. 4) as well as China’s strict control on capital flows ([5], p. 7; [6], p. 9) imply that there are limits to the further expansion of BRI.

Since China focused on integration with the European economies during the early stage of the BRI, the Eurasian land bridge to Europe through Russia and Central Asia was an especially important part of the project during this time period. The Eurasian land bridge was facilitated by the existence of several regional institutions such as the 16 + 1 initiative, which existed between 2012 and 2019 (after which it continued to exist in other forms), which included China and countries in Central, Eastern, and Southeastern Europe, as well as the Shanghai Cooperation Organization (SCO), which mainly includes former Soviet republics ([7], p. 256). During the 2010s, BRI developed in parallel with a rapidly growing economic exchange between China and Europe. China’s outbound investment in Europe increased from 100 million EUR in 2010 to 11.7 billion EUR in 2019, with a peak of 37.3 billion in 2016 ([8], p. 9). Although the USA remained a more important partner to Europe in fields such as technology and accumulated FDI stocks ([9], p. 22), China surpassed the USA as Europe’s largest external trading partner in 2020 [10].

From the start of the initiative, the expansion of BRI and the rapid increase of China’s economic activities in Europe has caused concerns on the continent. China’s acquisitions of foreign special technology ([11], p. 7), its extensive use of industrial espionage ([12], p. 6), and Chinese companies’ tendency to target business fields that are protected from foreign investment in China were factors that made many European leaders more critical to Chinese investments during the 2010s ([13], p. 6). The trade war between USA and China that started in 2018 did also have spillover effects on the EU’s China relations ([9], p. 27). Surveys show that the attitudes of most Europeans toward China started to deteriorate during the 2010s ([14], p. 181). In 2020, more than 60% of respondents in Spain, France, and Italy and more than 70% of respondents in the UK, Sweden, the Netherlands, Germany, Belgium, and Denmark expressed that they have an unfavorable view of China ([15], p. 9).

2.1 What drives China’s economic initiatives in Europe?

Many Europeans’ concerns with BRI have from its start been related to uncertainties about if and to what extent the initiative is motivated by China’s geopolitical considerations. Geopolitics has traditionally been understood as the scientific assessment of geographical conditions underlying the power of states or the balance of power in the international system ([16], p. 3). “Geopolitical code,” the more limited concept that is the focus of this study, describes assumptions about a state’s interests in the world, potential threats to them, and feasible responses. A state’s geopolitical code can be assessed based on five calculations: (a) *Who are our current potential allies?* (b) *Who are our current potential enemies?* (c) *How can we maintain our allies and nurture potential allies?* (d) *How can we counter our current enemies and emerging threats?* (e) *How do we justify the four calculations above to our public, and to the global community?* ([17], p. 51).

China watchers have still not mapped out to what extent and how geopolitical code motivates the development of BRI neither in Europe nor in the world at large. From its launch, the initiative was probably at least partly driven by domestic economic factors. China's dependency on the export-oriented manufacturing sector, and the need to cool down the country's investment driven economy, have been suggested as reasons behind the surge of Chinese investments in Europe ([18], p. 701). The euro crisis did also temporarily lower European leaders' political resistance to Chinese investment and consequently enabled Chinese companies to find bargaining opportunities ([19], p. 300).

It is relatively uncontroversial that the launch of BRI was at least partly driven by geopolitical motives such as increasing the political stability in Central Asia and facilitating China's cooperation with other developing states ([20], pp. 110–111). From its start, some scholars have also perceived BRI as a tool aimed to balance American influence, not least in Europe ([21], p. 96; [22], p. 794; [23], pp. 488–500). BRI has been described as a development-oriented global governance model in contrast to a US-led more security-oriented model ([7], p. 253), a counterattack on US trade initiatives such as the TTP and TTIP ([3], p. 365), and a tool to reduce China's vulnerability to coercive economic pressure from the West, particularly the USA ([4], p. 2). On the other hand, some scholars have perceived the anti-US design of BRI as exaggerated since the initiative is officially open to American involvement ([20], p. 116) and since China, while intending to reform institutions such as World Bank and the IMF, largely has benefited from the US-led global order ([24], p. 839).

In addition to forcing a gap between USA and Europe, observers have been worried that BRI is designed to increase European fragmentation using “divide and rule” tactics. The Chinese government was for instance initially unwilling to deal with the EU as one single union on BRI-related issues ([25], p. 10). As a consequence, there has been a conflict between countries participating in initiatives such as 16 + 1/17 + 1 and countries that want to handle China collectively through the EU ([26], p. 132). During the 2010s, Eastern European countries were especially active participators in BRI ([27], p. 288) and were signing MOUs with China to a greater extent ([9], p. 26). The notion that China wants to divide Europe has been fueled since the former has used carrots and sticks to influence European countries on issues such as the possible granting of Market Economic Status (MES), receptions of the Dalai Lama ([14], pp. 174–178), and the management of the Covid-19 crisis ([28], p. 6). Moreover, during the 2010s, China did not demonstrated much antagonism against the EU but rather disappointment in the union's capacity ([2], pp. 1164–1166).

As noted in the aforementioned section, the literature on BRI is extensive and the concept of geopolitical code has been used to investigate the motives underlying BRI in previous studies [21, 29]. However, previous research has not investigated how BRI has been advocated with geopolitical arguments in official Chinese reports and newspaper articles. Thus, this study will contribute to the discussion on the geopolitics of BRI by filling this research gap.

3. Method, material, and analytical questions

The prime method used in this paper is qualitative content analysis of two kinds of material: (1) official reports issued by high-ranking Chinese governmental bodies and

(2) articles published on official Chinese media platforms.¹ Documents that discuss the development of BRI as well as those that discuss China's relations to Europe have been included in the material. Five official reports have been selected based on their thematic relevance and their authoritative senders. The authority of official documents such as the Party Congress Report makes them suitable "for understanding what Beijing intends and how its objectives fit together" [30]. As this chapter focuses on the early stage of BRI's development in Europe, only articles published between 2013 and 2020 were selected.

It is important to note that any geopolitical code guiding BRI may be constructed in order to expand incrementally and lead to a not yet defined geopolitical identity ([27], p. 289; [31], p. 810). Thus, China's geopolitical arguments used for advocating BRI's development in Europe have also changed over time. Like many important political concepts in China, BRI was initially not well defined but has later been filled with meaning by China's academic and policy communities, a process that tolerates some degree of spread and deviance in opinion ([32], p. 209). Consequently, 36 articles from official newspapers have also been included in the material. As expressed in Appendix, most of these articles are written by prominent Chinese officials or scholars whose authority in the party structure can be perceived as relatively high ([33], pp. 4–5).² Although some proliferation of opinion is allowed, the party's control of official media implies that opinions expressed cannot be too deviant from the officially defined party line ([34], p. 388; [35], p. 53; [36], p. 973). The method used here aims to select articles that are representative of how China's intellectual elite describes the motives behind the development of BRI in Europe.³ Given the discussion in previous research on China's possible attempts to split Europe, particular focus in the method selection and analysis has been directed to how different European regions are described in the Chinese documents. The meaning of important Chinese political concepts has been interpreted based on how Chinese scholars defined them or on how they were used in the CCP's discourse during the selected time period ([30, 33], pp. 2–7). This paper provides definitions to some of the most important concepts.⁴

In order to focus the discussion, the selected text material has been studied based on analytical questions inspired by Flint's definition of geopolitical code. The four main questions are:

¹ Comprehensive lists of the selected reports and articles are presented in Appendix.

² According to Sabine Mokry, statements by Chinese academics can facilitate the understanding of CCP concepts since the Party invests heavily in influencing research topics, since there are many examples of scholars developing Party concepts and since scholars and party officials share socialization and education experiences ([33], pp. 4–5).

³ The search engines of two media platforms closely related to China's Communist Party, the "People's Net" (人民网) and "Qishi Net": (求是网), have been used for selecting the articles. Following the practice of previous similar studies, the first selection of articles has been conducted with the help of key words ([37], p. 597; [38], p. 112; [39], p. 129). In a second step, only articles that provide answers to any of the four analytical questions presented in method section have been included in the final material. Please contact the author if you are interested in a comprehensive description of how the articles were selected.

⁴ While all quotations in the analysis section have been translated from Chinese to English by the author, I have based the translations of the official reports on translations provided by Chinese governmental agencies.

1. What are the main justifications behind developing BRI in Europe?
2. In the development of BRI in Europe, who are considered as potential enemies?
How should these enemies be countered?
3. In the development of BRI in Europe, who are considered as potential allies?
How should these allies be maintained and how are new allies nurtured?
4. Which differences are expressed regarding how BRI should be developed in different European regions?

4. Analysis

The analytical questions have been used to categorize statements and opinions. In a second step, a more inductive approach has been used to identify different sub-topics related to each analytical question. The most important of these sub-topics are presented in the analysis section below.

4.1 What are the main justifications behind developing BRI in Europe between 2013 and 2020?

In the official reports, BRI is justified as a tool for handling a number of global challenges such as de-globalization, sluggish growth, and insufficient investment in infrastructure [40, 41], Multipolarity, free trade, and “major country diplomacy with Chinese characteristics” are mentioned as important methods for handling these challenges [40, 42].⁵ The stated main goals of the initiative are to promote mutual development, mutual respect, peace and ecological sustainability, and utilities that are summarized in the concept “community with a shared future for mankind” [42].⁶ In the BRI report from 2015, Europe is described as a “developed European economic circle” and the new Eurasian land bridge, the prime BRI project connecting Europe and China, is mainly motivated as a way to improve the economy in China’s inland provinces [40]. Europe is described as representing an important part of the BRI, not least since the routes of the ancient Silkroad have inspired the main infrastructure projects of the initiative ([41], p. 9). BRI is not mentioned in China’s Policy Paper on the EU [45] but is an important topic in a later policy paper from 2018 in which the Chinese side mainly emphasizes the economic aspects of the initiative [46].

A common argument expressed in the official newspaper articles is that the development of BRI in Europe is not motivated by geopolitical considerations [47–54]. In their respective articles Zhang Xin, an associate professor at Tongji University, and Yao Qinhu, former Director of the World Chinese Studies Institute at Shanghai Academy of Social Sciences, argue that BRI is fundamentally different from Europe’s

⁵ According to Cui Shunji, associate professor at Zhejiang University, the heart of the New Model of Major-Country Cooperation refers to “China’s desire to avoid the old pattern of competition and conflict between rising and status quo powers.” In a meeting with USA’s President Barack Obama in 2013, China’s President Xi Jinping summarized the content of the concept as “neither a confrontation nor a conflict; mutual respect; and win-win cooperation” ([43], pp. 239–240).

⁶ See Wang Yi [44] for a definition of the concept “Community of Shared Future for Mankind.”

colonial expansion as well as from the newer Marshall Plan. According to Zhang, the core of BRI is to promote economic development and economic integration while the essence of the Marshall plan was to enforce the USA's geopolitical position and isolate its socialist enemies. Both Zhang and Yao emphasize that BRI, unlike the Marshall plan, is unrelated to political conditions. Although Zhang seems to believe that BRI has a strategic political dimension, mainly through fostering peace and cooperation, he does not admit that BRI aims to improve China's geopolitical position. The writers suggest that BRI, unlike earlier global initiatives developed by the West, is cooperative and promotes equality.

The official articles justify the development of BRI by pointing at the multipolarity, altruism, and recipient orientation of the project. For instance, the following parable is used for describing the development of BRI: "it is not China that alone cuts the cake and has the largest piece for itself but the countries on the road that together make the cake larger" [49], and China is described as "not building its own back garden, but building a garden shared by all countries" [47]. The development of the health-related part of BRI, "the Health Silk Road" (健康丝绸之路), globally as well as in Europe is also justified as a way to combat the COVID-19 pandemic [55–57]. The adjustability to the different conditions in the cooperation countries is also raised as an advantage with BRI [58, 59]. According to Li Xiangyang, researcher at the Chinese Academy of Social Sciences (CASS), BRI's flexibility implies that it is more efficient than many other international institutions. The rule-based governance of previous economic projects is perceived as troubling, especially for developing countries that may struggle to meet legal demands. In contrast, BRI is described as enabling different forms of cooperation mechanisms, such as 17 + 1, that are based on countries' different conditions [58].

4.2 In the development of BRI in Europe between 2013 and 2020, who are considered as potential enemies? How should these enemies be countered?

None of the official reports point out any particular geopolitical adversaries. However, there are expressions that can be interpreted as examples of China's growing enmity to USA in the documents. "The cold war era mentality" and "power politics" are rejected, and partnerships are advocated instead of alliances [42].⁷ "Ideas of openness and cooperation" are perceived as under threat [41]. The EU policy paper from 2018, which was published after the start of the China-USA trade war the same year, mentions that the world is "witnessing growing instabilities and uncertainties, with unilateralism, protectionism and de-globalization on the rise" [46]. This formulation did not appear in the previous EU policy paper from 2014 and is likely a reference to what is perceived as Donald Trump's aggressive and unfair trade policies.

Some of the official newspaper articles are openly stating that the American led international order disfavors many countries, not least in Europe. A number of writers argue that an advantage with BRI is that it may make Europe more independent from the USA [61–64]. According to Zhao Yongsheng, Professor at University of International Business, Europe cannot immediately welcome Chinese initiatives since it has historically close relations to the USA and since it is an "important pillar of the

⁷ Shi Yongming, *associate research fellow at the China Institute of International Studies*, refers to the Cold War era mentality as "the United States' attempt to forge a military bloc based on ideological grounds to settle the 'security threat'" ([60], p. 2).

Western camp”. However, Zhao as well as Jia Jinjing, researcher at Renmin University of China, hope that Europe will be more willing to join BRI as a result of the Trump administration’s trade-related attacks on European countries [64]. Wang Yiwei, Director of the European Union Research Center of Renmin University of China, argues that the present world order benefits the USA at the EU’s expense not least since the USA is economically more integrated with Asia. By integrating closer with BRI, Wang argues that Europe can increase its economic development by creating a larger Eurasian market. Instead of isolating Russia through the US-dominated NATO, Wang argues that Europe should use BRI in order to develop its relations with Russia, since “reconciliation with Russia is a corner stone for stability in Europe” [63].

In addition to the USA, there are also attitudes and ideological forces that are perceived as threats to BRI and China. Although most writers agree that the main responsibility for making BRI more appealing for Europeans rests on China, some argue that the attitudes of Europeans also need to change. In one article, Mei Xinyu, researcher at the Ministry of Commerce, lifts the public outcry against the Chinese acquisition of the French resort company Club Med in 2015 as an example of unacceptable European behavior: “When Chinese companies go abroad, they will encounter all sorts of risks and they will have to adapt. However, this does not mean that they have to receive unjust, and even illegal attacks. We have to educate the host countries about impartial economic rules” [65]. According to Lin Deshan, Professor at Fudan University, the multilateral and mutually beneficial character of BRI can also mitigate the spread of populism in Europe. Lin links populism to other unwanted schools of thought such as unilateralism, protectionism and racism, and perceives it as a threat that may even spread to China’s domestic politics [47].

4.3 In the development of BRI in Europe 2013 to 2020, who are considered as potential allies? How should these allies be maintained and how are new allies nurtured?

The EU policy papers describe the European Union as a contributor to multipolarity and economic globalization. EU is portrayed as an indispensable partner to China and the development of a sound relationship between the two polities is described as a priority of China [46]. Human exchange is described as an important method for increasing public support for BRI: “People-to-people bond provides the public support for implementing the Initiative. We should carry forward the spirit of friendly cooperation of the Silk Road by promoting extensive cultural and academic exchanges, personnel exchanges and cooperation, media cooperation, youth and women exchanges and volunteer services, so as to win public support for deepening bilateral and multilateral cooperation” [40]. Exchanges between political parties and cities are encouraged, and major cities are stimulated to develop sister city relations with their equivalents in BRI countries [40]. Nongovernmental exchange between, for instance, NGOs, think tanks, and media is also mentioned as an important tool for increasing public support for BRI [40, 41].

That being said, the China policy paper on the European Union (2018) also emphasizes that media, although welcome, should abide by Chinese norms when operating in China. “It is believed that media professionals should observe their professional ethics, and oppose and combat fake news and illegal online content. China will continue to provide facilitation for EU correspondents in China in accordance with laws and regulations and hopes that the EU will play a positive role in facilitating objective, impartial and accurate coverage of China by media in EU member states” [46]. Such a section

was not present in the previous policy paper from 2014. Although all reports advocate for China to respect the different development paths of countries as well as noninterference in each other's internal affairs, they also quite clearly emphasize China's right to protect its own interests: "China will never pursue development at the expense of others' interests, but nor will China ever give up its legitimate rights and interests. No one should expect us to swallow anything that undermines our interests" [42].

Compared to the official reports, the media articles provide more detailed suggestions on how BRI should be made more appealing for Europeans. These ideas are rooted in how Chinese academics and policy professionals perceive Europe. The continent's political, social, and economic situation is generally put in a relatively negative light. The EU is considered to have dealt poorly with COVID-19 [56]. The rise of protectionism, conservatism, and populism are perceived as threats to Europe's stability [47, 66], and non-EU countries in Central and Eastern Europe are described as vulnerable to economic and political risks [67–69].

Considering the perceived weakness of Europe, some of the article writers recognize that the BRI is a source of concern to many Europeans [61, 64]. Zhao Yongsheng admits that China's manufactural strength threatens Europe in the field of economic competition. However, he believes that the economic advantages for Europe outweigh the disadvantages. According to Zhao, BRI will likely lead to an economic injection on the demand side of Europe's economies and consequently create more job opportunities, particularly in the more developed European economies. According to Zhao, the best way to limit European worries about BRI is to "let interest speak!" (让利益说话). The writer believes that Europeans will be much more positive to BRI as soon as they see the economic benefits related to the initiative [64]. In line with Zhao, other writers also believe that European countries will eventually integrate closer with BRI in order to gain economic benefits [50, 62, 63]. Zhao Lei, Director of the Central Party School, argues that the COVID-19 pandemic will increase European countries' need for health-related cooperation with China and consequently make BRI stronger [56].

Many writers emphasize the benefits of BRI [70, 71] or its applicability to local contexts [58, 59, 72, 73] as important condition for its success. Wang Yiwei provides some concrete advice on how BRI could be packaged rhetorically in order to make Europeans more positive to the initiative [74]. In contrast to Teng Wensheng who argues that references to the ancient silk road can be an important method for promoting BRI [75], Wang Yiwei holds that BRI should be presented as a contemporary and modern economic project. The reasoning behind this is that references to historic civilizations may remind Europeans of the continent's complicated history and thus create discomfort. Wang Yiwei discourages Chinese officials from describing the BRI as a "strategy" (战略) as he considers the term to have a one-sided connotation. Instead he suggests "plan" (计划). Finally, he notes that the multiparty and multi-governance systems in Europe, standing in contrast to China's "strong state weak society model," means that China must communicate with actors on all levels in the European society, for instance, local governments and chambers of commerce [74].

4.4 Which differences are expressed regarding how BRI should be developed in different European regions between 2013 and 2020?

Although BRI during the first phase of the initiative grew in scope to the extent where it after 5 years covered the whole world including cyberspace ([31], p. 815), the focus of the initiative was still on Eurasia. For instance, all of the six economic corridors described in "Building the Belt and Road: Concept, Practice and China's

Contribution” are located in Eurasia, and particularly in the developing parts of the continental area. Among the economic corridors, the New Eurasian Land Bridge Economic Corridor is the only one that covers parts of Europe, and it mainly focuses on the Eastern part of the continent [41]. BRI's focus on low- and middle-income countries follows the guidelines developed in the Party Congress Report stating that: “China will increase assistance to other developing countries, especially the least developed countries, and do its part to reduce the North-South development gap” [42]. According to China's policy paper on the EU from 2018, China welcomes a united Europe and supports the European integration process. However, the report mentions Central and Eastern Europe as regions where China has been involved in especially deep cooperation [46].

The official media articles also describe countries in Central and Eastern Europe, and to some extent countries in Southern Europe, as especially important to the development of BRI, not least the development of the New Eurasian Land Bridge Economic Corridor [58, 62]. According to Ding Chun, Director of the Center for European Studies at Fudan University, larger European states such as Germany and France are more suspicious toward the BRI. However, he still believes that larger countries, motivated by economic benefit, will also involve themselves more in BRI: “larger European countries have concerns about BRI, but they are not far behind, and they are eager to catch the ‘One Belt, One Road’ express train” [61]. Among larger European countries, Italy, which signed an MOU on participation in BRI 2019, is perceived as especially important [76]. In 2015, Wang Yiwei even speculated that the country might join the 16 + 1 cooperation platform, but this has so far not happened [77].

Countries in Central and Eastern Europe are often termed “developing countries” (发展中国家) [47, 66], a term that Party Congress Report uses for less economically developed states that China should support. The relations between China and countries in this part of Europe are described as characterized by high levels of trust, not least since the countries are perceived as respecting each other's development models [78]. China's relations to countries in the Visegrad Group (Czech Republic, Hungary, Poland and Slovakia) are considered especially important [44, 67, 79]. Both Poland and Hungary are described as being increasingly willing to cooperate with China as the EU is considered to have refused the countries sufficient support for developing their economies [44, 67].

The 16 + 1/17 + 1 initiative is generally described as BRI's prime institutional platform in this region [78, 80, 81]. The cooperation platform is raised as a prime example of how BRI institutionally applies to different national circumstances [48, 58], and it is raised as a template for other similar institutions such as the 10 + 1 initiative with the ASEAN-countries in South East Asia [77, 80].

Wang Haifeng, researcher at the National Development and Reform Commission, argues that China should focus on investing in Eastern and Central European EU countries in order to access the European market as well as in order to push forward the discussion on a new EU China investment agreement [81]. Although many writers raise the 16 + 1/17 + 1 institution as a model for the institutionalization of BRI, Wang Yiwei argues that neither the developed nor the developing parts of Europe should be given special benefits as that would give the impression that China tries to split Europe [48]. Instead, the argument is that China's deep cooperation with Eastern Europe will lead to more integration on the continent [80].

Wang Haifeng also advocates for China to focus more on investing in non-EU countries in Eastern Europe. Not being bound by EU's legal framework, Wang

believes that there are more investment opportunities and greater space for success in these countries [81]. Among non-EU countries in Europe, the description of China's relations to Serbia stands out as the cooperation between these two countries is considered especially fruitful. Serbia is described as a leader among European non-EU countries involving themselves in the BRI, as an "iron friend" (铁哥们) and as "a good brother" (好兄弟) to China [48, 66]. Chu Yin, Professor in Public Administration, notes that one advantage of this cooperation is that Serbia is not tied by EU's legal framework and consequently more independent in its relations with China. He also notes that Serbia, unlike many Central European states, still has many characteristics of a command economy. Consequently, Serbia's economic structure is perceived as relatively familiar to many Chinese state-owned companies that facilitates Chinese investment. Thus, China can use Serbia as a training ground for investment in Europe, as the country is culturally European but still shares some institutional similarities to China [82]. However, some writers such as Wang Peng, researcher at Qinghua University, argue that investment in politically unstable countries such as Serbia also implies certain risks that Chinese actors should be more conscious of. According to Wang, Serbia's economic problems, high unemployment rate, as well as the Kosovo issue can lead to political instability that in the worst case may endanger the security of Chinese citizens in the country [69].

5. Conclusion

Although the concept of geopolitical code has been used for investigating BRI in previous studies, earlier research has not studied how official Chinese documents use geopolitical arguments when advocating for the development of BRI in Europe between 2013 and 2020. In the official newspaper articles, a common argument is that BRI, unlike other similar projects such as the Marshall plan, in fact does not have geopolitical motives. However, a close reading of official documents indicates that geopolitical arguments are integrated parts of how the project is advocated.

The official documents criticize currents of ideas and international trends associated with the USA's international politics, and several writers argue that one advantage of BRI is its potential to make Europe more independent from the USA. While the texts express an intention to balance the USA's power, they also express an intention to use BRI as a tool for developing better relations between China and Europe. The writers raise different methods for reaching this aim such as adjustment to Europe's multi-level governance system, rhetorical considerations of Europe's political discourse, and provision of mutual economic benefits. That being said, many formulations in the official documents emphasize that China should not tolerate any treatment that counteracts its national interests. The empirical examples of China's political behavior in Europe, which include a wide toolkit of both carrots and sticks, might be an outcome of this somewhat contradictory strategy ([14], p. 182).

Finally, although BRI quickly expanded to cover the whole world, most of the official documents published between 2013 and 2020 still treated Eurasia as the focus region of the project. Consequently, the Central and Eastern parts of Europe, not least non-EU countries such as Serbia, are described as especially important participants in the BRI. Official newspaper articles describe $16 + 1/17 + 1$ as a model for how BRI can be institutionalized and applied to different national contexts.

Appendix. How China advocated the early stage of the Belt and Road Initiative's development in Europe

See **Tables 1** and **2**.

English title	Source	Date of publication
The 19 th Party Congress Report*	Xi Jinping	18 October 2017
Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road	National Development and Reform Commission, Ministry of Foreign Affairs and Ministry of Commerce	28 March 2015
Building the Belt and Road: Concept, Practice and China's Contribution	Office of the Leading Group for the Belt and Road Initiative	May 2017
China's Policy Paper on the European Union	Ministry of Foreign Affairs	18 December 2018
China's Policy Paper on the EU	Ministry of Foreign Affairs	2 April 2014

**The full name of the report is: 'Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era'.*

Table 1.
Governmental reports.

Article	English title	Author	Author's profession	Date of publication
Article 1.	China-Serbia Cooperation can be an Example for China-EU Cooperation	Chu, Yin	Researcher at the University of International Relations	June 6, 2016
Article 2.	Europe has Become an Active Participator in the "Belt and Road" Initiative	Ding, Chun	Director of the Center for European Studies at Fudan University	January 26, 2018
Article 3.	Building the Belt and Road and Creating a Bright Future	Guo, Jiping	Anonymous commentator at People's Daily	April 19 2019
Article 4.	The "Belt and Road" Charm Index Continues to Rise in Europe	Han Bing, and Yang Yimiao	Journalists	January 14 2019
Article 5.	Bright Spots of China's Investments in Europe	Han, Bingzhen, Dong Liu, and Peizhao Huang	Journalists	April 4, 2015
Article 6.	The "Health Silk Road" a Life Convoy	He Yin	Journalist	March 24 2020
Article 7.	Why has Europe Become More Enthusiastic about the Belt and Road Initiative?	Jia, Jinjing	Assistant Dean at Renmin University	April 8, 2019
Article 8.	Building a « Strategic Fulcrum » for China-EU Cooperation	Li, Huiming	Associate Professor at Jinan University	March 30, 2016
Article 9.	The Belt and Road Initiative Facilitates Serbia's Reindustrialization	Li, Manzhang	Former Chinese Ambassador to Serbia	May 8, 2017

Article 10.	Discussion of the Development Orientation and Characteristics of “One Belt One Road”	Li Xiangyang	Researcher at CASS	January 25, 2019
Article 11.	New Trends in International Populism	Lin, Deshan	Professor at Fudan University	December 18, 2016.
Article 12.	Europe Should not Make Adverse Selections of Chinese Investment	Mei, Xinyu	Researcher at the Ministry of Commerce	January 09, 2015
Article 13.	The Creation of « 16+1 » Means a New Phase of Cooperation and Win-win	Anonymous writer	Anonymous writer at People’s Daily	November 21, 2015
Article 14	Hungary looks Forward to Putting Wings on Development	Ren, Yan, and Li Zengwei	Journalists	June 23, 2015
Article 15	People’s Daily News: The Ancient Silk Road and the Belt and Road Initiative	Teng, Wensheng	President of the International Confucian Federation	April 24 2019.
Article 16	China-Central and Eastern European Countries Cooperate to Facilitate the Construction of the Belt and Road Initiative	Wang, Haifeng	Official at National Development and Reform Commission	February 23, 2018
Article 17	People’s Daily International Forum: “Chinese Seed” Light up the Milan Expo	Wang, Haoqing	Deputy Secretary-General of the China Enterprise Joint Pavilion at the 2015 Milan Expo	June 08, 2015
Article 18.	An Investigation of the Political Risks of One Belt One Road Investment in Serbia	Wang, Peng	Researcher at Tsinghua University	October 15, 2015
Article 19.	Why the Belt and Road Initiative is so Popular (Wanghailou)	Wang, Junling	Commentator at People’s Daily	December 06, 2018
Article 20.	Prime Minister of Italy: “One Belt One Road” Initiative Brings New Opportunities to Italy	Wang, Xingqiao, and Luo Na	Journalists	May 12, 2017
Article 21.	“The 16+1 Cooperation” will Become a Model for “Belt and Road”	Wang, Yiwei	Director of the European Union Studies Center at Renmin University of China	November 25, 2015
Article 22.	How Should We Talk with Europeans about the “Belt and Road”?	Wang, Yiwei	Director of the European Union Studies Center at Renmin University of China	July 15, 2015
Article 23.	The Belt and Road Initiative is an Opportunity for the Revival of the European Civilization	Wang, Yiwei	Director of the European Union Studies Center at Renmin University of China	May 06, 2015

Article 24.	What is the Significance of the China-Poland Comprehensive Strategic Partnership?	Wang, Yiwei	Director of the European Union Studies Center at Renmin University of China	June 06, 2016
Article 25.	People's Daily New Theory: "One Belt One Road" Transcends Geopolitics	Wang, Yiwei	Director of the European Union Studies Center at Renmin University of China	June 24, 2016.
Article 26.	International Perspective: China Diversify its Investment in Europe	Wu, Gang	Journalist	October 29, 2014
Article 27.	Hungary has Unique Advantages	Xiao, Qian	Former Chinese Ambassador to Hungary	May 18, 2015.
Article 28.	Serving the Belt and Road Initiative and Promoting Financial Integration	Xie Duo	Chairman of the Silk Road Fund	June 5, 2019
Article 29.	European Geo-economy and the "One Belt One Road" Strategy	Yao, Qinhua	Researcher at the Graduate School of Shanghai Academy of Social Sciences	March 14, 2015
Article 30.	Overseas Version of Wanghailou: The Pragmatic Cooperation between China and East-Central Europe Strides Forward	Zhang, Jian	Director of the European department at the China Institutes of Contemporary International Relations	November 27, 2017
Article 31.	The Relations between China and East-Central Europe Enters New Development Opportunities	Zhang, Jian	Director of the European department at the China Institutes of Contemporary International Relations	November 27, 2017
Article 32.	Analysis of the People's Daily: "One Belt One Road" is Fundamentally Different from the Marshall Plan.	Zhang, Xin	Associate Professor at Tongji University	March 18, 2015
Article 33.	Building a Healthy Silk Road to Facilitate the Health of the Human Community	Zhao Lei	Director of the Central Party School	November 19, 2020.
Article 34.	Where is Europe's Heart for the "Belt and Road"?	Zhao, Yongsheng	Professor at the University of International Business and Economics	July 12, 2018.
Article 35.	Accelerate the Construction of the Health Silk Road	Zheng Dongchao	Associate Researcher at the Center for Contemporary World Studies	September 11 2020.
Article 36.	The Belt and Road Initiative, Broader and Broader (Quick Review)	Zhi Xiang	Journalist	November 16 2018

Table 2.
Articles in official media.

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Future Transportation Development Strategies for High-Population-Density Cities in East Asia

Congying Li and Gengze Li

Abstract

Urban transportation infrastructure, as a vital component of urban infrastructure, plays a significant role as the carrier of urban economic activities. It connects various areas within the city, ensuring the smooth flow of people, goods, and information, thereby supporting economic activities across multiple sectors, including commerce, industry, and services. However, in East Asia, large and mega central cities are confronting a series of issues stemming from high population density and enormous population size, such as environmental pollution, disorder, infrastructure overload, and imbalances in the input and output of energy and material flows. Among these, traffic congestion not only wastes people's valuable time but also increases the cost of urban operation, reduces overall production efficiency and quality of life, and has become a major constraint on sustainable urban development. More challengingly, in East Asia, population and public facilities are highly concentrated in the urban core areas, making land resources in the main urban zones scarce and expensive. This renders traditional solutions for effectively alleviating traffic congestion through large-scale construction of new urban roads difficult to implement. Given the limited and exceedingly valuable land resources, efficiently utilizing existing roads and transportation infrastructure has become a major challenge for urban managers.

Keywords: public transport, East Asia, urban traffic, traffic congestion, transportation infrastructure

1. Introduction

Transportation constitutes one of the most pivotal human activities within urban contexts, with its developmental trajectory profoundly intertwined with the evolution of urban forms [1–3]. From historical progression to emerging future trends, transportation systems not only facilitate the movement of populations and resources but also actively shape urban economic structures, social equity paradigms, and spatial configurations through multidimensional interactive mechanisms [1, 4–7]. In the social dimension, transportation acts as a lever for equitable resource distribution, with its accessibility

directly influencing systemic fairness [8, 9]: Geographical disparities in transportation infrastructure perpetuate educational inequalities, as prolonged commuting times in remote areas disproportionately affect students' academic opportunities and attendance rates; emergency medical accessibility demonstrates a negative correlation with traffic network density, whereby sparse transportation grids increase ambulance response times and exacerbate health outcome disparities; furthermore, the positive relationship between universal design compliance in transit systems and disability employment rates underscores how barrier-free mobility infrastructure functions as a critical enabler of socioeconomic inclusion for marginalized groups.

In the context of East Asia, one of the world's most densely populated regions, urban population densities frequently exceed international warning thresholds. The Tokyo metropolitan core exemplifies this phenomenon with over 14,000 residents per square kilometer, while the Seoul Metropolitan Area surpasses 16,500/km² and Hong Kong Island reaches an extreme concentration of 64,700/km². This spatial compression directly results in transportation systems operating at chronic overload capacity. Since the twentieth century, East Asia has undergone accelerated industrialization and urbanization processes, with manufacturing booms in Japan, South Korea, and China generating substantial employment opportunities that attracted rural-to-urban migration. Global economic centres like the Tokyo Metropolitan Region and the Yangtze River Delta Urban Agglomeration emerged as demographic magnets, exacerbating population concentration. As hubs for resource allocation, these megacities consolidate premium educational, medical, and financial assets, creating a 'population suction effect' that persists despite exorbitant housing costs and living expenses. Case studies demonstrate this pattern: Ulaanbaatar concentrates nearly half of Mongolia's population; the Kanto Plain (Tokyo metropolitan area) houses 25% of Japan's populace within 2% of its land area; and China's Yangtze River Delta and Pearl River Delta regions have become global density hotspots due to geographical advantages and reform policies. Such economic agglomeration generates extreme consequences, as evidenced by Ulaanbaatar's 2020 statistics showing vehicle numbers tripling road capacity (**Figure 1**), resulting in average speeds of 0–5 km/h during peak hours on major arterial roads.

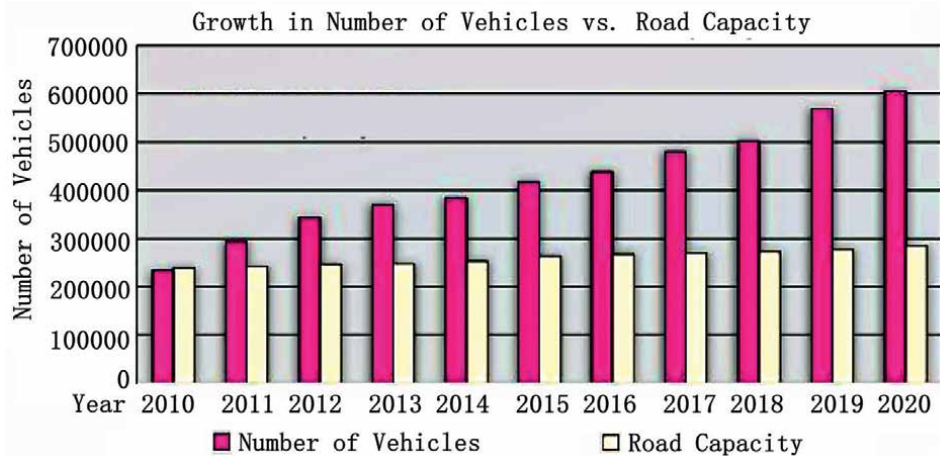


Figure 1.
The ratio of Ulaanbaatar's road network capacity to vehicle number growth (Data source: National Statistical Office of Mongolia).

Urban transportation issues have become increasingly prominent, leading to a series of problems such as traffic congestion, overwhelming infrastructure, environmental pollution, deterioration of public health, and other urban social, environmental, and economic issues, which have had a negative impact on the overall economic operation of cities [10]. For example, **Figure 2** shows that although, in the initial stage, increasing city size has a positive effect on agglomeration economies, the negative effect will appear when it crosses the inflection point [11]. To address these challenges, scholars have proposed a range of solutions, including the conceptual frameworks of “optimal urban form” and “optimal city size” [11–15].

While these theories have gained widespread acceptance and development in European and other developed countries [15], East Asia cannot replicate these experiences wholesale. This discrepancy arises because per capita resource endowments in East Asia, particularly in terms of urban public resources (such as medical and educational resources per capita), lag significantly behind those of developed European nations.

The formation of high-density urban populations in East Asia must be understood within the unique framework of regional development paradigms. While Western urban planning theories provide critical reference points for global urbanization, their applicability faces significant contextual constraints in East Asia. Consider Europe’s developmental trajectory, which unfolded over centuries of industrial revolution, resulting in core resource indicators such as medical beds per capita and tertiary education enrolment rates far exceeding those in East Asia. OECD data reveals that EU countries maintain three to five physicians per 1000 population, whereas major East Asian urban agglomerations typically fall within the two to three range. Regarding tertiary education resources, while Tokyo and Seoul host world-class universities, their gross enrolment ratios lag 10–15 percentage points behind European metropolitan regions like Berlin and Paris. This generational gap in resource endowments fundamentally limits East Asian cities’ ability to replicate Europe’s “low-density sprawl + welfare homogenization” development model.

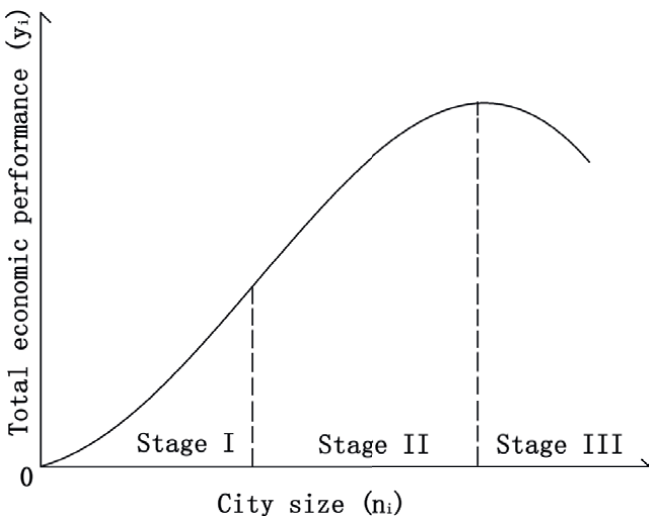


Figure 2.
The relationship between city size and agglomeration economies [11].

Survival logic under resource constraints has engendered distinctive spatial production modes. Confronted with limited per capita resource allocations, East Asian cities have pursued vertical expansion to transcend two-dimensional spatial limitations. Singapore's public housing system achieves intensive population settlement through super-tall buildings exceeding 50 floors, while Hong Kong maintains its status as a global financial hub with the world's highest architectural density (27,000 residents/km²). This intensification extends beyond physical space to public service provision: Tokyo's Metropolitan Area Outer Underground Discharge Channel, the world's largest underground floodwater diversion facility, integrates flood control with commercial space utilization. Seoul's Cheonggyecheon Restoration Project transformed an elevated highway into a linear park, combining ecological corridors and historical exhibition zones within a mere 0.8 km width. This "compressed development" model constitutes an institutional response to resource scarcity.

Intensification pathways have profoundly reshaped urban governance paradigms. Under aggregate resource constraints, East Asian cities universally adopt "spatiotemporal folding" strategies: rail transit networks efficiently connect functional nodes, creating cellular layouts combining "employment-housing balance + functional mixing". The Tokyo Metropolitan Region's 2500 km rail network forms the backbone of its "500 m liveability circle" system, enabling residents to access 80% of their daily needs within a 10-minute walk. This spatial organization compels governance innovation, as seen in Shanghai's "15-minute Community Life Circle" initiative, which integrates 12 categories of basic services through digital platforms for precise resource allocation. More critically, this model has cultivated unique urban cultural formations, with Hong Kong's housing evolution from "cage homes" to "nano apartments" reflecting human adaptation mechanisms under spatial compression.

The sustainability of this development pathway now faces new challenges. When intensification encounters emerging variables like population aging and climate change, traditional models reveal vulnerabilities. Seoul's 2030 Urban Masterplan proposes "de-densification" transitions aiming to reduce population density by 15%, while Beijing establishes ecological control lines to delimit urban growth boundaries. These adjustments do not negate the value of intensification but rather signal East Asian cities' exploration of new equilibrium points in the "economics of density"—maintaining spatial efficiency advantages while constructing more resilient Intensification 2.0 models through smart city technologies and green infrastructure innovations. This dynamic evolutionary process represents East Asia's most globally significant urbanization experiment.

2. Necessity to prioritize urban public transit

2.1 The significance and benefits of public transportation

Urban transportation infrastructure constitutes an indispensable component of modern cities, serving as the circulatory system that interconnects diverse urban districts while ensuring the seamless flow of people, goods, and information. This connectivity functions as the cornerstone of economic activity, facilitating commercial, industrial, and service-sector operations that collectively underpin urban development [1, 16]. For instance, efficient transport networks reduce commuting times and enhance logistics efficiency, thereby attracting businesses and investments to further drive economic prosperity.

Beyond its economic role, a developed transportation infrastructure directly enhances residents' quality of life by providing accessible, efficient, and safe mobility environments. Robust connectivity enables equitable access to employment centres, educational institutions, healthcare facilities, and recreational spaces, significantly reducing time-related costs for daily activities. Furthermore, advanced transportation systems mitigate congestion and waiting times through optimized traffic management, fostering better work-life balance while enhancing overall urban liveability. The psychological benefits of safe transportation environments—characterized by reliable infrastructure, low accident rates, and effective crime prevention measures—further contribute to residents' well-being by reducing travel-related stress and insecurity.

Compared to private vehicles, public transport systems demonstrate significant advantages in spatial efficiency and traffic management [17]. According to the American Public Transportation Association (APTA), these systems enable the efficient movement of large passenger volumes within severely constrained urban spaces. This spatial efficiency not only reduces traffic congestion but also diminishes the demand for parking infrastructure, thereby liberating valuable urban land for alternative uses. Furthermore, the evolution of public transport networks has accelerated the adoption of intelligent transportation systems (ITSs), including vehicle-to-infrastructure (V2I) communication frameworks and adaptive traffic management algorithms. These technologies leverage real-time data analytics and optimization protocols to enhance traffic flow dynamics, creating synergistic effects that further mitigate congestion pressures in modern cities.

The development of public transport systems generates substantial economic, environmental, and social benefits. By reducing reliance on private vehicles, these networks contribute to lower carbon emissions and improved air quality, thereby enhancing urban environmental sustainability. Moreover, public transit fosters social equity and inclusivity by providing equitable mobility access across income strata. This parity manifests not only through fare affordability but also *via* comprehensive network coverage that ensures universal accessibility to efficient transportation services, regardless of geographic or socioeconomic status.

Achieving urban sustainability necessitates the establishment of robust institutional frameworks for modern infrastructure development, coupled with continuous improvements in public transit provision. These two objectives operate synergistically as foundational pillars of sustainable urbanism. Modern infrastructure investments create enabling environments for advanced transit operations, while service enhancements increase ridership and operational efficiency. This reciprocal relationship minimizes resource wastage and environmental impacts while bolstering urban competitiveness and enhancing residents' quality of life through more liveable, connected urban spaces.

2.2 Challenges faced by traditional busses and global experiences

2.2.1 Traffic congestion and infrastructure gap

The global decline in traditional bus ridership has accelerated in recent years, a trend sharply exacerbated by the COVID-19 pandemic [18–21]. The public health crisis inflicted severe operational shocks on transit systems, as health concerns prompted widespread reductions in mobility and public transport usage. This downward trajectory persisted even during post-pandemic recovery periods, defying

conventional demand rebound expectations. In China's urban contexts, numerous transit operators have reported consecutive annual operating losses since 2020, with several enterprises struggling to maintain basic operational viability. To quantify this crisis, this study analyzed audited financial disclosures from major Chinese cities, including Beijing, Hangzhou, Xi'an, and Xiamen. The data reveals systemic financial hemorrhaging across these transit systems, with municipal subsidies constituting only a fraction of the required operational funding. This precipitous deterioration has fuelled radical proposals for complete service suspension in certain jurisdictions.

The erosion of ridership directly correlates with catastrophic revenue declines for transit operators, who face static cost structures despite plummeting farebox returns. This imbalance has precipitated a dependency cycle on government bailouts, particularly in Chinese cities where transit agencies operate as quasi-public utilities. Financial disclosures from a representative municipal operator illustrate this crisis: annual operational deficits regularly exceed several hundred million yuan, while municipal subsidies remain constrained to mere tens of millions, creating unsustainable funding gaps. This fiscal pressure manifests in service quality degradation and strategic paralysis, limiting both short-term operational maintenance and long-term infrastructure investments.

Despite these operational challenges, the societal value of traditional bus networks in promoting equitable urban development remains irreplaceable. As backbone elements of public transit infrastructure, busses provide critical mobility access for peripheral communities and economically disadvantaged populations, serving as social equalizers that transcend spatial and economic barriers. This democratization of transport access ensures all citizens share equitably in urban development outcomes, leading to vigorous public debate when radical solutions like service suspension are proposed. Critics argue that busses represent more than mere transportation modes—they symbolize principles of social justice and inclusive governance. Rather than abandoning this system, stakeholders must pursue innovative solutions that reconcile fiscal realities with the moral imperative of maintaining equitable public services.

Global cities now face persistent infrastructure deficits, with chronic traffic congestion emerging as an intractable urban pathology. This systemic failure transcends mere inconvenience, directly undermining economic productivity and eroding quality of life [22]. In China, the vehicle population surged to 430 million units by September 2023, with continued exponential growth trajectories exerting unprecedented strain on urban transportation networks.

This automotive explosion contrasts starkly with the anemic pace of road infrastructure expansion. Entrenched planning inertia and protracted construction timelines have created a yawning supply-demand gap, with road capacity increases failing to match vehicle growth rates by margins exceeding 3:1 in metropolitan regions. Peak-hour gridlock now constitutes a de facto urban condition, with major arterials and intersections experiencing average delay indices exceeding 0.8 during peak periods—a threshold indicative of severe systemic congestion.

The economic costs of this paralysis are multidimensional and substantial. Congestion imposes a regressive time tax on commuters while inflating urban operational costs through wasted fuel consumption and reduced logistical efficiency. Corporate supply chains face compounding delays, with manufacturing sectors reporting 15–20% productivity losses due to transportation bottlenecks. The World Bank estimates that annual global congestion costs exceed \$200 billion, with China's economy alone suffering annual losses equivalent to 1.5% of GDP from time wasted and fuel inefficiencies.

Addressing this crisis demands systemic intervention through three interrelated strategies. First, infrastructure investment must prioritize network augmentation, with strategic corridor expansions and intelligent transportation system (ITS) integration to optimize throughput capacity. Second, smart mobility solutions leveraging AI-driven traffic management and vehicle-to-everything (V2X) communication could reduce congestion by 20–30%, according to McKinsey projections. Third, behavioral interventions promoting modal shift—through transit-orientated development (TOD), micro-mobility integration, and congestion pricing—offer complementary pathways to demand management. Only through such multi-pronged governance approaches can cities reconcile mobility needs with sustainable development objectives in the twenty-first-century urban context.

As a persistent urban pathology, traffic congestion inflicts multidimensional negative externalities far exceeding mere time losses. According to the *Economic Cost of Urban Traffic Congestion in China* (2020), jointly published by the Research Institute of Highway, Ministry of Transport of China, and Tsinghua University Transportation Institute, annual fuel overconsumption attributable to congestion reaches approximately 45 billion liters nationwide—equivalent to the energy output of the Three Gorges Dam's annual power generation. This resource waste directly elevates logistical costs, inflating corporate operating expenses by 12–18% and eroding urban economic competitiveness. More critically, congestion-induced emission increases contribute to 8–15% rises in PM_{2.5} concentrations, exacerbating urban air pollution and creating a dual vicious cycle of environmental degradation and economic inefficiency.

The indirect costs of congestion manifest even more profoundly. Beijing Jiaotong University research reveals that commuters in Beijing lose an average of 115 hours annually to congestion—equivalent to 15 working days. This temporal drain reduces labour productivity and extends enterprise project delivery cycles. At the psychosocial level, University College London's longitudinal study identifies a 3.2-fold higher incidence of anxiety disorders among populations with daily commutes exceeding 90 minutes compared to the general population. Such psychological stress has evolved into systemic social issues in high-pressure cities like Tokyo and Seoul.

The contradiction between scarce urban land resources and escalating traffic demands has become increasingly acute. China's Land Price Monitoring Centre data indicates that prime downtown land prices in first-tier cities are 6.8 times higher than suburban areas, with large-scale road expansion costs exceeding RMB 1.5 billion per kilometer. These resource constraints render traditional “demand-following” transportation supply models unsustainable. Singapore's Land Transport Authority calculations reveal that each kilometer of new expressway only alleviates 0.3% of congestion, with effectiveness lasting less than six months—creating a self-perpetuating cycle of “expansion-failure-re-expansion”.

This structural impasse demands paradigm shifts in urban governance. Strategic interventions must integrate smart infrastructure investments, behavioral demand management, and institutional innovations to break the congestion-pollution nexus while safeguarding economic vitality and social equity.

Therefore, to address urban traffic congestion and the conflict between high travel demand and limited road space, we must focus on improving land and transportation infrastructure efficiency. This includes optimizing urban planning, enhancing traffic management, and promoting intelligent transportation systems for a more scientific and efficient solution [23].

2.2.2 Transport for London's (TfL) financial and operational innovation: A case study in urban mobility governance

Transport for London has achieved fiscal autonomy through a dual-pronged strategy combining revenue diversification and operational efficiency. On the revenue front, TfL pioneered non-fare income streams by collaborating with commercial partners on joint promotional campaigns and monetizing transit system footfall through targeted advertising and retail partnerships. Simultaneously, asset optimization initiatives—including repurposing vacant land parcels and underutilized properties—generated supplementary revenue channels accounting for 18% of total income by 2023. Cost containment measures leveraged big data analytics to rationalize route networks, eliminating 12% of low-performing services while adopting energy-efficient rolling stock that reduced energy consumption by 22% compared to 2015 levels. This dual-track approach not only eliminated reliance on government subsidies but also established a replicable model for global peers, demonstrating how transit agencies can transcend traditional farebox dependency through asset monetization and technology-enabled efficiency gains.

Passenger-centric service design forms the operational bedrock of TfL's success. The multi-tiered transport network integrates subway systems, bus corridors, and micro-mobility solutions, with 97% of Londoners living within 400 metres of a transit stop. Differentiated fare structures—including daily capping mechanisms and contactless payment systems—balance equity between regular commuters and occasional users, while the Freedom Pass programme provides free travel for elderly and disabled residents. Seamless interchange systems reduce average transfer times to under 3 minutes through synchronized timetables and wayfinding technologies. Real-time traffic prediction models, powered by 14,000+ sensors across the network, enable adaptive signal prioritization that has reduced average journey times by 15% during peak periods. These accessibility enhancements have contributed to a 12-point increase in public transport mode share since 2010.

Human capital development underpins TfL's service excellence framework. The organization's Talent Pipeline Programme combines competency-based recruitment with immersive training modules covering operational safety, customer service excellence, and digital fluency. Career progression pathways feature rotational assignments across eight functional domains and leadership shadowing opportunities at the executive level. Performance-linked rewards include profit-sharing schemes where 20% of annual efficiency savings are redistributed to frontline staff, alongside recognition programmes that have reduced employee turnover rates to 8.2%—below the industry average of 14%. This integrated approach has cultivated a workforce with 93% employee engagement scores, directly correlating with service quality metrics.

Digital transformation initiatives have redefined operational paradigms through smart infrastructure deployment. The iBus real-time passenger information system, accessible *via* 28,000 on-street displays and mobile interfaces, provides 98.6% accurate arrival predictions while incorporating accessibility features for visually impaired users. Contactless payment adoption reached 89% of all journeys by 2023, reducing boarding times by 40% compared to traditional ticketing. The TfL Go app integrates multimodal journey planning with carbon footprint tracking, empowering users to make informed mobility choices while generating behavioral insights for network optimization. These digital interventions have elevated operational efficiency indices by 27% since 2018, as measured by the National Transport Performance Benchmark.

Collaborative governance frameworks extend TfL's operational reach through stakeholder co-creation. The Business Partnership Scheme engages 1200+ commercial entities in value-sharing arrangements that co-finance infrastructure upgrades, with participating retailers reporting 15–25% footfall increases post-implementation. Community engagement panels involving 32 boroughs inform route planning through participatory budgeting mechanisms, while the Independent Passenger Panel ensures continuous service improvement through 180,000+ annual feedback submissions. This polycentric governance model—integrating public, private, and civic actors—has enabled TfL to maintain a 92% customer satisfaction rating while navigating fiscal austerity measures, demonstrating that sustainable mobility solutions require institutional agility beyond traditional service provision paradigms.

In the 2023–2024 fiscal year, London's public transport system achieved a surplus of approximately £393 million, marking its successful transition to fiscal autonomy and sustainable development. This financial turnaround reflects the system's recovery from pandemic-induced ridership declines and operational efficiencies realized through structural reforms. The elimination of reliance on government subsidies underscores the viability of TfL's dual strategy, combining revenue diversification—including commercial partnerships and asset monetization—with precision-engineered cost containment measures leveraging big data analytics and energy-efficient technologies. This achievement validates the model's replicability for global peers seeking to balance fiscal responsibility with service excellence in post-pandemic urban mobility governance.

2.2.3 Japan's public transit governance model: Market-driven innovation and policy synergy for global urban reference

Japan's public transport development trajectory offers critical lessons for global cities through its integration of market-orientated operations and meticulous management. The Tokyo Metro exemplifies this paradigm as a publicly listed private entity, implementing a triennial fare review mechanism that embeds reasonable profit margins while sustaining an average daily ridership of 6.082 million passengers. This high-intensity passenger flow directly underpins its financial viability, complemented by flexible commuter pass systems and tax incentives encouraging corporate participation in employee commute costs. This “dynamic fare adjustment + ridership assurance” model enabled Japan's three major metropolitan transit networks to achieve rapid post-pandemic recovery, with rail operators reaching a 106.2% revenue-to-expense ratio in 2023 and conventional busses approaching break-even points.

Diversified revenue streams and cost optimization constitute another pillar of Japanese transit resilience. The Tokyo Metropolitan Bureau of Transportation generated ¥129.9 billion in fare revenue during 2023, augmented by ¥18.01 billion in non-operating income from charter services and regional express routes. Nagoya Municipal Subway achieved near parity between fare revenue and operating costs through precision capacity management, sustaining 1.15 million daily riders. Labour cost efficiencies were realized through workforce optimization and technological upgrades, including AI dispatch systems that improved seat occupancy rates by 18%.

Strategic policy frameworks played a decisive enabling role. The government's cost-plus pricing mechanism permits triennial fare adjustments to ensure reasonable returns, while fare compensation funds for exempt groups balance social equity with fiscal prudence. Infrastructure investments included ¥230 billion in subsidies for station modernization and eco-friendly fleet procurement, complemented by tax

reductions cutting enterprise burdens by 12–15%. Critically, Japan's transit-orientated development (TOD) model synchronized rail construction with urban planning, fostering high-density mixed-use nodes around stations that pre-emptively secured ridership and revenue streams.

2.3 Conclusion: The indispensable role of buses

Public transit systems, characterized by their affordable fares and extensive coverage networks, constitute the foundational infrastructure for equitable urban mobility. Beyond their role as transportation providers, these systems embody a composite value matrix encompassing social equity, ecological sustainability, and cultural preservation. Their operational resilience directly influences the fairness of urban governance, the achievement of carbon neutrality targets, and the continuity of civic heritage, rendering them irreplaceable components of modern city development. This multidimensional significance necessitates correspondingly robust policy frameworks to secure their long-term viability.

Addressing the challenges posed by rising private vehicle ownership requires a three-pronged reinforcement of transit infrastructure:

1. **Fiscal innovation:** Implement a dual-track subsidy mechanism combining central government special transfer payments with local land leasing revenues reinvested into transit operations, ensuring enterprises maintain reasonable profit margins (6–8% ROA benchmark).
2. **Road space reallocation:** Establish absolute priority for transit signals at intersections complemented by dynamic lane management systems, targeting a 30% increase in average operating speeds during peak periods through adaptive traffic control technologies.
3. **Digital transformation:** Accelerate AI-driven operational upgrades to achieve sub-30-second prediction accuracy for arrival times, leveraging real-time passenger demand analytics to optimize fleet deployment and service frequencies.

The evolution of transit systems transcends conventional transportation functions, emerging as a critical indicator of urban civilization. Sustaining their public service orientation while embracing technological innovation and systemic governance reforms will unlock strategic value in advancing equitable prosperity, achieving decarbonization objectives, and preserving cultural landscapes. Only through such holistic approaches can cities develop modern transit systems that meet public expectations, ensure financial sustainability, and set global benchmarks for urban mobility excellence.

3. Public transport development strategy

The seven interconnected challenges of traffic congestion, environmental pollution, declining transit ridership, fragmented planning coordination, service quality gaps, implementation barriers, and fiscal strains now constitute universal urban dilemmas across global cities. The World Bank's *Global Mobility Report 2023* quantifies the economic impact, revealing that congestion costs consume 3.7% of

global GDP annually, with figures escalating to 6.8% in high-growth metropolitan areas like Cairo and Mumbai. This systemic crisis demands paradigm shifts in governance frameworks, as conventional infrastructure-led approaches prove inadequate in addressing the compounding negative externalities of urban mobility failures.

3.1 Integrated urban land use and transport for public transit construction

Urban economic structures and land-use patterns constitute fundamental determinants of travel behavior. Research by Beijing Jiaotong University reveals that each 1-kilometer increase in job-housing separation correlates with an 8.3% rise in private vehicle commuting rates. This necessitates a paradigm shift from monocentric sprawl to mixed-use development integrating industrial, residential, and commercial functions. Suzhou Industrial Park's "5-minute community life circle + 15-minute industry circle" planning model increased public transit mode share to 39%—21 percentage points higher than conventional satellite city formats—by fostering proximity between living, working, and leisure spaces.

Conventional transit terminals face the dual challenges of land-use inefficiency and revenue underperformance. The average floor area ratio of Chinese bus terminals remains below 0.8, while parking facilities occupy 62% of terminal space, yet generate less than 8% of total revenue. This underscores the urgency of station-area commercial development and value capture mechanisms to enhance asset utilization.

Responding to evolving mobility demands, transit services must transition from standardized provision to precision-matched offerings. Hangzhou's "520 Double-Decker Sightseeing Bus" integrated wedding-themed services with urban tourism, achieving 3.2 times higher daily ridership than conventional routes. Chengdu's "Panda Bus" branding strategy increased tourist shuttle ridership by 180% through IP-driven operational innovations. The "micro-circulation transit" revolution exemplifies this trend: Shenzhen Futian District deployed 32 demand-responsive community shuttles with "flag-down" service, resolving last-mile connectivity gaps and elevating metro interface rates to 83% while maintaining 95% passenger satisfaction scores.

Rural-urban transit integration remains critical to addressing mobility poverty. Zhejiang Province's "Village-to-Village Bus" initiative achieved 100% administrative village coverage through a hybrid model combining scheduled routes and on-demand responses, serving 120,000 elderly rural passengers daily. This demand-responsive approach reduced operating costs by 40% compared to fixed-route services while tripling load factors, demonstrating how digital enablement can reconcile equity and efficiency objectives in public transit provision.

Building upon this strategic framework, ground-level public transit resources—including vehicle fleets, route networks, and operational infrastructure—can be systematically optimized through data-driven allocation models. Priority can be accorded to strategically located bus terminals exhibiting high passenger throughput, developmental potential, and unmet community needs, enabling their transformation into transit-orientated development (TOD) hubs. This evolutionary process entails:

1. *Integrated commercial infusion*: Introducing complementary mixed-use facilities such as vehicle maintenance centres, F&B outlets, recreational amenities, and retail complexes to create synergistic ecosystems around transit nodes

2. *Vertical development strategies*: Implementing multi-story developments that combine ground-level transit operations with upper-floor commercial/residential spaces to maximize land value capture
3. *Smart mobility integration*: Incorporating last-mile connectivity solutions (bike-sharing, e-scooter docks) and digital wayfinding systems to enhance accessibility
4. *Revenue diversification*: Developing sustainable financial models through property leasing, co-branded partnerships, and value-added services beyond traditional farebox revenue

Such holistic redevelopment not only elevates land utilization efficiency through density-driven development but also establishes self-sustaining revenue streams for public transit operators. Financial benefits materialize through reduced operational subsidy requirements, increased non-fare revenue, and enhanced asset valuation, ultimately fostering long-term fiscal resilience for public transportation systems while creating vibrant, people-centric urban spaces.

3.2 Refine public transportation subsidy policy: Towards precision governance and sustainable development

China's current transit subsidy regime exhibits a paradox of "high input-low efficiency", with fiscal allocations comprising 28% of local transportation expenditures yet witnessing a decline in public transit mode share from 29.3% (2015) to 21.7% (2023). This structural inefficiency stems from three institutional flaws:

1. *Rigid cost regulation*: 78% of cities employ "fixed subsidy + cost-plus" mechanisms, stifling operational efficiency incentives. Beijing Public Transport Corporation's per capita operating costs exceed Tokyo's by 42%, reflecting labour productivity gaps.
2. *Demand response lag*: Route adjustments follow 6–12 month cycles, failing to match dynamic travel patterns. Shenzhen's mobile signaling-based dynamic optimization pilot increased ridership by 19% within three months.
3. *Innovation suppression*: Strict fare controls limit capital for fleet renewal, with national electric bus (including hybrid bus) penetration at 67%—22 percentage points below taxi sector levels.

3.2.1 Dual-track subsidy reform framework

A differentiated "two-pillar" subsidy system is proposed to align policy instruments with operational realities:

3.2.1.1 Traditional services: Government procurement reform

Implement a "Quality Contract + Performance-Based Payment" model featuring:

- *Service bundle pricing*: Deconstruct routes into "Base Package" ($\geq 90\%$ punctuality, ≤ 10 -minute headway) and "Value-Added Package" (e.g., air-conditioned

vehicles, limited-stop services). Hangzhou's pilot achieved 31% subsidy efficiency gains through this segmentation.

- *RPI-X cost containment*: Apply Retail Price Index - Productivity Factor (RPI-X) regulation, mandating 3% annual labour productivity growth targets with subsidy penalties for non-compliance.
- *Asset monetization*: Inject transit terminals and advertising resources into Special Purpose Vehicles (SPVs) for Transfer-Operate-Transfer (TOT) financing. Chengdu Public Transport unlocked ¥1.2 billion through this asset recycling approach.

3.2.1.2 Innovative services: Market incentive architecture

For Demand-Responsive Transit (DRT) and customized routes, establish “Regulatory Sandbox + Innovation Subsidies”:

- *Negative list access*: Deregulate routes, fares, and vehicle types except safety standards. Shenzhen Qianhai's fully liberalized pilot boosted vehicle utilization from 35–62%.
- *Innovation subsidy pool*: Allocate a ¥1 billion annual fund for performance-based rewards, providing operating subsidies for routes exceeding 500 daily passengers and carbon revenue sharing for DRT services achieving ≥ 10 tonnes/vehicle-year reductions.
- *Data enablement*: Mandate MaaS platform integration of real-time passenger/vehicle data, with 20% subsidy reductions for non-compliant operators.

3.2.2 Ridership revitalization strategy: Tactical interventions and long-term ecosystem building

3.2.2.1 Short-term tactics: Experience transformation

- *Micro-hubs*: Deploy bus bay stations within 500 m of metro entrances, equipped with smart guidance screens and bike-sharing docks, reducing transfer times to ≤ 3 minutes.
- *Micro-circulation*: Introduce 3–5 m mini-busses for community shuttles. Shanghai Lujiazui's pilot increased “last-mile” coverage from 68–92%.
- *Micro-services*: Assign dedicated “Transit Stewards” to major communities for real-time demand response *via* WeChat groups, driving 41% ridership growth in Hangzhou's pilot neighborhoods.

3.2.2.2 Long-term strategy: Ecosystem reconstruction

- *Personal carbon accounts*: Award 100 g CO₂ credits per transit trip, redeemable for metro tickets or bike-sharing credits. Shenzhen's platform has 2.3 million registered users.

- *Corporate carbon accounting*: Include transit operators in regional carbon markets. Chongqing Public Transport generates ¥8 million annually through Certified Emission Reduction (CCER) sales.
- *Land-carbon linkage*: In TOD land auctions, require developers to match transit facility provision with emission reductions, with each tonne of abatement offsetting 5% of construction obligations.

3.2.2.3 Policy enablement: Legal and digital foundations

- *Statutory prioritization*: Enshrine transit-orientated development in Urban Master Plan Regulations, mandating 12% minimum transit provision in new developments.
- *Digital governance*: Develop “Transit Brain” platforms integrating GPS, passenger counters, and safety systems for automated subsidy calculations tied to performance metrics.
- *Citizen participation*: Establish a Transit Observer Programme with 10,000 randomly selected passengers annually evaluating services, with results directly impacting subsidy allocations.

This reform framework—combining precision subsidy design, ridership stimulation, and ecosystem incentives—enables transit systems to transition from subsidy-dependent survival to self-sustaining development. By balancing public welfare obligations with market-driven efficiency, it offers a viable model for modernizing urban mobility governance while preserving transit’s societal value.

4. Conclusion

East Asian metropolises face acute tensions between land scarcity and demographic expansion. Tokyo, with six times Beijing’s population density, exemplifies efficient resource management through its “rail transit + polycentric development” model. Boasting 1.2 kilometers of rail infrastructure per square kilometer and handling over 3 million daily interchanges at Shinjuku Station alone, the system achieves per capita road space consumption one-fifth that of private vehicle use. This “spatial compression” effect enables high-density urbanism to sustain economic vitality within constrained geographical boundaries.

The East Asian experience demonstrates that prioritizing public transit transcends conventional transport policy, evolving into a systemic framework integrating spatial planning, industrial organization, environmental governance, and social equity. In China, this synergy manifests across multiple dimensions:

- *Spatial efficiency*: Shanghai’s rail-bus corridor integration handles 63% of central city trips using only 19% of road resources, with per-passenger energy consumption at 12.5% of automobile levels.
- *Environmental gains*: Shenzhen’s full electrification of public transit reduced annual PM2.5 concentrations by 14 $\mu\text{g}/\text{m}^3$, equivalent to a 3.2-percentage-point increase in urban green coverage.

- *Social equity*: Beijing's free transit policy for disabled residents and seniors over 65 serves 230 million annual trips, establishing a safety net for vulnerable groups.

At the governance level, transit priority strategies are driving institutional innovation across three fronts:

1. *Planetary integration*: Transit development transitions from passive adapter to active shaper of urban growth. Hangzhou's "transit corridor + digital economy cluster" model improved job-housing balance by 41% while reducing average commutes to under 8 km. Shenzhen's "bus terminal + commercial complex" vertical development, exemplified by Lianhuashan Station redevelopment, covers 67% of operating costs through commercial rents.
2. *Service transformation*: Operations evolve from standardized provision to demand-responsive models. Suzhou Industrial Park's "cloud transit" system reduced 3 km trip costs by 35% through algorithmic demand matching, achieving 62% vehicle utilization. Beijing's 412 customized routes serve 128,000 daily passengers across commuting, medical, and educational scenarios, maintaining 92% load factors despite 30% fare premiums.
3. *Technological enablement*: Management shifts from experientialism to intelligent control. Xiong'an New Area's digital twin platform enables real-time simulation of passenger flow shocks, cutting route adjustment response times from 14 days to 6 hours. Hangzhou's "transit carbon currency" scheme awards 100 g CO₂ credits per trip, redeemable for metro tickets or bike-sharing credits, boosting ridership by 11.7%.

Looking ahead, transit priority governance will evolve through dual tracks of legal institutionalization and technological empowerment:

- *Statutory safeguards*: Entrench transit infrastructure land rights and priority access in legislation, as seen in Japan's Railway Business Act and South Korea's Urban Traffic Enhancement Law.
- *Digital governance*: Develop "transit brain" platforms integrating GPS, passenger counters, and safety systems for automated subsidy allocation tied to performance metrics.
- *Participatory mechanisms*: Establish citizen observer programmes with 10,000 annual passenger evaluators, linking assessment results to next-year subsidy allocations.

This governance architecture—integrating institutional guarantees, spatial leadership, service innovation, and technological empowerment—will drive the sector's transformation from quantitative expansion to qualitative upgrading. Such evolution is critical to sustaining quality of life in East Asia's high-density cities amid continuing urbanization pressures.

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India's Quiet Rise in Latin America: Could It Become a Counterweight to China?

Bruno Macciotta Pulisci

Abstract

Lately, India has been gaining ground by investing in Latin America. From cars to textiles, it has also been investing in energy. India's rise in Latin America has been quiet, but it is now becoming more visible. In this sense, one wonders whether it could become a counterweight to China in the region. To this end, it is important to take a look at India's development and the evolution of its foreign policy towards Latin America. It is also important to look at how Latin American countries have adapted their foreign policies to accommodate India without damaging the relationship with China. In this way, it will be possible to analyse whether India can really be China's counterweight in a region that is so important for the latter.

Keywords: India, China, Latin America, foreign policy, power competition

1. Introduction

In the early 1990s, after a serious economic and financial crisis, India decided to embark on a process of economic liberalisation. This process resulted in India's unprecedented growth, and it began to position itself as a regional leader and a global middle power. This is due not only to its economic growth, of course, but also to its technological development, its military capability and, of course, its large labour force [1, 2].

This has led India to be the fifth largest economy in the world today, with a GDP of USD 4.3 billion and an average growth of 6.4% between 2006 and 2025, with an all-time high of 9.7% in 2022 and a low of 5.8% in 2021 [3]. It is also a major destination for foreign direct investment in sectors ranging from services and telecommunications to pharmaceuticals and automobiles. In addition, it is one of the largest markets in the world [4].

India's emergence as a middle power, however, has had a greater impact in Asia. In this space, it has emerged as an important actor with the capacity to influence the economy, politics and security. Hence, India's foreign policy has tended to focus on its neighbourhood, rather than more aggressively outreach to the rest of the world. This is evident in its *Look East Policy* and later its *Act East Policy* [1, 4].

In this sense, although relations with Latin America began to develop within the framework of its economic openness, it nevertheless left many aspects to be developed [4]. For this reason, many analysts have referred to India's presence in Latin America as slow and late [5]. Despite this, for some years now, there has been a silent but noticeable rise of India in Latin America, especially in the services, telecommunications and energy sectors [3, 6].

The development of these relations, which are becoming stronger thanks to the new strategic autonomy policy, is an opportunity for India in terms of its growth as a power. But, above all, it represents an opportunity for Latin America in terms of trade diversification. Moreover, in the face of tensions between the US, China and Russia, more and more countries in the region are welcoming Indian investment. This is because India is perceived as an independent and neutral country in the power competition between the aforementioned actors [7].

Now, Latin America is a region where China has great influence and where it is one of the main trading partners. This raises the question: can India become a counterweight to China in Latin America? This question guides this chapter. In order to arrive at some answer, it will first take a brief look at the evolution of India's relations with Latin America, especially on the basis of its foreign policy. Then, the magnitude of India's presence in the region will be explored and a brief comparison with China's presence will be made. In this way, towards the end, an attempt will be made to provide an answer to the question posed.

2. India-Latin America: A not-so-old relationship

Unlike other cases, such as China or the United States, the relationship between India and Latin America is not as long-standing and has not necessarily been close. Lack of historical ties, language gaps and geographical distance have contributed to this lack of closeness. In addition, the different political currents and divergent preferences given to certain internal and external issues have meant that neither India's attention was on Latin America, nor that of Latin American countries on India [1, 8–10].

Thus, while the first contact, it could be argued, was in the nineteenth century, when Indians came to the Caribbean to work on British plantations, it was not until the Cold War period that the political ties that have defined the relationship between India and Latin America were formed. In this context, the relationship between India and Latin America could be described as 'uni-multilateral'. This means that India operated as a unit while Latin America was a group of autonomous entities and not as a supranational unit. This was, mainly, because of the many national policies in Latin America that made impossible to have one regional foreign policy towards India [9].

Likewise, although some embassies were opened in Latin American countries after India's independence,¹ it was not until the 1960s that state visits began to take place [1]. In effect, the first Indian embassy in the region was established in Brazil, from where some matters relating to other Latin American states were also attended

¹ India achieved its independence as a result of the resistance of many generations that led to a series of independence movements between 1919 and the 1940s, led by Mahatma Gandhi. Indian independence from the British Empire was finally achieved on 15 August 1947 [11].

to [12, 13].² This may be related to India's perception of Latin America as a relatively homogenous region economically, politically and socially, without paying attention to the diversity and complexity of the region [1, 8].

It was during the Cold War that India and Latin America came as close as the dynamics of bipolarity allowed. The rapprochement, in this context, took place, particularly in terms of south-south cooperation, beyond the connections between intellectuals such as Octavio Paz and Mahatma Gandhi or Gabriela Mistral and Sri Aurobindo [9].

One important point of encounter between India and Latin America that is important to note was in the debates and votes within the United Nations system. Perhaps the greatest point of common ground in this area was the third meeting of the United Nations Conference on Trade and Development (UNCTAD) in 1972³ [9]. However, this contact was merely coincidental, rather than a relationship as such [8]. It is also important to mention the participation in the Non-Aligned Movement, although Latin American countries did not join the movement until the 1970s, with the exception of Brazil which participated actively from 1964, while India was present from the Bandung Conference in 1955 and at the creation of the movement at the Belgrade Conference in 1961⁴ [9].

As can be noted, it would not be correct to say that there were no relations as such between India and Latin America. In fact, since 1958, it had already had a trade agreement with Chile, which it renewed before the aforementioned UNCTAD conference; also, before this event, it signed a trade protocol with Mexico and concluded agreements with Brazil and Argentina [8].

Despite the growing closeness, especially since Indira Gandhi came to power,⁵ who saw many 'common ideals', although this was never specified in a way that would strengthen relations between the two, during the 1980s there were some stagnations in relations. Even when India supported Argentina on the Falklands issue and collaborated with Peru and Mexico in the context of the Non-Aligned Movement, Latin America still saw India as too distant to strengthen trade or consider it a real strategic ally [8, 9].

² The first Indian Embassy established in Latin America was the one in Brazil (1948), followed by one in Argentina (1949), Mexico (1950), Chile (1958), Cuba (1962), Trinidad y Tobago (1962), Guyana (1967), Peru (1969), Venezuela (1969), Colombia (1973), Panama (1973), Jamaica (1975), Surinam (1977) and Guatemala (2009) [13].

³ Between April 13 and May 21, 1972, the United Nations Conference on Trade and Development held its third session, known as UNCTAD III. This conference focused on the international monetary system and the proposal of southern countries for a link between Special Drawing Rights (SDR) and aid to developing countries. The disagreements led to the recommendation for further research of the proposal rather than any commitment.

⁴ The Non-Aligned Movement (NAM) is an organisation representing the interests of developing countries, created in the context of post-World War II decolonisation and in the midst of the Cold War. In the bipolar context, its members advocated not aligning themselves with either of the two contending powers. The origins of this movement can be traced back to the Bandung Conference where African and Asian countries met to discuss their own worldviews and establish a neutral position in the bipolar Cold War. This movement was finally formalised at the Belgrade Conference in 1961.

⁵ Indira Gandhi, the first woman to become India's prime minister, held office from 1966 to 1977 and again from 1980 until her death in 1984. Following her predecessor Nehru's visit to Mexico in 1961, she visited eight Latin American countries in 1968, creating greater rapprochement with the region.

The end of the Cold War, the collapse of the Soviet Union and the change of international affairs, especially the globalisation process, meant that States had to rethink their policies. In this sense, India could not continue to neglect its relations with Latin America. This context had also made the region extremely attractive because of the opportunities it offered for new relations to be explored [8]. Thus, in the late 1990s, India designed its strategy towards Latin America, a strategy that has changed little since then, although it must be acknowledged that its interest and involvement in the region has grown increasingly relevant [1].

Both Indian foreign policy and the foreign policies of Latin American States have, as described above, evolved from quasi-coincidental relations to a particular interest, especially India's in Latin America, without meaning that the latter benefit greatly from this. The evolution in India's case could be explained as a shift from a purely principled and moral foreign policy, as set out by Gandhi, to a policy adapted to the reality brought about by the end of the Cold War, which made it realise that Latin America was a region it could not neglect if it wanted to become a major power in the world again [14, 15].

In this context, the two actors studied began to recognise comparable levels of development and complementarities, most of all between India and the major countries of Latin America and the Caribbean. This led to the strengthening of economic interactions. The materialisation of this was *Focus LAC*, an action plan launched by India in 1997 to revitalise Indo-Latin America trade and economic relations. The result was notorious. From 1991–1992 to 2000–2001, there was an increase of more than 260%⁶ [8]. It is important to note that, even though trade relations between India and Latin America are strong and very important, political and diplomatic relations are not at the same level of development [13, 16].

3. India-Latin America trade: Should China be worried?

It should have been noted that the trade relationship between India and Latin America has been growing rapidly since its *Focus LAC* policy. The question now is if this growth and its projection is enough to worry China. Is India becoming or could become a real counterweight to China in Latin America? It will be necessary to analyse how is this relationship today and compare it to the one with China in order to try to answer this question.

The first thing that should be addressed is that the relation between India and Latin America is mainly commercial, as it may have been noticed. In the case of South America, the relation is inter-industrial because it is based on the exchange of commodities and manufactures. In the cases of Mexico, Central America and the Caribbean, the relation is intra-industrial, based on textiles, autoparts and electronics. It is interesting to note that the main products imported by India from the region are vegetal oils, grains, sugar, minerals⁷ and petroleum, meanwhile its exports are mainly industrial and manufactured products [17].

In this regard, it is interesting to note that from 2010 to 2021, trade between India and Latin America has grown by 145%. Compared to what was said in the previous section, the growth is lower than that recorded in the decade 1991–2001. However, if one looks at the last 20 years up to 2021 as a whole, the recorded growth is 2000%.

⁶ The increase registered was from US \$473.66 million in 1991–1992 to US \$1705.8 million in 2000–2001 [8].

⁷ Mainly gold, copper and coal.

This is from 1.6 billion in 2001 to 22.36 billion in 2010 and 35.74 billion in 2024 [18, 19]. This growth can be seen in the following graph based on data published by the Indian government (**Figure 1**).

As can be seen, even though there has been a decline in trade, especially between 2014 and 2016, the trend continues to be upwards. To elaborate a little on the data, it is interesting to see that petroleum products are India's main export to Latin American countries. These exports amounted to 4.7 billion in 2023, followed by the export of vehicles, which amounted to 4.33 billion. As for chemical exports, these accounted for 3.4 billion and machinery for 2.73 billion. Finally, pharmaceuticals accounted for 1.45 billion. In terms of the products that India imports from Latin America, the most important is crude oil, which accounted for 7.6 billion for the countries of the region, followed by gold worth 6.6 billion. Vegetable oil amounted to 5.7 billion. Copper accounted for 1.87 billion. Finally, machinery for 245 million [19, 20]. This is summarised in **Table 1**.

Within the context of these relations, India and Latin America have been working to strengthen ties. This has led both actors to reach agreements or work on understandings and trade frameworks that allow them to continue cooperating. Thus, there are two preferential trade agreements, one with Chile and one with Mercosur. There are also 6 trade agreements, with Argentina, Peru, Guatemala, Colombia, Cuba and Trinidad and Tobago. There are also four memorandums of understanding, two on economic cooperation with Costa Rica and Ecuador, one on the promotion and transfer of technology with Argentina and one on development cooperation with Colombia. To this should be added India's foreign direct investment in Latin America, which, in 2023, reached 16 billion [19, 21].

Now, to determine whether this should be of concern China, it is necessary to compare the above data with that related to China. In this regard, it is important to note that while India is growing faster than China, it is still far from catching up. This can be seen in **Figure 2** [19, 22, 23].

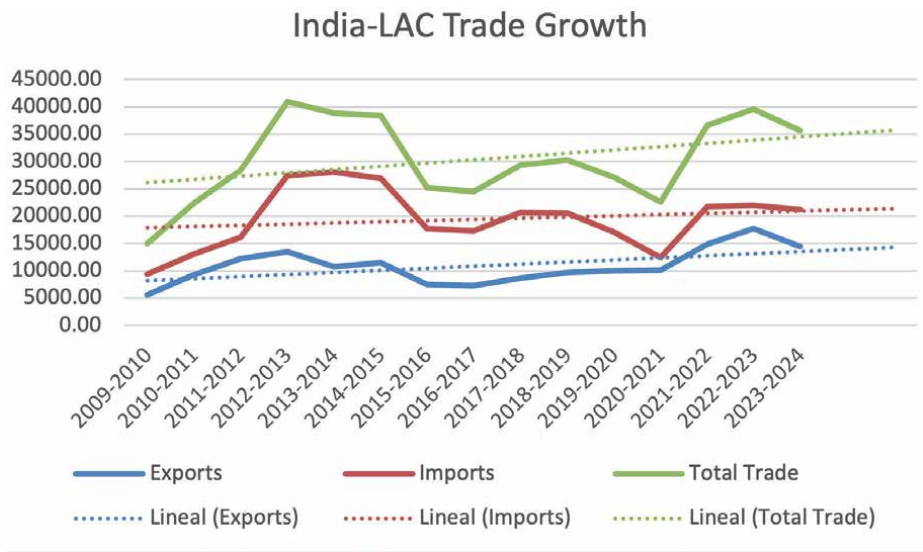


Figure 1.
India-LAC trade growth 2009–2024. Elaborated by the author with data from Government of India.

Exports to LAC	Amount	Imports from LAC	Amount
Petroleum Products	US \$ 4.7 billion	Crude Oil	US \$ 7.6 billion
Vehicles	US \$ 4.33 billion	Gold	US \$ 6.6 billion
Chemicals	US \$ 3.4 billion	Vegetable Oil	US \$ 5.7 billion
Machinery	US \$ 2.73 billion	Copper	US \$ 1.87 billion
Pharmaceuticals	US \$ 1.45 billion	Machinery	US \$ 245 million

Elaborated by the author with data from Government of India.

Table 1.
Main exports and imports 2023.

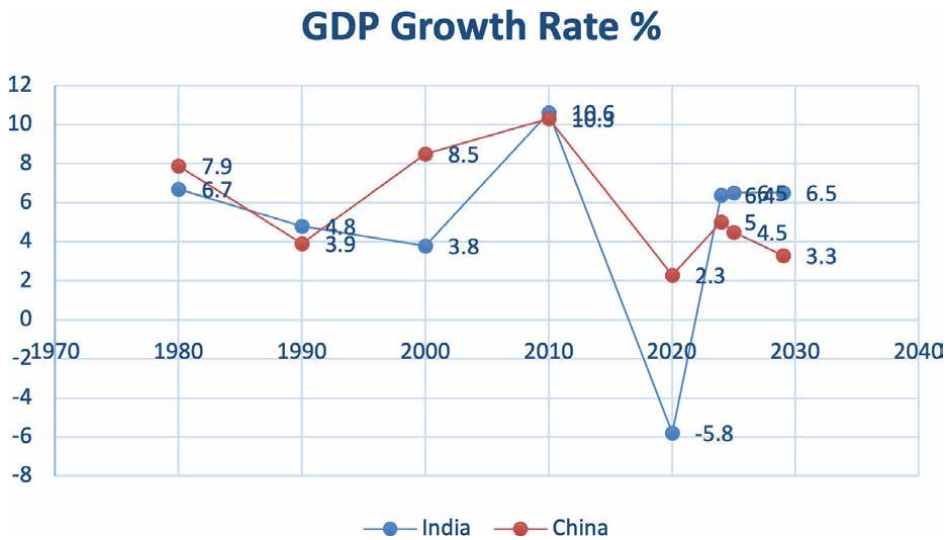


Figure 2.
GDP growth rate, %, India and China (2025 and 2029 values are IMF forecasts). Elaborated by the author with data from IMF.

In terms of the comparison between China's trade with the Latin American region and India's, the question posed can be answered to some extent. It is clear that India does not register sufficient numbers to worry China. However, the fact that it is not a counterweight to China in the region today does not imply that, if it decides to close the gap, it will be able to do so in the same way as it has been doing in its own region [23–25].

Now, there is one sector in which India has already overtaken China in the region. This is in the export of cars. In this case, China and India compete at the same level. In fact, India exports more cars to Latin America than China. However, China still exports more motorbikes and auto parts. Despite this, India is the second largest supplier of motorbikes in the region, so competition in this area is tight and it is an area where, if maximised, India can effectively become a counterweight to China [26, 27].

Another important sector is energy; however, in this case, the competition is different, and the difference gives China the advantage. Indeed, while India focuses its participation in this market on investment, China is concerned with investment and infrastructure development. Thus, China has focused on owning and operating

energy infrastructure. On the other hand, India has preferred to prioritise trade and investment in order to diversify its own energy sector [7, 21, 28].

Overall, again, India is too far behind China to be an effective counterweight in the region. In 2023, while India recorded trade of about \$43 billion, China had \$487 billion. It is only by 2028 that India is projected to reach \$100 billion, which is still far from China [7, 29, 30]. Despite this, India's importance should not be discounted. Nor should it be dismissed that China, despite being Latin America's main partner today, is a country that tends to be viewed with some apprehension and a certain amount of suspicion. To this must be added the closeness of most Latin American States to the United States, who is also close to India [21, 24, 25, 27].

4. Conclusions

In conclusion, first of all, it must be recognised that India is a middle power that since its liberalisation has taken an important place on the international stage. Its economic potential and influence cannot be underestimated. This has been even clearer in its own region. However, for some decades now, it has also been positioning itself outside the region. This has led it to engage with Latin American countries, and its presence today is increasingly visible.

As far as the relationship between India and Latin America is concerned, it must be said that it is not a long-standing one. On the contrary, one of the obstacles to the deepening of relations between Latin America and India has been precisely the lack of historical ties that generate a certain bond between the two actors. Similarly, geographical distance and the linguistic gap have been factors that have made it difficult for this relationship to be as strong as the one that Latin America has with powers such as China or the United States.

In this sense, India prioritised strengthening its influence and its relationship with its neighbourhood rather than going out to other regions. This was reflected in its Look East Policy and its subsequent Act East Policy. This made India's presence in Latin America late and slow. In fact, the first rapprochements between the two actors took place in the context of the Cold War and the Non-Aligned Movement, in which India and many Latin American countries participated.

It was only at the end of the Cold War that Latin America began to look attractive to India. The region offered India the opportunity to diversify and better position itself as a power. Thus, towards the end of the 1990s, India developed a foreign policy towards Latin America that has changed very little since then. This has come to be known as Focus LAC. However, it is a relationship that has always prioritised the economic and commercial aspect over the political, which is reflected in India's reluctance to conclude very general agreements that cover more aspects than necessary.

In terms of this relationship, as we have seen, trade between India and Latin America has grown by nearly 2000% in the last 20 years. This is an indicator of India's interest in the region. The main products traded are petroleum products, crude oil, agricultural products, textiles, gold, copper and the energy, automotive and pharmaceutical sectors.

Now, given the question posed at the beginning of this chapter, should China be concerned? Could India become a counterweight to China in Latin America? The answer should be divided into two. The first answer points to the short term and the second to the long term.

With regard to the short term, it should be borne in mind that, although India has been increasing its presence in Latin America, its numbers are still very small compared to China's. In fact, as already mentioned, trade with India is 43 billion against 487 billion with China. In this sense, the latter need not lose any sleep over India's increasing trade with the region, especially since it is known that India is not moving very fast in this regard, as it continues to prioritise its own region, especially in security issues.

Finally, in terms of the longer term, the most important fact is that India has begun to grow at a faster pace than China. Even so, India still has a long way to go to reach the level of power that China has achieved, both in its own region and in the rest of the international arena. Today, India competes very closely in its own region, but in the rest of the world, it is still a middle power struggling to gain a more important position. In this sense, it does not seem that China should be worried either, but it should remain vigilant, because at the current rate of growth and with the influence it has been achieving, not only commercially but also culturally, India could eventually become a real counterweight to China, not only in the Asian region but also on the entire international stage.

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Territories in Crisis: Is Urban Resilience to Industrial Crises Possible? An Analysis of the Evolution of Land Use in Fukushima since 2011

Cécile Asanuma-Brice and Thomas Hurtut

Abstract

The reconstruction in Fukushima offers a plan that does not exist anywhere in the world. The implications of this reconstruction, presented as a boon, are nevertheless numerous, both on an environmental and human level. It involves drastic choices that are deeply inscribed in the landscape, without, for the moment, generating the expected dynamics. The implementation of large-scale photovoltaics is also questioned, as is the return encouraged by the authorities of the population to territories that are still contaminated. In this chapter, we rethink the nature of these choices, their motivations, and their consequences through quantitative and qualitative analysis enabled by monthly access to the field since time T0. A geo-ethnographic approach allows us to embrace the complexity of the factors at play. In addition to regular interviews with residents and those involved in reconstruction, a map (the methodology of which is specified in a dedicated paragraph) has been made in order to visually reflect the transformations observed on-site and to facilitate their analysis.

Keywords: Fukushima, reconstruction, resiliency, territories in crisis, energy production

1. Introduction

In the 12 years since the accident at the Fukushima nuclear power plant, the territories in the eastern part of Fukushima Prefecture have undergone a profound change in terms of land use. The formerly evacuated zone, which covered 1100 km² in 2013 (12% of the prefecture's territory) and involved 12 municipalities, was reduced by the Japanese authorities to 300 km² in 2020, to be reopened almost in its entirety in March 2023 (only 2.2% of the prefecture's territory is still

under evacuation order). This decision has been accompanied by an offensive policy aimed at getting people back to living in these municipalities, for which the evacuation order has just been lifted. The measures that were put in place consisted mainly of the suspension of refuge allowances¹, extensive communication in favor of a return to living in the formerly evacuated zone, and substantial financial incentives for anyone offering to come and live there too. While we have analyzed in detail the development of this return policy since its very beginning in our previous research, the destruction of landscapes, the nature of the reconstruction, and the profound changes in land use following the total reopening of the area remain to be studied [1]. To this end, we have drawn up a precise cartography listing some of these changes, which we will present and study in this paper. Following a few explanations on the methodology and the stakes involved in making those map datasets available in Open Access, we propose a discussion of the situation based on the existing literature on reconstruction but also on regular monitoring of the reconstruction *via* our numerous fieldworks (around one per month for the past 12 years), which complement the study of the situation highlighted in the proposed map. This approach includes information produced and shared by all the researchers who make up the international and interdisciplinary *Mitate Laboratory Post-Fukushima Studies*² team (CNRS).

2. Mapping methodology

The public reconstruction policy that followed the accident at the Fukushima Daiichi nuclear power plant has led to a radical transformation of the landscape of Fukushima Prefecture in two particular aspects [2]. The first one is linked to a vast decontamination policy that resulted in the removal of over 13 million m³ of contaminated soil³ at a total estimated cost of \$41.5 billion⁴. In practice, this meant the destruction of part of the landscape and, at the same time, the storage of thousands of bags of contaminated soil, which were temporarily stored in local communities and then gradually transported to storage centers. The second aspect of this radical transformation induced by the reconstruction policy is the widespread installation of solar panels [3]. This testifies to the transition decided by the prefecture and residents in terms of energy policy [4]. In just a few years, Japan has become the third country with the largest photovoltaic capacity (67,000 MW in 2021), behind China

¹ A complex compensation system has been developed. It was accompanied by support for the refuge, which differed according to the location. These included free rent and long-term financial support for consumption, as evacuees of working age had to find a job near the refuge. This support was suspended when the evacuation order was lifted, effectively annihilating “refugee” status and the rights that go with it.

² <https://mitatelab.cnrs.fr>

³ Ministry of the Environment of Japan. “Transport of Removed Soil and Other Materials in 2021.” Last modified 2021. http://josen.env.go.jp/chukanchozou/transportation/pdf/transportation_2203.pdf.

⁴ This includes the disposal of contaminated waste from the destruction of formerly inhabited areas. We base our estimation on the budget voted and published by the reconstruction agency in December 2022: (<https://www.reconstruction.go.jp/topics/main-cat8/sub-cat8-3/221223gaisanketteisanko.pdf>) of \$1.9B, added to \$2.1B voted for 2023 (mentioned in the same agency report), and \$37.5B spent from 2011 to 2021 (source: Nikkei, Feb. 2023, <https://www.nikkei.com/article/DGXZQOUE2743Q0X20C23A1000000/>).

(254,355 MW) and the United States (75,572 MW)⁵, a first for a country that had not yet turned to renewable energies before the Fukushima nuclear accident.

A systematic mapping of these features was carried out using Google Maps satellite imagery [2] within the boundaries of Fukushima Prefecture. The goal was to highlight the main characteristics of land-use change that are imprecisely captured by automatic detection mapping (mainly due to the scale of data capture), especially when these methods attempt to capture several items simultaneously. Other thematic maps, such as those produced by the National Institute of Informatics (NII), confirm clear trends in the increase in the number of solar farms nationwide since 2011 [5]. This mapping provides a fine-grained understanding of the spatial evolution of energy production methods. We will use it to complete our analysis. However, maps made by NII do not allow correlation with other local data (relief, administrative boundaries, priority reconstruction zones, various facilities, etc.), which we propose *via* the Mitate Lab map.

Our mapping focuses on the main changes visible in the landscape in terms of land use since the Fukushima Daiichi nuclear accident: contaminated waste storage fields and solar panel farms. The perimeters of those areas were delimited, enabling us to calculate their corresponding surface areas (m²). In total, 4283 solar panel sites directly on-site (we excluded rooftop panels from the analysis) and 604 contaminated waste sites were identified for the whole of Fukushima Prefecture in March 2023. We have made this data publicly available so that it can be completed over time [6]. The dataset consists of four shapefile layers: contaminated waste deposits in 2022 and 2023 and solar panels in 2022 and 2023. For 2022, the last update took place in July 2022, and for 2023, the last update took place in March 2023.

As land use is in constant and rapid transition, we have considered both permanent storage centers and sites where bags of contaminated waste are still stored as contaminated waste deposits, considering that they will be removed and stored on other dedicated sites [1]. This choice was made in order to potentially identify the future uses of the land where this waste has been temporarily stored when the map is updated.

This dataset is part of a broader project to provide the community with an interactive tool⁶, identifying different types of information essential to the analysis of reconstruction, such as the delimitation of the evacuated area (which has evolved over time), the perimeter of the municipalities concerned by the reconstruction policy, the main services present in those municipalities, the location of disaster memorials in the area, and the location of soil and sediment samples collected by other Mitate Lab researchers who study the diffusion of radionuclides in the environment [7].

3. Findings from the mapping of solar panels and contaminated soil bags in Fukushima Prefecture

First, we observe an expected high density of solar panels in coastal communities affected by the fallout from the nuclear accident. There are several reasons for this. The flat topography of the coastline, combined with open exposure, means good light

⁵ Govind Buthada (2021), Mapped Solar Power by Country in 2021, Visual Capitalist: <https://www.visualcapitalist.com/mapped-solar-power-by-country-in-2021/>

⁶ Available here: <https://mitatelab.cnrs.fr/mitate-labs-map-of-solar-panel-and-contaminated-wasted-land>

capture. These properties make for an ideal environment for this technology. Besides, the coastal area that makes up part of the eastern third of Fukushima Prefecture, known as Hamadôri, was devastated by the tsunami, and residential areas are now limited in this region, leaving vast tracts of vacant land ideal for the installation of solar farms. Finally, because of the tsunami, some rice fields are now too saline to be recultivated.

There is another reason for installing solar panels well beyond the seaside; that is, the reuse of contaminated land and plots of land on which bags of contaminated soil or waste were stored. Those bags are now being collected at various sites according to their level of radioactivity and nature:

- Wastes containing less than 8000 Bq/Kg are first stored on plots of land (excavated rice fields) in the Ôkuma and Futaba municipalities. As the usufruct of this land is for a period of thirty years, the treated soil will then be reused in road and bridge works throughout the country by 2045.
- Wastes ranging from 8000 to 100,000 Bq/kg are crushed and mixed with cement before being solidified into 2-ton concrete cubes, then stored in a landfill site south of Tomioka township.
- Wastes exceeding 100,000 Bq/kg are stored in three temporary concrete warehouses: one in Futaba township and two in Ôkuma township (Futaba county), on the outskirts of the Fukushima Daiichi nuclear power plant.

3.1 The contaminated soil storage site at Ôkuma and Futaba

Contaminated soils from the Japanese government's extensive decontamination policy were sparsely stored across the Fukushima Prefecture. From 2017, as the government decided to gradually reopen the area, those wastes, from 52 municipalities, will be collected (bags of soil transported by truck) and then stored in vast areas around the Fukushima power plant, in the municipalities of Futaba and Ôkuma. These wastes are then processed, in particular to remove stones and plant residues they contain. Those residues are then incinerated. While this method considerably reduces the volume of waste, it has the disadvantage of concentrating nuclides in the ashes, which therefore require specific treatments. The refined soil is then stored in former rice paddies, whose bowl shape provides a suitable receptacle. These old rice paddies are covered with an impermeable fabric. Once stored, the soil is also covered with a waterproof canvas and several meters of healthy soil. By April 2023, 13.5 million m³ of land had already been stored, covering 46 of the 52 local authorities concerned. While 80% of the former owners concerned by the storage on their land have agreed to cede the use of their land, 20% are opposed. The usufruct of the land temporarily preempted by the government is valid for 30 years. By 2045, all the refined soil stored in so-called interim storage facilities in those two municipalities will have to be reused for bridge and road works outside of Fukushima Prefecture.

3.2 Tomioka waste disposal site

The Tomioka landfill is designed to receive waste whose radioactivity is between 8000 and 100,000 Bq/kg. Those wastes are made up of debris from the destruction

of buildings in the evacuated zone, the detritus of people living in the area since the evacuation order was lifted, noncombustible decontamination waste (stones, for example), and wastes from decontamination work (agriculture, forestry, etc.). Those wastes are reduced to ash and then mixed with cement to form 2-ton cement blocks. These cement blocks are stored in a cavity dug into the mountain, then covered with a layer of impermeable soil. This site is equipped with a drainage and ventilation system. The blocks are then covered with 50 cm of soil, partly sand, a protective mortar, and a new layer of soil secured with grass, all on a 9.4-hectare site to the south of the town of Tomioka. The site, formerly known as the Fukushima Eco Tech Clean Center, has a capacity of 960,000 m³ and currently houses 220,000 m³ of buried waste.

Despite the implementation of these measures, our map, based on satellite photos from 2023, reveals the still significant presence of numerous contaminated waste and soil bag storage sites scattered across the landscape of the eastern half of Fukushima Prefecture. While this situation was to be expected in the vicinity of the Fukushima Daiichi power plant, it is more surprising regarding more remote areas. The phenomenon is particularly prevalent in the village of Iitate, 70 km northeast of the plant, which was nevertheless heavily contaminated after the explosion of the containment vessels of three of the six reactors at the Fukushima Daiichi nuclear power plant in 2011 [2]. The mayor of this vast village (230 km²) has implemented an offensive decontamination policy, with a view to reopening the commune to its residents as soon as possible. This measure generated a substantial volume of contaminated soil, mostly stored in former fields or rice paddies. Although decontamination, which was limited to arable land, housing, and the surrounding area, is considered by the authorities to have been completed, the resulting wastes are still stored in the village in significant volumes. At the same time, the village is home to a considerable number of solar panels.

4. The Japanese photovoltaic turnaround

After the Fukushima nuclear accident, the population became strongly in favor of stopping nuclear power (despite the current stimulus plan and against the position of Shinzo Abe's government from 2013 onwards). In order to mark their opposition and aggressively initiate a transition to renewable energies, residents invested in solar farm companies and sometimes even developed their own solar panel businesses alongside their professional occupations. This citizens' initiative is particularly innovative in Japan, where regional public companies have held a monopoly on energy production. This is notably the case with Minna no denryoku (literally, everyone's energy), which, partly sponsored by the brand Adidas, has extended its services nationwide in Japan. More substantial private companies have also emerged since 2012, such as Toyo Energy Farm, founded in 2012, which holds the market in the Fukushima municipalities of Sôma, Minamisôma, and Nihonmatsu. In addition, various publicly and privately funded research institutes dedicated to the development of renewable energies have also been set up, with an emphasis on photovoltaics and its derivatives. The Japan Renewable Energy Institute is one of them, founded by SoftBank CEO Masayoshi Son in 2014. Another one is the Fukushima Renewable Energy Institute (FREIA), instituted by AIST (The National Institute of Advanced Industrial Science and Technology), one of Japan's largest research centers. FREIA was also established in 2014 in the city of Kôriyama (Fukushima Prefecture). The major companies in charge of power generation, including Tôkyô Electric Power Company Holdings (TEPCO) since August 2011 in the city of Kawasaki, Mitsui, Mitsubishi, and

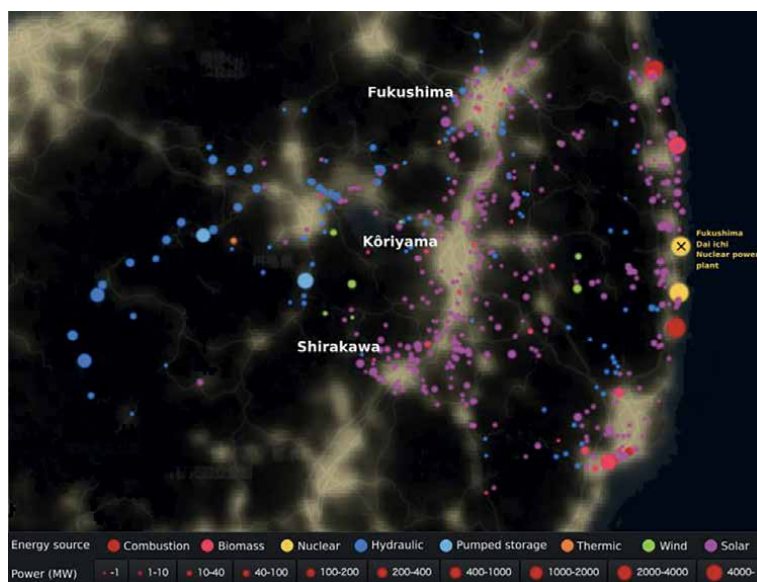


Figure 1.
*Energy mix in Fukushima Prefecture. From source: Kitamoto A. (2023), *Electrical Japan (2011–2023)*, National Institute of Informatics. (Translation: Cécile Asanuma-Brice).*

Toshiba, have followed this turnaround and invested heavily in solar power generation. Every year, the Fukushima Renewable Energy Industrial Fair⁷ (REIF) is held in Fukushima. This trend has led to a major conversion of the country's land for solar panels [7]. Resident-based solar panel businesses, created since March 2011, take a dim view of the nuclear revival announced by Prime Minister Kishida for 2022, as well as of the change in the law, dated May 31, 2023, which plans to allow the operation of old power plants to be extended to 60 years⁸.

As can be seen in **Figure 1**, considering Fukushima Prefecture only, energy is now produced by thermal power plants (coal and biomass), all located on the coast; by a majority of solar farms located throughout the eastern half of the prefecture (the half most affected by radioactive fallout from the nuclear accident); and by hydroelectric power plants, mostly located in the west of the prefecture. There is very little wind power, sporadically scattered across the mountain peaks.

5. Shirakawa, the municipality outside the zone with the highest number of solar farms

Both Kitamoto's mapping and ours from the Mitate laboratory highlight a higher density of solar farms in the urban areas that cross the prefecture at its center in the

⁷ REIF: <https://reif-fukushima.jp/en/index.html>

⁸ Journal Asahi, 1er juin 2023朝日新聞デジタル記事:原発の電気はイヤ。市民が立ちあげた太陽光-政府の原発回帰で試練。 (We do not want nuclear electricity. Citizens Launch Solar Power - A Test in the Government's Return to Nuclear Power) <https://www.asahi.com/articles/ASR5073YKR5VUGTB00F.html>

Nakadôri region. In particular, a significant aggregation emerges to the south of this conurbation along a north-south axis, around the town of Shirakawa (pop. 59,000), which is located 100 km southeast of the power plant (see **Figure 1**). A priori, nothing explains such an expansion of photovoltaic farms in this town, which has a smaller or equivalent population than the towns of Fukushima (pop. 275,000) or Kôriyama (pop. 58,000), both preceding Shirakawa on the aforementioned urbanized axis. Our initial surveys in 2022 also identified a significant concentration of warehouses containing bags of contaminated soil around this commune, which are now covered with solar panels. A spatial correlation was found between these two new landscape components that appeared after the nuclear accident. However, this correlation needs to be put into perspective if we consider the map showing the distribution of solar panels throughout Japan, which shows an accumulation of equivalent size along the

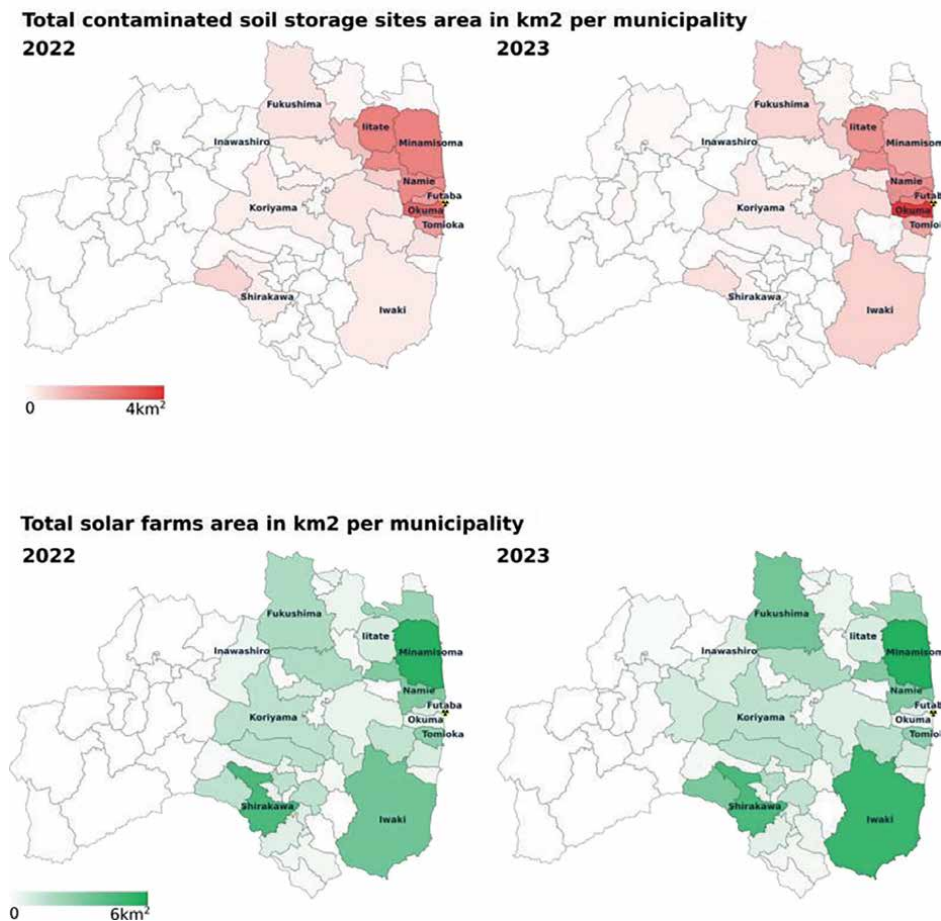


Figure 2.
Evolution from 2022 (left column) to 2023 (right column) of total contaminated soil storage (upper row) and solar farm (bottom row) areas per municipality in the Fukushima Prefecture. (Data: Cécile Asanuma-Brice; Map design: Thomas Hurtut).

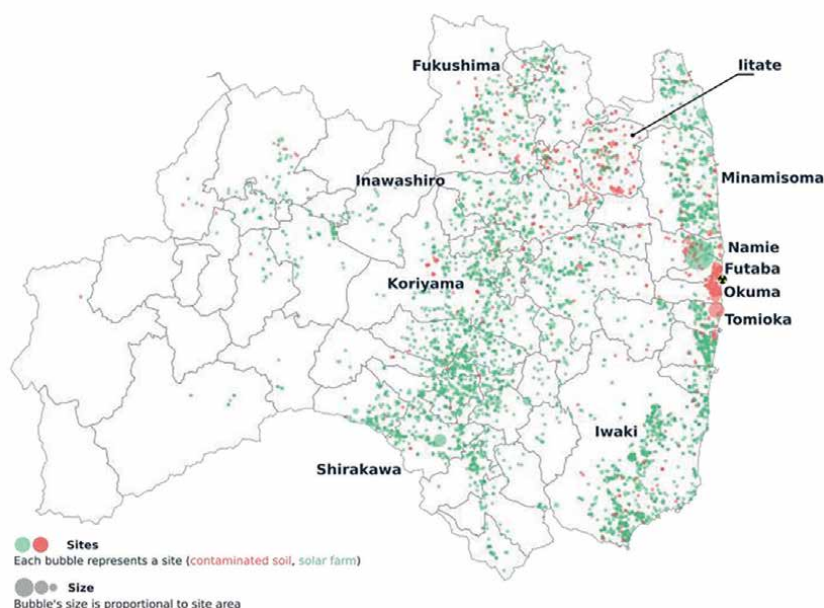


Figure 3. Distribution of contaminated soil storage sites and solar farms in 2023 in the Fukushima Prefecture. Red bubbles represent soil storage sites, while green ones represent solar farms. Bubble size is proportional to site area. (Data: Cécile Asanuma-Brice; Map design: Thomas Hurtut).

entire east coast of the Japanese archipelago and more particularly in Chiba prefecture, west of Tôkyô⁹.

In Shirakawa, the latest and largest solar farm (128 ha) to have been built (for the whole Tohoku region), which began operating in 2021, is called “Solar PV Park.” The developers of this project are a good example of the situation described in the last section, as it is a conglomerate between a research center (Fukushima Mirai Kenkyu kai), a renewable energy think tank (Japan Renewable Energy), and a private company (Shinobuyama Fukushima Power). The project consists of 184,730 modules generating 79,700 MWh to supply 18,120 households with energy.

Beyond this noteworthy expansion of solar energy production in Japan since 2011, it is astonishing that so many bags of decontamination soil have been dumped so far from the plant and outside the area under evacuation order. The explanation for this waste, resulting from the extensive decontamination campaigns in the area, is linked to the nature of the soil being there. Composed of Upper Pleistocene volcanic rocks with a black clay texture¹⁰, it has induced significant fixation of Cesium-134 and Cesium-137, the two cesium isotopes released in large quantities after the nuclear accident. The identification and location of these deposits led to a concentration of

⁹ Kitamoto’s map for the whole Japan can be seen here: <http://agora.ex.nii.ac.jp/earthquake/201103-eastjapan/energy/electrical-japan/type/8.html.ja>. In 2023, the breakdown by energy production mode in Japan is as follows: 31.7% natural gas, 26.5% coal, 11% steam-generated energy, 9.3% solar farms, 7.8% hydro, 5.9% nuclear, 4.1% biomass, and 2.5% oil. If we add wind and thermal energy, in 2023 Japan will be using 33.4% nonnuclear renewable energy (which represents more than its gas and coal consumption). Source: <https://earthene.com/media/156>.

¹⁰ See https://hbh.center/wp-content/uploads/2021/03/02-issue_04_03.jpg

decontamination activities in the area. By May 2023, almost all the bags of contaminated soil in this area had been moved to storage centers for treatment (see **Figure 2** for the temporal evolution from 2022 to 2023 for each municipality in terms of total site surface and **Figure 3** for the precise distribution of sites in 2023 of both soil storage sites and solar farms).

6. Land-use evolution and demographic analysis at the prefecture level

According to data published by the prefecture¹¹ on land-use trends from 2010 to 2023, we can observe:

- A 125 km² drop in agricultural area;
- A decrease of 22 km² in grassland;
- An increase of 20 km² in forest;
- An increase of 18 km² in road surface area;
- An increase of 23 km² in residential area;

While these changes in land use remain small on the scale of the prefecture, which is very vast (13,784 km²), they highlight the dynamics in place and show that they accelerated after 2011 (see **Figure 4**). These figures should be interpreted in the context of the department's significant population decline. The increase in the number of kilometers of asphalt roads, inversely proportional to population decline, is particularly noteworthy¹². This points out an unnecessary over-artificialization of land in the region.

Agricultural land has shrunk drastically as a result of the prefecture's population decline for three main reasons: natural demographic decline, the flight of part of the population due to the nuclear accident in 2011, and the evacuation of the contaminated area around the nuclear power plant for over ten years (see details of the lifting of evacuation orders by commune in **Figure 5**). In addition, the image of Fukushima's agricultural products has been severely damaged, making it difficult to maintain

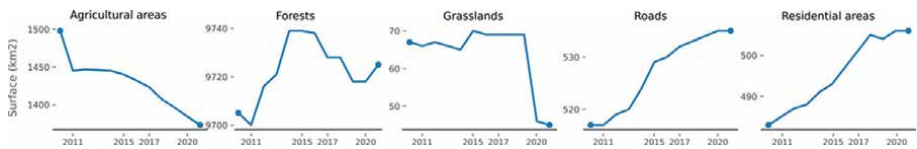


Figure 4.
Temporal evolution of five land uses from 2010 to 2023 in the Fukushima Prefecture. From left to right: agricultural areas, forests, grasslands, roads, and residential areas. (Data: Fukushima Prefecture; Design: Thomas Hurtut).

¹¹ See <https://www.pref.fukushima.lg.jp/sec/11015b/fukushimaken-tochi-riyou-genkyou.html>

¹² "GraphToChart. Is the Actual Length of Paved Roads in Fukushima Prefecture Long or Short as Seen in the Graph?" Last modified 2023. <https://graphtochart.com/japan/fukushima-total-real-length-of-paved-roads.php>.



Figure 5.
Photos of the city of Ōkuma. Although the station was rebuilt for the 2020 Olympic Games, the area around it remains uninhabitable due to the high level of contamination. Gutted pavilions reveal daily life frozen at the time of the leak. Radioactivity levels stood at over 5 $\mu\text{Sv/h}$ at the end of 2021. (Ōkuma, 2022. Photos: C. Asanuma-Brice).

profitable agricultural activity in the region. That being said, even before the nuclear accident, the prefecture had been going through population decline since 1960, culminating in a demographic fall of over 1000 inhabitants per month since the 1990s¹³. The structure of the population, with an increasing number of elderly people and a significant reduction in the 15–64 age group¹⁴, heralds an even more pronounced natural population decline. The Fukushima disaster was therefore a catalyst for a process that was already underway.

In addition, it is interesting to note the sectors whose land use is increasing: forests, roads, and residential areas. The abandonment of the area by the local population is naturally reflected in the reestablishment of forest vegetation cover on part of the territory. What seems less obvious, however, are the last two points: the expansion of roads and residential areas. This reflects the government's proactive policy of investing over \$42.6B¹⁵ in the reconstruction of areas damaged by the nuclear accident, tsunami, and earthquake of March 2011. This planning has resulted in decontamination measures on a scale unrivaled anywhere in the world, although they are limited to habitable and arable areas, as the forests, which make up 75% of the territory, remain largely contaminated.

7. Land-use evolution and demographic analysis at the prefecture level

The state's reconstruction program for the evacuated area around the power plant focuses more specifically on the interior of seven perimeters (see **Figure 6**, green areas). In May 2017, the government passed the "Amendment Law on Special Measures for the Reconstruction and Revitalization of Fukushima" (福島復興再生特別措置法の改正(H29.5)), which reopens the possibility of residence in areas previously deemed uninhabitable. Each mayor of the concerned municipalities has prepared a plan for the establishment of a specific zone, for which he or she undertakes to concentrate efforts in terms of reconstruction and revitalization (infrastructure development), in conjunction with environmental cleanup (decontamination). These plans, approved by the Japanese Prime Minister, have

¹³ See <https://www.pref.fukushima.lg.jp/sec/11045b/15847.html>

¹⁴ See <https://jp.gdfreak.com/public/detail/jp010050000001007000/1>

¹⁵ See https://www.reconstruction.go.jp/portal/chiiki/hukukoukyoku/fukushima/20230404_fukkokasoku.pdf

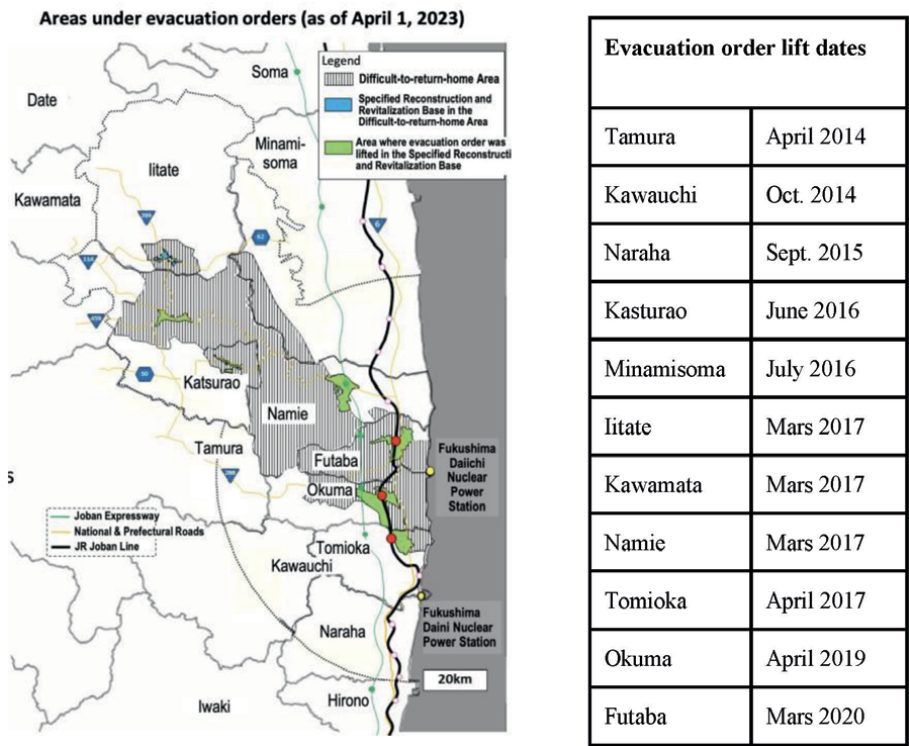


Figure 6.
(Left) Map showing the main area under evacuation order as of April 1, 2023, priority reconstruction areas, areas where the evacuation order has been lifted, and main transport routes. (Source: Fukushima Prefecture. Translation: C. Asanuma-Brice). (Right) Evacuation order lift dates for each municipality around the Fukushima Daiichi power plant. (Source: Japanese Ministry of the Environment: <http://josen.env.go.jp/en/decontamination/>).

been allocated specific funds for the reconstruction and regeneration of these areas. Rehabilitation of each area is estimated to take five years, after which the evacuation order will be lifted¹⁶.

These seven areas are currently being redeveloped and rebuilt, and most of them have been reopened to residential use in environments that are still unevenly contaminated. The environmental situation remains particularly worrying in the mountainous part of Namie township (see **Figure 6**), as well as in Ôkuma township, where sparsely distributed contamination remains present and difficult to stabilize, even after decontamination¹⁷. Before the nuclear accident, ambient radioactivity was 0.04 µSv/h. As can be seen in **Figure 7**, the municipality now shows levels largely exceeding 0.23 µSv/h and even 1 µSv/h in numerous areas. Considering that 0.23 µSv/h is the dose internationally recognized as acceptable by international organizations (equivalent to 1 mSv/year), we see that this level is still far exceeded in areas that have been reopened to housing.

¹⁶ Reconstruction agency, 2017 (in Japanese): <https://www.reconstruction.go.jp/topics/main-cat1/sub-cat1-4/saiseikyoten/20170913162153.html>

¹⁷ Ôkuma municipality, 2022. <https://www.town.okuma.fukushima.jp/uploaded/attachment/7885.pdf>

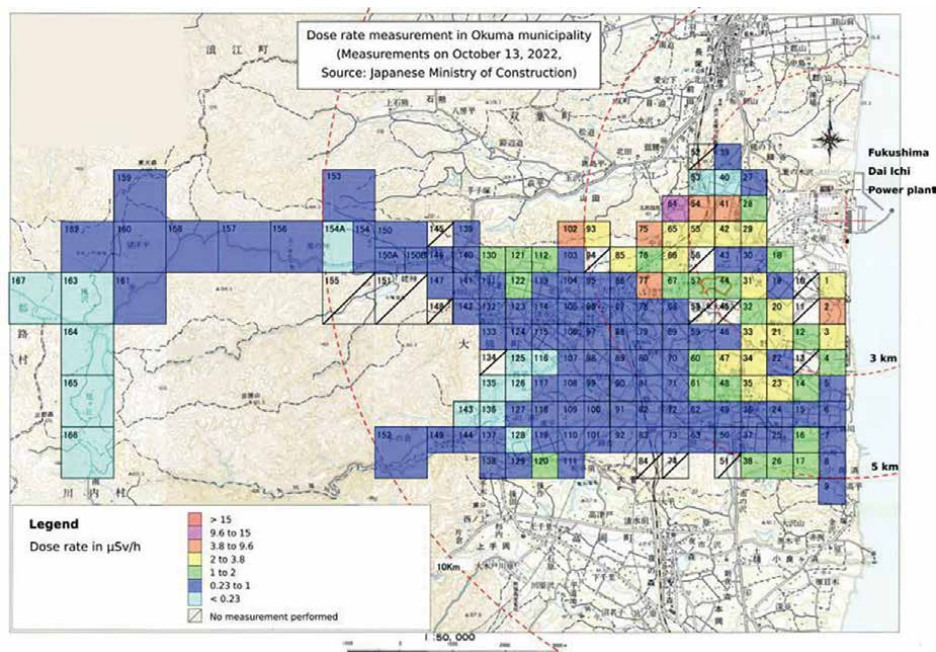


Figure 7.

Dose rate measurement for the town of Ôkuma (October 13, 2022). Produced by the Japan Reconstruction Agency. (Translation from Japanese C. Asanuma-Brice.), Dose rate is a measure of the radiation dose absorbed per unit of time.

8. Land-use evolution and demographic analysis at the prefecture level

Despite a still unstable environmental situation and the fact that the majority of residents had expressed their opposition to returning to live in their former communes¹⁸, the government launched a vast program to rebuild the area. This involved the decontamination of houses and their surroundings, as well as fields (leaving the surrounding forests since no method of decontaminating and preserving the forests at the same time exists). It also involved the restoration of infrastructures (water, electricity, gas, and drainage), the destruction of the old urban fabric, and its rebuilding. Inhabitants now have permission to reside in these areas, which are nonetheless classified as difficult to return to and to which access was planned to remain restricted for an unlimited period of time.

Reconstruction of the coastal communities began with the restoration of the road network, which can be used without making any stops along it because contamination levels are still too high, and of the main railroad line. In addition to radioactive pollution, coastal communities suffered extensive damage from the earthquake and tsunami. As most of the buildings are made of natural materials, they are also vulnerable to the high heat and humidity of the Japanese summer. Aside from the debate over pollution, which is often still very present in the area, controversy has focused on the problems associated with demolishing the existing landscape. Once the political decision had been taken to rebuild the former evacuated zone, this meant that the

¹⁸ Results of the survey conducted by the reconstruction agency in November 2020.

existing buildings had to be demolished. In the seven priority reconstruction zones, the destruction is a new trauma for the people who have left and no longer recognize the landscapes in which their lives took place. In addition to the lack of infrastructure, this is the main reason why people no longer wish to return to their former villages, which they no longer recognize [8]. Railway stations have been demolished, then rebuilt and automated (no more station employees). Schools, libraries, hospitals, small neighborhood restaurants, the neighbor's house, and the teacher's house—all these composite buildings, whose texture bore witness to the passage of time, to various eras, hinting at the strata of construction, have been destroyed. This complex urban fabric was a marker of life in space. It was what transformed the engineer's objective territory, the plan, into a place of existence. Today, all this has disappeared to make way for the production of suburban housing estates without character, concomitant with large-scale soil artificialization. In what follows, we analyze the three local authorities whose reconstruction is the most ambitious, in that they are adjacent to the nuclear power plant.

8.1 The municipality of Ôkuma

Although the reconstruction of Ôkuma, the municipality that partly hosts the power plant (see **Figures 6** and **8** for localization), began with the newly automated Ôno station, the area around this district is still too polluted to allow reconstruction (see **Figure 5**). It was therefore decided to build the new town hall in an outlying area that has been deforested for that purpose, in front of which stretches a long expanse of asphalt housing an activity center (sports hall, village hall, music room, kitchens, etc.), a communal bath, a few restaurants, and then a housing estate built in stages (see **Figure 9**). This area is bordered by a road, beyond which is another complex of small apartment blocks that were built for TEPCO employees.

In May 2023, the population was 1000, which might seem an encouraging boost. However, the composition of the population proves that, far from a renewed dynamism, the population is artificially inflated by TEPCO employees (800 of the 1000 inhabitants in May 2023) from Tôkyô, who were sent to live on the site by their company. Of the remaining 200 people, more than half came from other prefectures supported with government funding, and only a hundred or so returned to live in their home communities. In other words, of the 11,500 inhabitants present before the accident, less than 1% actually returned.

As we have seen, the commune of Ôkuma is also where the majority of contaminated waste is stored in the vicinity of the nuclear power plant, where contamination levels remain high. As early as 2017, not far from the new town, in the Ôgawaranishidaira district (in the center of the community), Ôkuma Energy Mega Solar was established, a 160,000 m² solar farm made up of 37,044 solar panels for an annual production of 12,700 MWh. The investors in this facility are NTT Facilities, Kitashiba Electric, Ôkuma municipality, and Fukushima Electric Power¹⁹.

The municipality of Futaba (see **Figures 6** and **8** for localization).

Futaba, the other town that partly hosts the Fukushima Daiichi nuclear power plant²⁰, is a seventh-century municipality. Over 1300 years of history, of which nothing remains today. Old buildings are being torn down one by one to make way

¹⁹ <https://fukushima-power.com/topics/1535/>

²⁰ The Fukushima Daiichi power plant overlaps the Ôkuma and Futaba border.

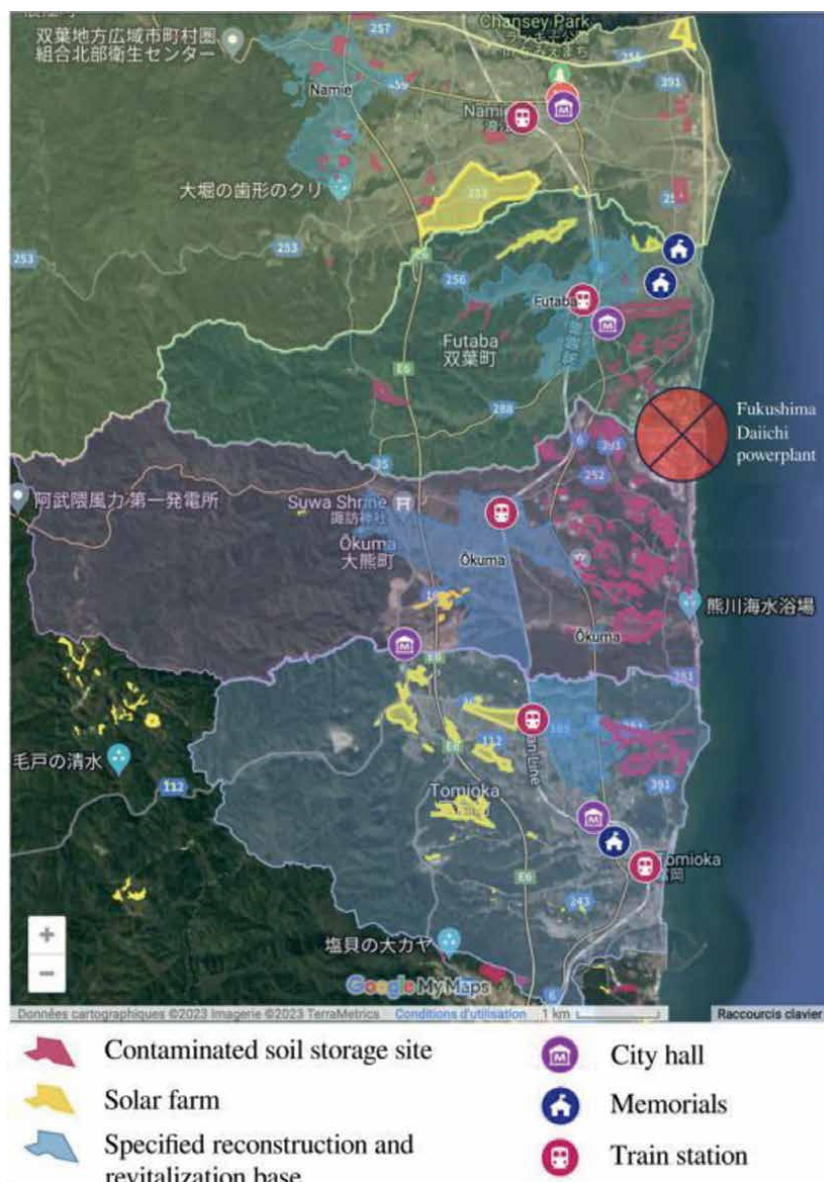


Figure 8.

Map by Mitate Lab. (Production: C. Asanuma-Brice; J. Arnaud) showing the location of contaminated soil and waste warehouses, priority reconstruction zones, and photovoltaic panel sites in the municipalities surrounding the Fukushima Daiichi nuclear power plant.

for empty plots (see **Figure 10**). Behind the station, through which trains sporadically pass, a housing estate has been built. Here, three types of housing are offered (and under construction):

- Public housing built after a disaster (saigaijûtaku 災害住宅) targeted at the former Futaba residents who have no more habitable accommodation. This residential subdivision is composed of 15 townhouses stuck together, and in fact, they are akin to a collective dwelling. The disadvantage of the latter model is that



Figure 9.
 The new town spreads its asphalt in front of the town hall, which has been moved and rebuilt on decontaminated land. As the surrounding area remains uncertain, with contamination “hot spots,” there are numerous prohibitions on entering the city, and the area is under video surveillance. (Middle) TEPCO employees have housing and a special restaurant across the street. (Ôkuma, 2022–2023. Photos: C. Asanuma-Brice).



Figure 10.
 The old city center of Futaba is being destroyed in stages, while traces of the rapid evacuation remain visible. (Photos: C. Asanuma-Brice, 2020–2023).

it does not offer a garden as such, but rather scattered, small, square green lots that cannot be appropriated.

- Rental “revitalization” housing (再生賃貸住宅) for potential new residents from outside the area. They are composed of 15 detached houses and 41 townhouses.
- Allotments that can be purchased by those who wish to do so.

In 2011, Futaba had a population of 7000. At the time of our last visit (March 2023), only around 20 people, including one child, lived in the suburban development. Of these, only three were former residents. The other residents came from various prefectures in Kantô (the Tōkyō region), attracted by the subsidies offered by the state. In the town of Futaba, 0.04% of residents returned to live in their former commune. The housing being offered appears to be a 1:1 scale model of a ground-floor glazed building that allows the view through, a measure designed to prevent excessive loneliness. In reality, the few residents who wish to preserve their privacy have hung opaque curtains. Lumber is imported. The solar panels on the roofs are there as a backup measure, not as the main power supply. The surrounding soils have all been artificialized to prevent contamination from rising to the surface. A decontaminated plot is planned at the back of the site to be used for collective gardening. This area has been the subject of much criticism from former residents who have visited the site, particularly in view of the fact that the staircase leading up to the first floor of the buildings (R + 1) is far too steep for the elderly, who made up the majority of the town’s population, to climb. Here again, these dwellings do not seem to have been intended for the original residents.

In addition to the location of waste warehouses and contaminated soil in this local authority, the Mitate Lab. A map produced by C. Asanuma-Brice and J. Arnaud in 2023 highlights two main photovoltaic sites to the north of the Futaba commune (see **Figure 8**). Both sites are under the control of Fukushima Electric Power (FEP).

8.2 The municipality of Namie

The neighboring municipality of Namie was chosen by the government as an international model for a resilient postnuclear-accident city (see **Figures 6 and 8** for localization). As the largest locality in the former evacuation zone (223 km²) but also the most contaminated (with the radioactive plume running through its entire length), Namie commune, because it was the most problematic, was simultaneously set up as the symbol of post-Fukushima reconstruction. Namie is now home to two priority reconstruction zones: Tsushima and Kiyohashi (see **Figure 11**).

The Tsushima district was reopened in March 2023. Today, it is home to a dozen or so identical bungalows made of lightweight materials (**Figure 12**), lined up on an asphalt plot, housing two people formerly living in this still highly contaminated district²¹. The few other residents, responding to government financial incentives,

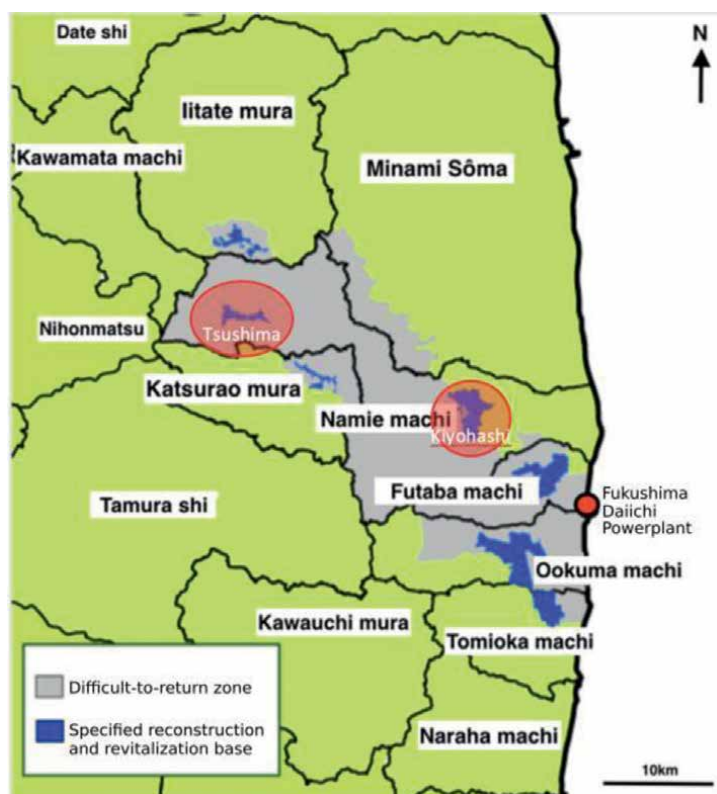


Figure 11.
The two priority reconstruction zones in the Namie commune.

²¹ We measured 2 µSv/h a few hundred meters from the housing estate, and the surrounding forest recorded rates higher than this.



Figure 12.
Tsushima district. (Top) The vast buildings that made up the landscape before the nuclear accident. In the center photo, a former resident tells us about her village. (Bottom) The ten-bungalow development adjacent to the old homes, proposed to residents by the reconstruction agency. (Photos: C. Asanuma-Brice, March–Oct. 2023).

came from prefectures north of Tōkyō. The district around this housing estate is open to the public, but residency in the old residential buildings, which are often superb century-old buildings surrounded by vegetation, is prohibited due to the high level of radioactivity.

The other area is the Kiyohashi district, for which planning is underway. Around the Namie town hall, more on the coastal area, the territory was reopened in 2017. The district around the station will be developed by internationally renowned architect Kengo Kuma. Kengo Kuma was chosen by the government because of his worldwide fame, as well as the fact that he had already been selected to build the Tōkyō stadium for the 2020 Olympic Games. The aim was to draw the world's attention to the rebirth of a site that had suffered a nuclear accident.

This district, so-called The Grand Design, involves the reorganization of the area into five-story (7700 m²) multifamily housing units around a 2600 m² shopping mall adjacent to the station (see **Figure 13**). It does not meet the unanimous approval of the former residents, who mainly lived in suburban housing. Collective living forces them to become dependent on a consumer society from which they had previously been able to escape in part. This urban complex is due to be completed in 2026.

For the time being, the rebuilding of Namie has mainly involved multifamily housing and the Michi no Eki shopping center²², the main meeting place for the local population. It is worth noting that, both in Kengo Kuma's planning and here, a shopping mall was established as the central and main place for socializing. Before the 2011 earthquake, Namie had a population of 21,542. After twelve years of evacuation orders, it now has just 1964, mainly made up of reconstruction workers and their families. Of these, 897 people (327 households) live in the two priority reconstruction

²² Michi no Eki is a public chain of stores selling regional products, with the aim of revitalizing the rural villages where they are located.



Figure 13. (Top row) *The Grand Design* by Kengo Kuma at Namie. Source: “The Grand Design: For Landscape Architecture around Namie Station,” Namie City Hall, March 2022. Program composition: three public housing blocks of three, four, and five stories, respectively; two blocks of three- and four-story private collective housing, with a total surface area of 7700 m²; a 2600 m² shopping center; and a 1600 m² coworking space, cafés, and waiting rooms. All buildings will be equipped with solar panels on the roof, including the glass roofs, which will be covered with transparent photovoltaic film.

zones. Of the communities surrounding the nuclear power plant, Namie, although somehow spared from contaminated waste disposal compared to the towns of Ôkuma and Futaba, is home to the largest photovoltaic sites (see **Figure 8**). The community is home to two large-scale facilities.

The first one is the Fukushima Hydrogen Energy Research Field (FH2R), located on the north coast of the municipality. Opened in 2020, this is the world’s largest hydrogen production unit, powered by a 20 MW mega solar power plant. The facility, under construction since 2018, is under the aegis of the New Energy and Industrial Technology Development Organization (NEDO), Toshiba Energy Systems, Tohoku Electric Power Company, and Iwatani Corporation. The hydrogen produced is mainly intended for fuel cell vehicles (FCVs). The second major facility is the Mitsubishi mega solar power plant in the Yatsuda district of Namie. In October of the same year, 2020, when the Olympic Games were held and the torch relay took place in the vicinity of these sites, Mitsubishi began the commercial operation of one of the largest mega-solar power plants at the junction of National Road 6 and the Takase River (**Figure 8**). The plant, which was officially included in the reconstruction and development plan of Namie municipality as a reconstruction and improvement project after the great earthquake in eastern Japan, uses an area of around 880,000 m², where it is difficult to resume farming due to the contamination of the land. Annual electricity production is forecast at 71 million kWh/year.

These two projects make Namie the municipality with the largest solar power plants in Fukushima Prefecture. It should be noted that the traditional investors in nuclear power are the ones behind these installations: Toshiba and Mitsubishi. An analysis of the evolution of land use in Fukushima, and more specifically in the former evacuated zone near the Fukushima Daiichi nuclear power plant, would not be complete without an assessment of the attempt at economic recovery, which is still underway.

9. A drip-fed economic recovery

Throughout the prefecture, 550 companies, again of varying sizes, have been financially supported to generate 7041 jobs in the photovoltaic, electronics, textiles, automotive, medical equipment, and paper production sectors. However, jobs are concentrated almost exclusively in the existing urban hubs: the town of Kôriyama (pop. 335,000), the city of Iwaki (pop. 350,000) to the south, and the city of Fukushima (pop. 300,000) to the north (see **Figure 14**). Those three cities have never been evacuated, and their population levels have been maintained. To revitalize the economy of the former evacuation zone, the government has set up a national project called “Innovation Coast Fukushima.” Its aim is to create a new industrial fabric (Fukushima Prefecture, 2020). The idea is to combine the economic revitalization of the sector with a world-class research center on the model of American innovation hubs such as Silicon Valley [9]. Six priority areas for research and innovation have been selected: dismantling, robotics and drones, energy environment - recycling, agriculture - forestry - fisheries, medicine, and aerospace. An innovative incubator opened right in front of the disaster memorial in Futaba town (home to the Fukushima nuclear power plant) in 2020, while the research center, located in nearby Namie municipality, was inaugurated in April 2023 in the presence of Prime Minister Kishida.

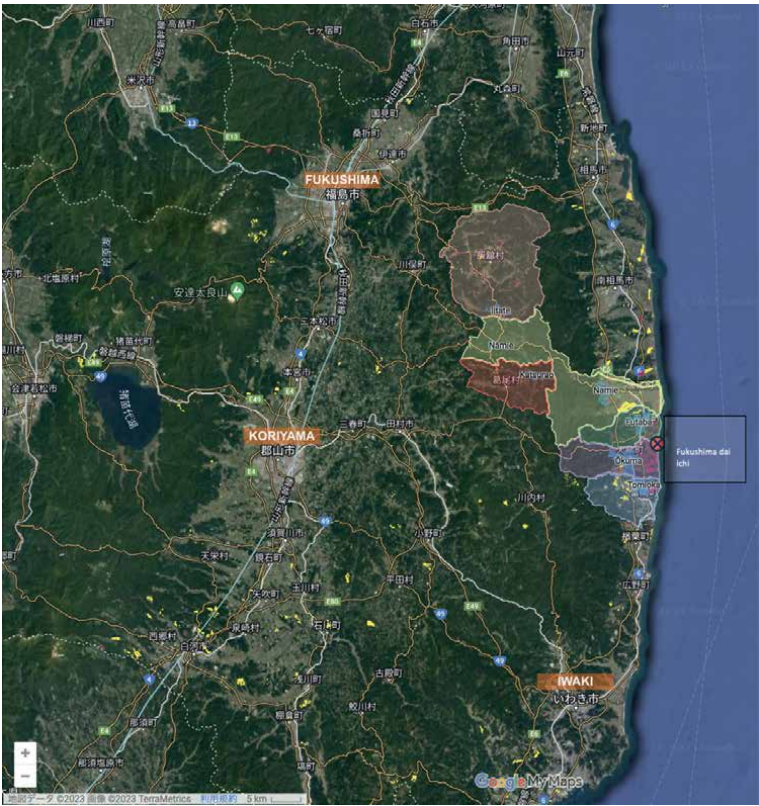


Figure 14. Location of the main towns in Fukushima Prefecture: Fukushima city (pop. 300,000), Kôriyama city (pop. 335,000) and Iwaki city (pop. 350,000) in the south of the prefecture. None of these were evacuated following the nuclear accident. Communes belonging to the former evacuated zone are under colored layers (Mitate lab map. Production: C. Asanuma-Brice, J. Arnaud, 2023).

This project was initiated in 2014 under the leadership of Kazuyoshi Akaba, who at that time was Vice Minister of Economy, Trade, and Industry and President Director of the Nuclear Emergency Response Headquarters. Other parties were involved in the project: METI, the Reconstruction Agency, the Ministry of the Environment and the Ministry of Agriculture, Forestry and Fisheries, TEPCO, the Japan Atomic Energy Agency (JAEA), and representatives of local authorities. As a result, this initiative is perceived by the local population as top-down, with little regard for local needs.

A recent scientific evaluation helped better understand residents' feelings about the reconstruction policy [10]. The development of medical services, the hydrogen production center, the development of renewable energies, and recycling are perceived as positive initiatives. Conversely, the desire for international development, the memorial, tourism, and dismantling are widely disapproved. This survey of residents' opinions on reconstruction also revealed opposition to the government's handling of hearsay control and, more generally, its use of the reconstruction budget. Lastly, 70% of residents considered the environmental measures taken by the authorities to be inadequate.

Notwithstanding these harsh assessments by the local population, the reconstruction agency's plan to establish the Namie International R&D Center by 2020 was to create 600 researchers and 5000 jobs, but it seems that the initial project has been scaled down due to the lack of attractiveness of the site. Doubts and criticisms, voiced both by the local population and local civil servants, abound as to the real international revival of localities that were already in decline before the nuclear accident. During our fieldwork in May 2023, we also noted that the incubator set up in front of the memorial was mainly occupied by Tōkyō Electric Power Company Holdings (TEPCO). However, the company's marketing policy for other companies is very aggressive, as evidenced by the dedicated web page²³. It describes the availability of premises, tax benefits, and other subsidies offered to potential volunteers, both for companies and for individuals and their families, who are encouraged to settle in the zone's municipalities. Videos detailing the attractiveness of each of the communes concerned can also be viewed.

In terms of spatial occupation, the research center, which is located behind the Namie train station, has been built on a vast area whose soils have been totally



Figure 15. *Namie, land artificialisation and vacant facilities. Multifunctional center and library rebuilt behind Namie station. (Photo: C. Asanuma-Brice, March 2023).*

²³ FIPO (Fukushima Innovation Coast Framework): <https://www.fipo.or.jp/en>

artificialized by a blanket of asphalt. Opposite the institute are a number of services, including a dispensary for elderly people, open for a few hours a week; a library (which was empty when we visited in March 2023); and children's play areas inside a vast air-conditioned building (**Figure 15**). The detailed analysis of the degree of satisfaction or dissatisfaction among residents presented above raises questions about the scale of the budget invested.

10. Conclusion

As we have seen, this reconstruction phase was preceded by the destruction of the old districts and living spaces of former local residents. According to surveys carried out by the reconstruction agency, these residents have no desire to return. What is applied as an engineering solution to a spatial problem turns out to be dramatic in terms of crisis management and the preservation of preexisting socio-economic ties [11]. Worrying about a possible landscape of ruined cities that would send back to the world a deplorable image of an industry that the government has decided to relaunch, it prefers to take the lead in pulverizing what existed. This tabula rasa will be the substrate for new cities built around the liberal functionalism of postwar cities, which boils down to four core activities: getting around, living, consuming, and working.

We cannot help but point out a striking paradox: the aggressive political will to produce residential space and develop new districts in a deserted and partially polluted area. This is undoubtedly a unique experiment in the world, with new towns built without inhabitants, compared to the new towns established in the 60s and 70s, which were based on a well-presented population [12]. Also, our analysis has shown that the figures officially given about the return of the population do not reflect a return to the original population. Instead, it shows the sending, either by TEPCO or through state subsidies, of new inhabitants who would volunteer in exchange for specific funding²⁴. It should be noted that other incentive policies have been put in place in each of these municipalities, such as making a suburban house available free of charge to a family wishing to experience life there for a few weeks before deciding to move in.

From an environmental point of view, reconstruction is mainly reflected in the production of housing estates that respond to the logic of making the new town profitable, that is, using a model housing of identical form, repeated at low cost, on a sheet of asphalt [13]. The result is a considerable loss of the quality of life attested by the old buildings, a complete disconnection from nature, and a radical change in lifestyle imposed by these new spaces. Moreover, the artificialization of land, contrary to the rhetoric that promotes the advantages of a clean, refurbished living environment, generates urban heat islands. This situation is compounded by the large-scale production of cement, a major CO₂ generator (37% of GHG emissions in 2022), and also due to the construction of dikes several meters high all along the coast, in addition to the reconstruction of entire communities. These are all points that stand in stark contrast to sustainable development measures and other IPCC warnings. In the same vein, we might wonder about the installation of extensive areas of photovoltaic panels, which

²⁴ Financial incentives to move into the former evacuated zone are available on the prefecture's website: <https://www.pref.fukushima.lg.jp/sec/11050a/fuku12-ijushienkin.html>

risk superimposing one pollution on another (contamination is always present) by cutting down forest areas.

It seems the aim of reconstruction is not to rehouse the original residents but to prove internationally the resilience of a region that has suffered a nuclear accident. The resilient city is a city of crisis, in which the crisis is accepted and managed [13]. It is supposed to be able to adapt by setting up modular infrastructures or even to take advantage of the crisis, in this case by revitalizing a region that was in decline, mainly around dismantling activities. Such an injunction to adapt seems conceivable in local communities dealing with natural hazards [14]. However, detractors argue that it prevents us from questioning the causes of dysfunctions. And besides, it needs to be questioned when it is required to continue living in territories polluted by an industry, whatever its nature.

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