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RAILWAYS AND ITS IMPACT ON PUBLIC HEALTH IN COLONIAL BENGAL: A LITERARY OVERVIEW

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ABSTRACT

In colonial Bengal, the advent of railways represented a transformative moment in both transportation infrastructure and socio-economic progress. The expansion of railways significantly facilitated the movement of people and goods, streamlining transportation. However, this heightened interconnectedness had its downsides, notably the increased transmission of diseases like malaria. The article conducts a thorough historical analysis through the lenses of literary traditions, exploring how railways altered settlement patterns, including the construction of embankments and dams, and influenced the interaction between humans and disease vectors. Drawing from government health reports, news accounts, and diverse perspectives, the article critically assesses the issues arising from borrow pits, embankments and dams. This comprehensive exploration contributes to a nuanced understanding of the environmental and health ramifications associated with major infrastructural changes implemented during the colonial era, providing valuable insights into historical contexts.

Keywords: Railways, Colonial Bengal, Embankments, Public Health, Disease Vectors, Literary Tradition, Diverse Reports

1. INTRODUCTION

The advent of European colonial rule in India triggered significant environmental transformations. Colonial powers seized control of the country's natural resources, leading to their extensive exploitation. Western imperialism played a crucial role in accelerating environmental degradation, primarily through large-scale extraction of minerals, plants, and animal resources to fuel industrial expansion. Moreover, colonial expansion inadvertently introduced Old World diseases to vulnerable populations, resulting in devastating mortality rates. (Arnold, 1986). For example, the establishment of the railway industry in India was a pivotal development that significantly contributed to the consolidation of British colonial rule in the Indian subcontinent. Among the various measures taken to strengthen their administration, the expansion of the railway network was one of the most influential. The official inauguration of railways in India took place in 1853, with the first train running from Bombay to Thane. In Bengal, railway operations commenced on August 14, 1854, connecting Howrah to Hooghly. By 1942, thousands of miles of railway tracks had been laid across colonial Bengal, facilitating transportation and trade. Since Bengal was a riverine and swampy landscape, the railway system was instrumental in improving transportation and connectivity across the region. To construct the huge

networks of Railways in Bengal Railway companies had to dig borrow pits, canals and construct embankments, dams and bridges obstructing the natural flow of waterways and making close water bodies. These stagnated water bodies became the breeding sector of vectors. Not only that with 'the firepower of the European vanguard' the complex of weeds, animals and other foreign vectors were also brought which devastated the flora and fauna and human society in Bengal (Gadgil and Guha, 1992). Train as a fast-moving vehicle helped in the outbreak of those diseases. While some reports highlight the benefits of improved access to medical facilities and reduced travel time for patients, others point to the unintended spread of infectious diseases, and the deterioration of environmental conditions caused by the construction of railways. This study explores the contradictory narratives surrounding the impact of railways on public health in colonial Bengal, shedding light on both the progressive and detrimental effects of this infrastructural development.

1.1. OBJECTIVES OF THE STUDY

- To what extent railways contributed to the spread of certain communicable illnesses
- To what extent public health was affected
- What were news reports, government reports, and local viewpoints on the contribution of railways to public health

2. LITERATURE REVIEW

The overall public health in colonial Bengal has been explored from various perspectives; however, the specific impact of railways on public health remains underexamined. Existing studies have addressed this issue either in a fragmented manner covering all of India or particular regions in a scattered manner, or as part of broader discussions integrated with other related themes.

For example, David Arnold examines the colonial state's role in disease control, the political limitations it faced, and how colonial Indian attitudes shaped responses to medical interventions against diseases like malaria and smallpox (Arnold, 1986). Ira Klein's Malaria and Mortality in Bengal, 1840-1921 is a pioneering study linking malaria and mortality in colonial Bengal to economic, geological, and ecological conditions (Klein, 1972). Arabinda Samanta's Malaria Fever in Colonial Bengal 1820-1939: Social History of an Epidemic explores how different social groups reacted to malaria and the colonial policies for its control (Samanta, 1995). Rohon Dev Roy's work "An Awful, Unseen Visitant": The Return of Burdwan Fever highlights how diseases were categorised as subjects of natural knowledge and social control. He explains the causes and effects of Burdwan fever (Roy, D. R. 2008). The book The Social History of Health and Medicine in Colonial India by Biswamoy Pati and Mark Harrison examines various aspects of the social history of health and medicine in colonial India. It delves into a distinctive range of themes reflecting India's diversity, including public health, medical institutions, mental illness, and the political and economic dimensions of colonial rules (Pati & Harrison, 2011). Suchibrata Sen's Malaria and Harry Timber: A Social History of Health and Medicine in Colonial Bengal District, provides further insights into malaria history (Sen, 2015).

Sanjoy Bhattacharya, Mark Harrison, and Michael Worboys document Smallpox and its prevention in colonial India (Bhattacharya et. al, 2005), Sujata Mukherjee's Environmental Thoughts and Malaria in Colonial Bengal: A Study in Social Response discusses the causes of malaria and contemporary perspectives on it (Mukherjee, 2008). Tinni Goswami's Situating Malaria in Colonial Bengal-From the Perspectives of Colonial Response and Native Reaction (1880-1930) emphasises the seriousness of malaria, which once escalated into an epidemic in colonial Bengal during British rule

Public health, epidemics especially malaria etc. in Colonial Bengal have been discussed in many ways, however, the role of railway construction in spreading infectious diseases and the debates it sparked among key figures and in reports and newspapers remain underexplored. This paper aims to provide a brief overview of that issue.

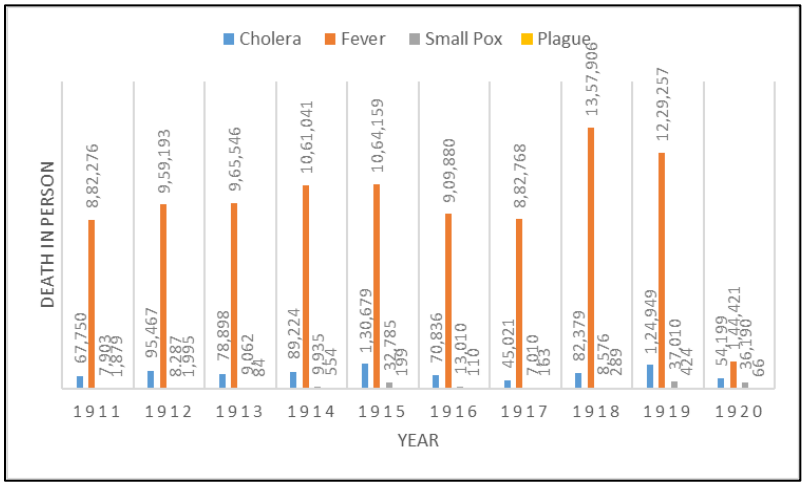
2.1. CONSTRUCTION OF RAILWAYS AND IMPACT ON PUBLIC HEALTH

The railways had an undeniable impact on public health in colonial Bengal, as well as elsewhere. Pre-colonial Bengali society was marked by social seclusion and social stratum discrepancies. The rapid communication infrastructure, particularly train mobility, was critical in breaking that societal immobility in all senses. It offered societies speed and mobility. Yet, this mobility had put the populace in grave danger of epidemics and other diseases. The construction of

canals and embankments for railways against the natural flow of streams had a negative impact on the ecosystems, resulting in communicable diseases.

Not only that but living in filthy conditions in tiny regions of working-class people who had travelled long distances for various railway projects increased the prevalence of disease transmission among them. Likewise, trains were used to aid the people of Bengal who were in critical health circumstances by distributing medications, drinking water and a sense of cleanliness. Many diverse discussions were carried out, mostly blaming the railways for plagues and diseases and others extolling their value. Nonetheless, there are several scattered reports and arguments about the extent to which the railway influenced disease outbreaks. Viewing such reports and discussions via indigenous and colonial lenses a comprehensive picture has been provided here. An attempt is made to discuss the impact of railways on public health in Bengal by highlighting current government reports and information, media conversations, and current speeches on the subject in this article.

Railways were a driving force in this transfer. Every year, the rate of transmission of this fever was increasing. Various communicable diseases and their number of deaths per mile in Bengal (Batra, 1935) have been bellowed:



There was no complaint found from the commencement of the railway about the embankments built by the railway company and their influence on the spread of malaria. It took a while to figure out what was causing the rapid spread of malaria and other infectious fevers. Yet, the locals were aware of the water logging in the embankments, which was causing the mosquitoes to multiply rapidly. The public and the government both noticed an increase in mortality. Sadharani, Prabashi, Sangbad Prabhakar, and several vernacular and local English newspapers covered the ensuing tragic situation. A committee was constituted in 1864 to study the aetiology of malaria, with Raja Digambara Mitra, a Bengali, chosen as its representative. Raja Digambara Mitra was the first to draw public attention to the role of railways in triggering malaria outbreaks. Together with the initial report, he sent a supplemental two-page report in which he wrote- "Remembering that the direction of the natural drainage of the villages situated along the river banks inland we have no difficulty in believing that it is impeded by the railway embankments on both sides. So we are strongly recommend to improve the internal drainage of the village by making open waterways to carry off surface water directly to any neighbouring river, canal or bill (swamp)" (Chander, 1893). He explained that numerous canals branching off the Hooghly and other rivers have drainages on both sides, obstructing the flow of water. Similarly, the Eastern Bengal Railway and its feeders have crossed the water channels of villages on the eastern bank of the river Hooghly, as well as other villages further inland but to the west of the line, and hindered the drainage of those places. "As a result, Chagda, Kachrapara Halishahor, and many others similarly situated have suffered," he added (Chander, 1893).

An inquiry committee was set up to look into the cause of the disease, headed by the Chief Engineer of the Railways, Colonel Nicholls. On 4th March 1869, he issued a report in which he stated that the railway embankments in Bengal had not obstructed the drainages and it was not responsible for the onset of the disease. But, if there are any impediments, they should be removed (Report on the Drainage Committee, 1907). Because the report was written by a railway engineer, the account will almost certainly be favourable to the government. He used the term 'some obstruction' to signify that there were at least some obstructions which had been instructed to remove. During an epidemic of 'Burdwan Fever' in 1872, another commission was sent to explore the reason. The chief officer of Burdwan was in charge of this

inquiry. Local residents and the district medical officer were requested to submit a survey report. This report was prepared using a variety of reports by Burdwan's chief officer. He remarked that "Eastern Bengal did in no way interfere with drainage". While other sub-district officials supported the report, the District Magistrate of North Twenty-four Parganas did not, claiming that the railway and road embankments at Halishahar and Barasat were mostly to blame for the epidemic fever there. It was alleged that the drainage had been so obstructed. After discussion with the commissioner in 1882, it was concluded that "the outbreak of fever can be attributed to local obstruction to drainage from waterways in roads and railways." But this report had not been accepted by the Lieutenant Governor who concluded that "While Raja Digambar Mitter's theory was possibly right in some respects and there was no obstruction from road and railways anyway for the causing of fever due to drainage obstacles (Chander, 1893).

D. G. Crawford, a British physician and officer of the Indian Medical Service, raised two basic objections to the theory of Raja Digambar Mitra. In Hooghly Medical Gazette, Crawford explicated his objections in detail. He asserted that to account for a gradually spreading wave of fever, one must suppose that roads and railways spread from Jessore to Midnapore, which he said was not the case. Secondly, he stated that the fever prevailed with equal virulence and fatality on both sides of the embankments in every case (Samanta, 1997). But contrary to the objection raised by Crawford there are so many reports which directly or indirectly blamed the construction of embankments in spreading vector diseases.

A sanitary study from 1884 claims that malaria from the construction of railways in Dhaka and Mymensingh caused the outbreak. Surgeon Major W. H. Gregg, the Sanitary Commissioner for Bengal, argued in 1890 that the province's unhealthy conditions were largely caused by excessive moisture in the soil. He explained that this was due to inadequate drainage systems to remove subsoil water. The problem was becoming increasingly serious each year because the development of roads and railway lines was obstructing the natural drainage of the land. These infrastructures often lacked sufficient waterways to allow proper water flow (Samanta, 1995). A report in 1896 shows that fever became widespread during the construction of the Assam-Bengal Railway from Gauhati to Lumding. A major malaria epidemic occurred in the Rajshahi Division between 1905 and 1909. This outbreak took place while the railway line between Godagari Ghat and Katihar was being built. Major M. C. Combie Young, a Sanitary Officer, investigated the epidemic. He clearly stated that there was a strong link between the railway construction and the rise in malaria cases in the affected districts (Samanta, 1997).

On the contrary, a sanitary report from 1907 claims that the outbreak of fever in Murshidabad had nothing to do with the Eastern Bengal Railway. Rather, numerous reports have emphasised unclean household habits (Report on the Drainage Committee, 1907). Inspector General Dr. John Murarry blamed the development of cholera on the gathering of Indians at the pilgrimage site, demonstrating in a report that the 1868 Haridwar epidemic began with pilgrims congregating at the pilgrimage site. The infection spread for miles (Haridwar to Multan) as a result of that public gathering. At the same time, he claims that the trains in this area just served as carriers. Trains also played a significant part in disaster suppression and medical help. Many ran back to board the train after becoming ill and bewildered. Dr Jackson remarked in a report, "I deem the concept that a line of railway embankments could create a travelling epidemic like that in Burdwan as ludicrous and unworthy of serious examination" (Rogers, 1897).

Ronald Ross claimed in a 1907 report that it was impossible to avoid noting the alleged detrimental impacts of roads, railways, and dams. During the current investigation, the same was asserted about the Eastern Bengal State Railway. The allegations raised against roads and railways were heightened in Digambara Mitra's 1864 report. Nonetheless, Ronald Ross believes that, while the report should not be exploited and the railways blamed, a thorough examination is required.

The report on this subject by Dr. C. A. Bentley should be mentioned. Dr. Bentley was the Director of the Government of Bengal's Public Health Department. Dr. Bentley cites Revd. G. Schurr and Dr. Sutherland in 1867, as well as three reports by Mr. Bholanath Banerjee in 1912, to explain the source of the Bengal malaria outbreak, particularly in East Bengal. The core of his theory is that dams and canals erected across rivers in Bengal for roads and railways generated unclean water, hindered natural river navigation, and increased the incidence of malaria (Bentley, 1906).

Rabindranath Tagore spoke out against epidemics like malaria and the plague in several speeches, books, articles, poetry, and other literary works (See Note). He stated that "Malaria claims the lives of hundreds of thousands of people every year, and those who survive it add to the world's overall mortality rate. This malaria is migrating from province to province and from east to west. The plague arrived like a one-night visitor and returned year after year for its thirst for blood unquenched. Famine continues to decimate our region's population, much as a tiger that has tasted human flesh once cannot resist the temptation. We can clearly see a deathly web encircling every nation." Rabindra Nath Tagore urged the masses to rise and awake against the sources of all diseases in order to reawaken the strength within ourselves in

joint ventures (Bangadarshan, 1313 B.S). He spoke in the anti-malaria society urging people to act collectively to combat the disease (Bangadarshan, 1313 B.S).

In 1331 B.S. (c.1924) Rabindranath Tagore spoke to the Anti Malaria Society about the malaria pandemic. He stated, "It is true, very true, that malaria has arrived in places where there was previously no malaria in our country. One of the causes was that there were no trains in this country, as well as a lack of natural water. The drainage was not clogged before. The railway has become a major source of mosquito breeding now. Without a doubt, the villages on both sides of the line have suffered greatly"(Tagore, 1331 B.S.).

Bengali newspapers had been vocal about this as well. Prabashi wrote, "It is not that the railways have not benefited the country,...(yet), it caused significant devastation. Malaria has emerged and spread in numerous areas as a result of railways disrupting typical water pathways" (Prabashi, 1331 B.S.). In addition, major flooding had occurred in several regions. Massive outbreaks of infectious diseases such as influenza and plague were common due to the expansion of railways. Because of the proliferation of railways, the country's waterways were neglected in many parts and impeded in others. It resulted in the loss of the country's health and inter-trade. Due to the government's over-inclination towards railways, they neglected waterways (Prabashi, 1331 B.S). While constructing railways in eastern Bengal one report was published by Prabashi saying- "It's not at all surprising that governments and companies from other countries would be keen on investing in and expanding railways. This interest has led the Indian government to decide to borrow 1.5 hundred crore rupees in order to improve and expand the nation's railway system. But there are many more essential tasks in this nation than railway growth. Very little effort and expenditure has been spent on improving the health sector of the country. After making those improvements, they ought to focus on expanding the railways" (Prabashi,1329 B.S.) In "Hind swaraj" Gandhiji raised the question of spreading communicable diseases in a very strident way (Gandhi, 1938). Prabashi also noted that East Bengal's river-canals (channels/ ditches/ trench) were becoming polluted. As a result Malaria spread due to the water logging in canals (channels/ ditches/ trench) after rain (Prabashi 1329 B.S.).

There are also other reports accessible from government sources that show how the railway line affects public health. According to them, public health was affected in three ways. 1. The velocity of this transportation system led to the rapid spread of contagious diseases. 2. Dams and canals built for railway development produced isolated marshes, which served as a breeding habitat for germs. These embankments and trench on both sides of the railway generated blocked water bodies and microbial infection. Workers living in filthy conditions surrounding the railway project and other railway workshops created an unhealthy climate (Klein, 1972).

Sheldon Watts and Ira Klein have linked the rise and spread of malaria in colonial India to the rapid commercialisation of agriculture, deforestation, railway expansion, embankment construction, and urbanisation that resulted from the monetisation of the colonial Indian economy in the nineteenth century (Bhattacharya, 2011). Whilst the railway was the West's cultural and technological superiority (Fischer & Michael, 2004) nationalist and other critiques connected to how railways transmitted malaria and other maladies (Klein, 1972). Klein brought up the argument advanced by C. A. Bentley, a colonial public health officer, that railways caused ecological degradation and, as a result, malaria and morbidity (Klein, 1972). Klein raised the absence of the thought of environmental adverse effects during the development of railways in India due to possible two reasons- 1. The profitable business mentality of the British people and 2. the negligence towards the Indian people as they were a 'dying race' and were 'physically inferior' (Klein, 1986).

Communicable diseases have been linked to the introduction of railways, notably the construction of embankments and the close association of passengers while travelling, which has resulted in the disease spreading rapidly. The increased movement of people inevitably resulted in the spread of infectious diseases over large territories. It is known to have been transformed into an epidemic, causing significant deaths in Bengal. A series of malaria and fever outbreaks had a significant impact on population change in Bengal in the second half of the nineteenth century. Environmental changes brought forth by development operations such as railway, road, and canal building exacerbated the disease environment. Whenever there was severe malaria predominance, it was most likely due to a circumstance known as 'tropical aggregation of labour,' which refers to regions where huge numbers of labourers lived and congregated, such as plantations or railway building sites. In these areas, 'non-immune immigration' and 'physiological poverty and hardship' boosted infection rates. This reason for increased malaria prevalence was assumed to be applicable to a broader range of places (Wakimura, -).

3. CONCLUSION

The expansion of railways in colonial Bengal had a profound impact on the economy and society of Bengal but at the same time, it had a complex impact on public health. Before the arrival of railways in Bengal, communicable diseases were relatively few, and epidemics or vector-borne diseases were seasonal with lower fatality rates. However, the large-scale construction of railway networks required the construction of embankments, borrow pits and dams. In this process, the British East India Company and the railway companies operating under it paid little attention to environmental degradation. Given Bengal's riverine nature—especially in the deltaic regions of lower Bengal—many natural water flows were obstructed. They also disrupted natural drainage systems, contributing to increased soil moisture and the spread of waterborne diseases. Additionally, some previously unknown communicable diseases, such as the plague, were introduced by European powers and were further spread through the railway system. Various reports, news articles, and public opinions at that time identified multiple ways in which the railways contributed to the spread of communicable diseases. Firstly, the construction of embankments and dams disrupted natural drainage and created environments conducive to the spread of vector-borne illnesses. Secondly, trains facilitated the movement of infected individuals and pathogens across regions. Thirdly, the overcrowded and poorly ventilated living conditions of railway workers, particularly among the lower classes, made them more vulnerable to infection. Literary and official records from the period highlight how the health consequences of railway expansion were recognised by contemporary medical authorities, yet often inadequately addressed. Overall, the intersection of colonial infrastructure and public health reveals the unintended consequences of modernisation in colonial Bengal.

CONFLICT OF INTERESTS

None.

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REFERENCES

Arnold, D. (1986). Cholera and Colonialism in British India. Past and Present, Vol. 113(1), November 1986, pp. 118-151.

Bagabashi, Jaishtha, B. S.1331(c.1924) (Note: On 23rd February 1924, Rabindranath's presidential address at the fourth annual conference of Anti malaria Co-operative at Alfred Theater, Calcutta, was published in Bangabashi periodical in Jaishtha, 1331 B.S. (c. 1938). In the previous year (1330 B.S.) and he also appealed for people to take initiative to protect the malaria collectively.

Bangadarshan, Jaishtha, 1313 B.S. (c.1906)

Batra, G. (1935). Health Book of Howrah Municipality- 1916 to 1934. Dr G.Batra, Assistant Director of Public Health Bengal, Government of Bengal Public Health Department, See Forward page.

Bentley, C. A. (1906). Malaria and Agriculture in Bengal How to Reduce Malaria in Bengal by Irrigation Government of Bengal Public Health Department, Calcutta: Public Health Depart, pp. ix-xxix

Bhattacharya, S. et. al. (2005). Fractured States: Smallpox, Public Health and Vaccination in British India 1800-1947 (New Perspective in South Asian History,11). Kolkata: Educa Books/Orient

Bhattacharya, N. (2011). The Logic of Location: Malaria Research in Colonial India, Darjeeling and Dooars, c.1900-30, Medical History, 2011 Apr; 55(2), pp.183–202. Retrieved from ncbi.nlm.gov.

Chunder, B. (1893). Digambar Mitra, His Life and Career. Kolkata: Kolkata Hair Press, 1867-68, pp.123-24, 125-26

Fischer, H. Tiné & Mann, M. (2004). Colonialism as a Civilising Mission. Cultural Ideology in British India. London: Anthem Press, pp.95-115

Gadgil, M. & Guha, R. (1992). This Fissured Land, An Ecological History of India. Delhi, Oxford University Press, p.117

Gandhi, M. K. (1938). Hind Swaraj, Or Indian Home Rule. Ahmedabad: Jivanji Dahiyabhai Desai, Navjivan Press, pp. 55-51

Klein, I. (1972). Malaria and Mortality in Bengal, 18040-192. The Indian Economic & Social History Review, vol. 9(2), pp. 132-160

Klein, I. (1986). Urban Development and Death: Bombay City, 1870–1914, Modern Asian Studies, vol. 20(4), pp.725-754

Mukherjee, S. (2008). Environmental Thoughts and Malaria in Colonial Bengal: A Study in Social Response. Economic and Political Weekly, Vol. 43(12/13), pp. 54-61

Note: See "Gora," "Chaturanga," "Didi," and "Native" to learn more about the state of malaria-affected people and society, as well as the author's perspectives.

'Notun Railway Line', Prabashi, Kartik -Chaitra, 1331 B.S. (c. 1938), p.832

Pati, B. & Harrison, M. (2011). The Social History of Health and Medicine in Colonial India. New Delhi: Routledge publication

'Rail Bistarer Jonya Rhin', Prabashi, Baishakh- Aswin 1329 B.S. (c.1922), pp. 150-51

Report on the Drainage Committee, Bengal Calcutta, The Bengal Secretariat press 1907 by Ronald Ross, pp. 2, 400-404

Rogers, L. (1897). The Lower Bengal Burdwan Epidemic Fever Reviewed and Compared with the Present Assam Epidemic Malaria Fever (kala-azar), Indian Medical Gazette, November 1897, p.404

Roy, D. R. (2008). An Awful, Unseen Visitant: The Return of Burdwan Fever, Economic and Political Weekly, Vol. XLIII, No. 12 & 13, 22 March - April 2008, pp. 62-70

Samanta A. (1995). Malaria Fever in Colonial Bengal 1820-1939: Social History of an Epidemic (Ph.D. Thesis under University of Calcutta). Retrieved from https://shodhganga.inflibnet.ac.in/handle/10603/154600

Sen, S. (2015). Malaria and Harry Timber: A Social History of Health and Medicine in Colonial Bengal District. Kolkata: Ashadeep, pp. 79-125

Wakimura, K. (-), Health and Economic History: Lessons from the Study of Famines, Epidemics and Colonial Development in British India, 1871-1920, pp.15, retrieved from https://www.lse.ac.uk/Economic-History/Assets/Documents/Research/GEHN/GEHNConferences/conf2/Conf2-KWakimura.pdf