RISKS AND IMPACTS OF LABOR INFLUX IN ROAD CONSTRUCTION IN NEPAL: STUDY FROM HUMAN SECURITY PERSPECTIVE

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ABSTRACT

This study attempts to explore the impacts of labour influx related to road construction in Nepal with particular attention to the local community. The study is based on consultation and focus group discussions with laborers and people living in local communities that hosted the project and additional key informant interviews with road project staffs, local leaders of major political parties, schoolteachers, local service providers such as police officers, medical workers, and others. The study concludes that influx of laborers have both positive and negative impacts on local community. Adequate monitoring and adaptive management of likely adverse impacts from labor influx are keys to properly addressing them and mitigating risks. This study identifies the way forward and instruments to prepare and implement in reducing labor influx for preventing the threats of human security of local community along the road alignment.

KEYWORDS

Community, Construction, Impact, Influx, Labor, Policy, Roads

INTRODUCTION

Many development projects often involve construction of civil works for which the required labor force and associated goods and services cannot be fully supplied locally

for a number of reasons, among them worker unavailability and lack of technical skills and capacity (OPCS, 2016). In such cases, the labor force (total or partial) needs to be brought in from outside the project area. In many cases, this influx is compounded by an influx of other people ("followers") who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and followers in the project area is called labor influx, and under certain conditions, it can affect project areas negatively in terms of public infrastructure, utilities, housing, sustainable resource management and social dynamics. All over the world, construction of infrastructure such as highways and bridges is a key step toward development and poverty reduction (Machado, 2019). To build these projects, large numbers of male workers come into small and isolated communities for extended stays. This influx can bring many benefits for the local people. They may sell food to the workers, rent them houses, and in some cases join their ranks as paid employees at the construction sites. Local people may learn new languages, acquire new technical skills, and gain from exposure to ideas and cultures that they have not encountered before. However, the new comers can also bring a host of social problems; many of them are harmful to local people and the community. Long-standing community institutions and power balances can come under strain from the sudden presence of large numbers of men who are living without families, knowledge and their hosts' customs and history and constraints by local norms. In recent years, governments and international development agencies have become increasingly aware of these harmful side effects of project labor influx and have begun working to address them. Initiatives include creation of mechanisms to allow local people to file complaints; strengthening of law enforcement; creation of gender-representative committees in communities hosting the projects; fostering of collaboration between local people and campsite managers and workers; and development of worker codes of conduct. Though interventions are becoming more common, understanding of how pre-existing social issues, institutions, and cultural norms shape their impacts has remained limited. Unless based on a firm grasp of these complex dynamics, programs may seem effective in theory but do poorly on the ground (WB, 2017).This study attempts to heighten understanding through a deep examination of project-affected communities along the Nagdhunga-Naubise-Mugling (NNM) that will host road workers, with particular attention to the impacts of labor influx on local people and the community.

This study was carried out to assist the implementing agency (DoR) and relevant stakeholders in establishing an approach to identifying risks to and impacts on local communities associated with the temporary influx of labor that typically results from upgrading of NNM road to Asian Highway Standard, and to advising accordingly on how to best manage such risks. The study focuses on the assessment and management of social and environmental risks and impacts, both anticipated and unanticipated, from the influx of labor into the local community along the road alignment. It summarizes key types of potential adverse impacts, and describes some potential measures to manage (e.g., avoid, minimize, mitigate, monitor) these impacts while protecting the local

community from the likely threats of human security.

Nagdhunga-Naubise-Mugling (NNM) Road

Road network is the principal means of transport in Nepal. It carries about 90 percent of the passengers and freight traffic. At present, the total length of primary and secondary road network in Nepal, comprising National Highways, Feeder Roads, Postal Roads and Mid-Hill Roads is about 12,680 km. National Highways and Feeder Roads, because of their importance, are grouped as 'Strategic Roads' and fall under the jurisdiction of Department of Roads (DOR), Government of Nepal. For the area and the population of the country, the existing road network length amounts to road densities of 8.49 km per 100 km^2 areas and 0.47 km per 1,000 populations. These figures are much lower than the figures of neighboring countries like India, Bangladesh and Pakistan. Out of the existing 12,680 km. road network, about 51.7 percent is Black Topped Road (BTR), while about 13.7 percent is Gravel Road (GR) and the remaining about 34.6 percent length is Earthen Road (ER) (DoR, 2020). The distribution of road length and pavement type for the different categories of roads is given in Table below.

Table 1

Road Length and Pavement Type

Road Classification	Road Length (km)			Total Length (km)
	BTR	GR	ER	
National Highways	3101.6	83.1	275.6	3460.2
Feeder Roads (Major)	2869.7	1094.9	2736.5	6701.1
Feeder Roads (Minor)	195.0	94.0	369.9	658.9
Mid-Hill Road	79.00	91.00	862.00	1032.00
Postal Roads	123.7	372.5	145.5	641.7
Urban Road	182.8	2.5	1.0	186.3
Grand Total	**6551.8**	**1738.0**	**4390.4**	**12,680.2**

(Source: Statistics of Strategic Road Network, 2014)

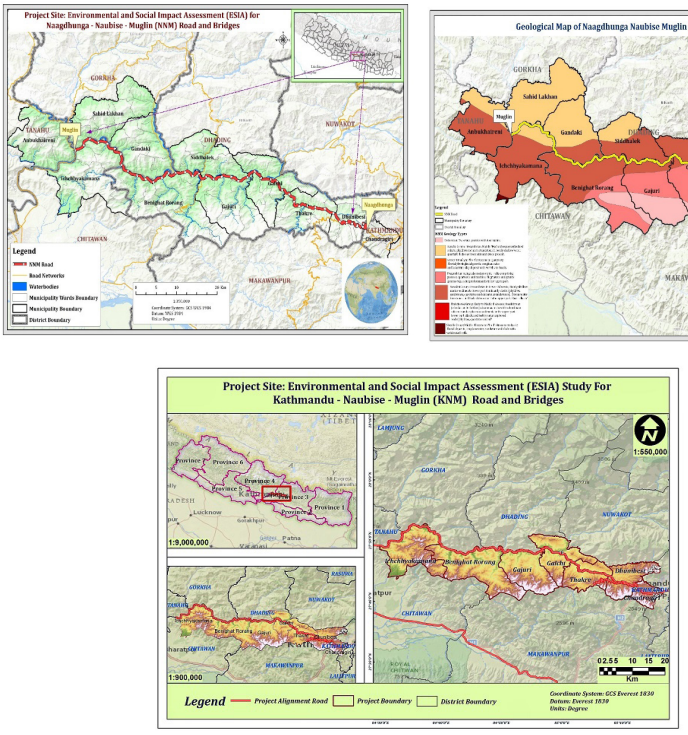
NNM Road is as an important trade and transit route for linking Kathmandu Valley with Terai region and India. Almost all goods and passengers coming from India and other parts of country come through this road. There are other roads as well linking Terai and Kathmandu valley, but they do not fulfill the required standards in terms of horizontal curvature, vertical gradient, carriageway width, safety measures and other technical parameters for smooth and safe movement of commercial vehicles. NNM road is a part of Asian Highway (AH-42) and is the most important road corridor in Nepal. The road section from Mugling to Kathmandu lies on geologically difficult and fragile hilly and mountainous terrain. Since the average daily traffic in this route is comparatively very high, the present road condition and available facilities are not sufficient to provide the efficient services. The project road starts at outskirts of Kathmandu City at a place called Nagdhunga and passes through Sisnekhola,

Khanikhola, Naubise, Dharke, Gulchchi, Malekku, Benighat, Kurintar, Manakamana and ends at Mugling Town. The section of project road from Nagdhunga to Naubise (12.4 Km length) is part of Tribhuwan Rajpath (TRP) and the section from Naubise to Mugling (82.4 Km length) is part of Prithvi Rajmarg (PRM). Thus, the total length of project road along existing alignment is 94.8 Km.

The Department of Roads (DoR) is preparing to upgrade the 96-km Naubise-Mugling section of the Prithvi Highway, one of Nepal's busiest highways and the Kathmandu Valley's key supply line. The route is being widened to four lanes from two, and construction is slated to start in the next fiscal year, 2024. The DoR has prepared a detailed project report (DPR) for the scheme which is expected to cost $3 billion. The World Bank is being considered as a potential financier (Subedi, 2018 Mar 2).The proposed project seeks to address poor transport connectivity and trade facilitation-two notable reasons for Nepal's low competiveness, a key factor limiting its growth-through increasing efficiency in movement of people and goods within and across the borders to enhance access to markets and opportunities and trade competitiveness. The NNM Road starts in Kathmandu district and ends in Chitwan district passing through populated areas, terraces, undulating cultivated lands and hilly and mountainous areas with many unstable slopes and active landslides. Majority of the land use in the NNM Road is cultivated lands, followed by forests, settlement areas and water bodies. There are no protected areas or national parks along NNM Road (Figure 1).

Figure 1

Study Area



This project will employ direct, contracted and primary supply workers. During construction, there will be potential issues of labor influx, health and safety impacts and gender-based violence (GBV) in relation to all roads; traffic safety risk will be particularly high along the NNM road, which is the main road to Kathmandu. However, if the project is able to manage these risks to a satisfactory level, it is envisaged to be instrumental in producing a number of positive impacts on the local, regional and national economy with increased regional trade between Nepal and India.

Study Area and Samples

The project area covers Kathmandu, Dhading and Chitwan districts. Dhading is adjoining district of Kathmandu and likewise Dhading is adjoining district to Chitwan. The project area is mostly located in hill area. The study was carried out at major settlements starting from Nagdhunga to ending Mugling along the road alignment. These settlements mainly include: Khanikhola, Naubise, Dharke, Mahadevbesi, Galchi, Gajuri, Baireni, Majhimatar, Malekhu, Benighat, Charaudi, Kurintar, Ramailo Danda, and Mugling. Naubise, Dharke, Mahadevbesi, Baireni, Gajuri, Malekhu, Benighat, Charaudi, Kurintar and Mugling. Thirty-seven community consultation meetings, 15 focus group discussions and 50 key informant interviews were undertaken.

Method

For the study purposes, qualitative data were collected from the major settlements as described in preceding section. Qualitative methods allow for understanding nuances and details of complex social phenomena from the points of view of those who experience them. Although findings cannot be generalized for the entire population, they reveal multiple layers of meaning for a particular group of people, which is important when studying human behavior, beliefs, attitudes, and perceptions.This research aimed at assessing the possible risks and impacts of temporary influx of workers or laborers induced by upgrading or improving the NNM road of Nepal focusing on the rights of host local community. The necessary data were collected from the field assessment. The methods employed for field data collection included community consultation, focus group discussions and key informant interviews with road project staffs, local leaders of major political parties, school teachers, local service providers such as police officers, medical workers, project affected HHs, representatives of from vulnerable and indigenous communities. The data collection was followed by data analysis and validation of findings.

RESULTS AND DISCUSSIONS

Human security is the peoples' physical safety, their economic and social well-being, respect for their dignity and worth as human beings, and the protection of their human rights and fundamental freedoms. Threats to human security may include crime; human trafficking; instability and contagion in financial markets; labour market insecurities and threats to job security; spread of diseases; and conflicts. From this perspective, human security requires a strategy for better social protection including

construction of the road project. Immigration of people from other areas and influx of workers are inevitable during the time of construction of any project. The upgrading and improvement of any highways or roads require numbers of workforce (skilled, semi-skilled and unskilled laborers) most of which may be migrant workers.The regular influx of migrant laborers may have both positive and negative impacts.

Positive Impacts

The improvement of NNM road and regular influx of laborers may have positive impact on economic benefits of the local communities owing to increased access to markets; higher income due to short-term employment by road contractors; and scale up of businesses through sales of extra goods and services by local businesses to road worker and firms and housing rentals to laborers in the host communities. Improvement of the road may include compensation at replacement cost paid to people displaced and improvement or at least restoration of standards of living or livelihoods. For the longer term, it may give them easier transport, better access to health care and education, and an improved sense of security due to increased traffic flow and policing. Many contractors do not provide housing for their workers, so that local people can raise their incomes by renting accommodations to workers.

The local host communities will also be benefited through improved sense of security due to increased policing and improved access to health and education services along the road alignment. The influx of outside laborers is likely to increase exposure to new cultures and languages, introduce to urban lifestyle, and increase earning through socializing with people outside the community and forming new friendships. Through interactions with the outside workers, community members could learn new languages, cultures, and behaviors, all of which they perceived as a kind of modernization and expansion of their worldviews. Women are envisaged to be more benefited by likely change in household dynamics, as increased income can make it easier for women to leave abusive relationships. There will be acquisition of new skills and cultural exchange at local communities along the road alignment. Workers often coming from cities and bringing with them, for example, new ways of speaking and dressing, which locals sometimes will adopt may foster the socialization process. In addition, workers sometimes will teach local people, the new skills such as operating machinery and driving.

The formation of friendships and relationships will be important in shaping positive perceptions of labor influx. This can happen as workers will rent houses in local villages and befriended their neighbors. They will also interact with community members in public spaces such as markets, sports fields, and bars where men meet for drinks and conversation. Through these interactions, the newcomers may be acquainted with local community members and sometimes may use their knowledge and resources to support community members in their daily struggles. Some women may also find lasting relationships and marriages with incoming workers for improving their life situations.

Negative Impacts

Labor influx for construction works can lead to a variety of adverse social and environmental risks and impacts. While many of these impacts could have been present already or might occur regardless of the labor influx, they are likely to be exacerbated by it. The actual type and degree of impact varies significantly depending on the characteristics of the project, community and incoming workforce.

Social Risks and Impacts

Social impacts are critical to address, as even a substantial labor influx already may lead to negative impacts on the host community. Pre-existing social issues in the host community can easily be exacerbated by the influx of labor. There is potential risk of social unrest and conflict due to increased presence of migrant population in the construction sites causing threats to human security at the local community. Conflicts may arise between the local community and the construction workers, which may be related to religious, cultural or ethnic differences (Migrant workers may have social, racial and religious conflict with the local community), or based on competition for local resources. Tensions may also arise between different groups within the labor force, and pre-existing conflicts in the local community may be exacerbated. Ethnic and regional conflicts may be aggravated if workers from one group are moving into the territory of the other. Another important likely risk and impact of influx of outside laborers is increased level of sales and usage of beverage (alcohols) in the construction and campsites which may create many social problems and threats to human security. The construction work should provide an incentive to the local community. This may be done through the creation of direct and indirect economic opportunities for the local community. The influx of outside workers in construction sites are likely to create disputes, conflicts, public oppositions, instable social interruptions, and even fierce social confrontation while bypassing and ignoring from access to job opportunities to them.

The influx of workers and service providers into communities may increase the rate of crimes and/or a perception of insecurity by the local community. Such illicit behavior or crimes can include theft, physical assaults, substance abuse, prostitution and human trafficking. Local law enforcement may not be sufficiently equipped to deal with the temporary increase in local population. Due to regular influx of outside laborers, the risks of betrayal, deceit, and crimes like killing, attempt for rape, illegal birthing of child and others are envisaged to be substantial thereby creating threats to human security at the host community. There are likely chances of disintegration of families due to interaction of locals with the outside workers insuspicion of family members. There is likely to increase the hidden flesh trade (prostitution) in the slums and nearby clusters as a profession. Workers tend to leave their wives behind and as a result may be tempted to engage in sexual relationships with women and young girls. In addition, prostitutes may also be attracted to the area due to the presence of workers, possessing a lot of money. The risks of human trafficking especially of women, young girls and children

and gender based violence (GBV) are envisaged to be higher due to regular influx of strangers, outsider workers and others thereby creating threats to human security at the host community along NNM road alignment.

Depending on the number of incoming workers and their engagement with the host community, the composition of the local community, and with it the community dynamics, may change significantly thereby causing threats to human security at the local community. The influx of outside workers from diverse culture and places may adversely impact the local homogenous society's traditions and way of life. Pre-existing social conflict may intensify because of such changes. The presence of construction workers and service providers (and in some cases family members of either or both) can generate additional demand for the provision of public services, such as water, electricity, medical services, transport, education and social services. This is particularly the case when the influx of workers is not accommodated by additional or separate supply systems. The influx of people may bring communicable diseases to the project area, including sexually transmitted diseases (STDs), or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health resources. Workers with health concerns relating to substance abuse, mental issues or STDs may not wish to visit the project's medical facility and instead go anonymously to local medical providers, thereby placing further stress on local resources. Local health and rescue facilities may also be overwhelmed and/or ill equipped to address the industrial accidents that can occur in a large construction site.

Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community. A large influx of male labor may also lead to an increase in exploitative sexual relationships and human trafficking whereby women and girls are forced into sex work. Increased opportunities for the host community to sell goods and services to the incoming workers can lead to child labor to produce and deliver these goods and services, which in turn can lead to enhanced school dropout. A significant increase in demand for goods and services due to labor influx may lead to local price hikes and/or crowding out of community consumers. The rise in normal prices of daily goods and commodities will adversely affect the local community, as they will be unable to afford for purchasing these expensive goods and commodities at the local markets. There may be increased pressure on accommodations and rents in and around the construction sites. Depending on project workers' income and form of accommodation provided, there may be increased demand for accommodations, which again may lead to price hikes and crowding out of local residents. Delivery of supplies for construction workers and the transportation of workers can lead to an increase in traffic, rise in accidents, as well as additional burden on the transportation infrastructure. The environmental impacts listed below are more likely to be of relevance for NNM project that require a larger labor force for upgrading

and improvement.

Environmental Risks and Impacts

Large populations of workers generate increased amounts of waste, for which no sufficient local waste management capacities may exist, which would likely lead to improper disposal practices. Project-related activities, along with workers' camps, and a lack of appropriate wastewater discharges may pollute nearby water resources. Major health risks can occur if latrine pits spill over into local streams that are used for drinking water by the host community. The establishment of campsites and construction of roads toward them may create many risks and problems such as noise and light pollutions and others. Poor sanitation practice of the outside workforce in camps and construction sites is also likely to generate pollution issues thereby increasing waste and sewage generation and creating community health and safety risks in and around the campsites. The inadequate and illegal waste disposal and increased wastewater discharges in and around the campsites may also cause many environmental and health related problems at local levels. Open defecation (OD) is one of the risks in construction and labor campsites. Due to the dumping of garbage, rubbish materials and solid wastes, the environment is likely to deteriorate at the local community.

The provision of clean drinking water and water for hygiene purposes can result in increased pressure on freshwater resources in the project or campsite area. In ecologically sensitive areas, workers' camps can have impacts on the local wildlife. This may include disturbance of species, as well as illegal hunting. In the same context, new access routes for workers' camps may have impacts on natural habitats. There may be increased depletion and degradation of locally available natural resources like land, forest, water bodies and others due to presence of outside laborers resulting over exploitation, use of/demand for natural resources at local levels. For instance, the outside laborers in the campsite may create pressure on deforestation of the jungle. This will certainly create risk and adverse impact on the local ecology and environment causing various environmental and health related problems. These can result from forest or land conversion for worker housing and workers' agricultural subsistence activities.

Increased use of / demand for natural resources is envisaged to be higher due to regular influx of outside laborers. This can include logging for construction, fuel wood collection, use of water resources, farming and grazing, hunting and fishing, trade in endangered species, potential introduction of invasive or non-native species, and land degradation. The construction phase of the project may also result in the in-migration of general population seeking to take advantage of the economic and development opportunities created in the area, or worker families that relocate to the project area. This in turn can result in adverse impacts on the host communities in the area thereby increasing competition for the direct and indirect economic opportunities created due to the project and increasing pressure on and competition for resources and infrastructure in the area. The take-over of land for camp use and access roads, and noise and lighting those are likely to affect local environment and wildlife. The local public lands may be

used in establishing campsites for laborers. The access roads will also be constructed from the road head to the campsites.

The previously mentioned likely social and environmental risks and impacts identified under NNM road can be rated as substantial and low in construction and operational phases respectively. Such adverse impacts are usually amplified by local-level low capacity to manage and absorb the incoming labor force, and specifically when civil works are carried out in, or near, vulnerable communities and in other high-risk situations causing threats to human security at the local community level. While many of these potential impacts have been identified in the project's Environmental and Social Impact Assessment (ESIA), they may only become fully known once a contractor is appointed and decides on sourcing the required labor force. This means that not all specific risks and impacts can be fully assessed prior to project implementation, and others may emerge as the project progresses. Thus, measures defined in the project Environmental and Social Management Plan (ESMP) to address such problems sometimes may be insufficient. It is therefore important to develop site-specific measures before the contractor starts work, and update them as necessary to reflect project development. Overall, adequate monitoring and adaptive management of the potential impacts from labor influx are keys to properly addressing them and mitigating risks.

Foreseeing and Mitigating the Possible Disaster

The number of deaths from landslides in Nepal has been increasing dramatically due to a complex combination of earthquake, climate change, and explosion of informal road construction that destabilize slopes during rainy season. This trend is likely to increase as the enhancement of road construction, especially China's Belt and Road initiative seeking to construct three major trunk roads through Nepali Himalaya from which adjacent communities get benefited being linked to the poorly constructed road. To determine the effect of these informal roads on generating landslides, better to compare the distance between roads and landslides triggered by earthquake of 2015 especially in Gorkha. The area was badly impacted by landslide in the monsoon that year. The unsystematic and unplanned construction roads crumbled, and if the spatial correlation is strong enough to further imply causation.

The incessant rainfall during monsoon accumulates debris and water on the road that reduces the durability of it. We find that in addition to a concentration of landscapes with more alluvial and agriculturally viable soil that rainfall-triggered landslides are more likely to occur within 100m of a road than the landslides generated by earthquake. The steep land, poor water drainage and debris management are the major causes for the road damage, especially during heavy monsoon rain. Based on these findings, geoscientists, planners, and policy makers need to deplore how road development affects the physical, socio-political and economic factors that increases risk in exposed communities, alongside, ecologically and financially for the sustainable solution.

CONCLUSIONS

The influx of laborers while upgrading and improvement of NNM project will have both positive and negative impacts on the local community. The major positive effects of labor influx may include: economic benefits (increased access to markets, higher income due to short-term employment by road contractors and sales of extra goods and services by local businesses to road workers and firms-scale up of businesses); increased access to basic services (improved sense of security due to increased policing and improved access to health and educations services); benefits at the community level (increased mobility, safety model of transport, exposure to new cultured and languages, introduction to urban lifestyles, learning through socializing with people outside the community and forming new friendship); benefits at the household level (increased family income, and change in HH dynamics); and benefits at the individual level (acquisition of new skills and cultural exchange, finding a partner and lasting relationship, for women employment by the project, greater independence and confidence). While the adverse impacts on the host community that can result from temporary labor influx, it is important to recognize that appropriately managed labor influx can provide potential benefits for the community which can be developed for the project and which will serve the community beyond the project duration.

Labor influx for construction works can lead to a variety of adverse social and environmental risks and impacts on local communities. The common categories of social risk associated with labor influx included risk of social conflict; increased risk of illicit behavior and crime; influx of additional population; impacts on community dynamics; increased burden on and competition for public service provision; increased demand and competition for local social services, as well as for goods and services, which can lead to price hikes and crowding out of local consumers; increased risk of communicable diseases and burden on local health services; gender based violence (GBV); child labor and school dropout; local inflation of prices; increased pressure on accommodation and rents; increased in traffic and related accidents and so forth. Likewise, the environmental risks and impacts of labor influx included increased demands on the ecosystem and natural resources; increased demand for fresh water resources; camp related land use, access road, noise and light pollution; increased level of deforestation, ecosystem degradation, and species loss; inadequate waste disposal and illegal waste disposal sites; wastewater discharges.

Such adverse impacts are usually amplified by local-level low capacity to manage and absorb the incoming labor force, and specifically when civil works are carried out in, or near, vulnerable communities and in other high-risk situations. The adverse impact of labor influx in NNM road is rated as substantial and low in construction and operation phases respectively. Adequate monitoring and adaptive management of such likely impacts from labor influx are keys to properly addressing them and mitigating risks. To this end, it is inevitable to reduce labor influx by tapping into the local workforce; assess and manage labor influx risks based on appropriate instruments

depending on the risks identified in the ESIA and incorporate social and environmental mitigation measures into the civil works contract. It is recommendable to prepare and implement Influx Management Plan (IMP), Labor and Recruitment Plan (L&RP) and Code and Conduct for Workers.

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