Is a River "Infrastructure"?
Thinking about Timber Transport on the Kemi River in Finnish Lapland

by Franz Krause

As the largest watercourse in the Finnish province of Lapland, the Kemi River has played a central role in the development of settlement, travel and transport, forestry and energy production in Northern Finland. In fact, the large-scale expansion of industrial forestry throughout the province during the 20th century was, to a large degree, facilitated by the run of the river and its many tributaries, because the river served as the principal means of timber transport. This correlation seems simple: logs felled in the upstream forests and pushed into the river anywhere will be taken along with the currents, and sooner or later arrive at the river mouth, where the wood-processing industries are located.

In reality, however, the link between moving waters and moving timber is not so simple at all; rather, alongside the currents of the Kemi River, it took a large effort of planning, a huge arsenal of tools and other materials, as well as the gigantic coordination of the skilled practices of hundreds of rafters from the river banks and beyond. Did timber-floating thus turn the river into infrastructure? Or had it been infrastructure all along?

Timber Floating on the Kemi River

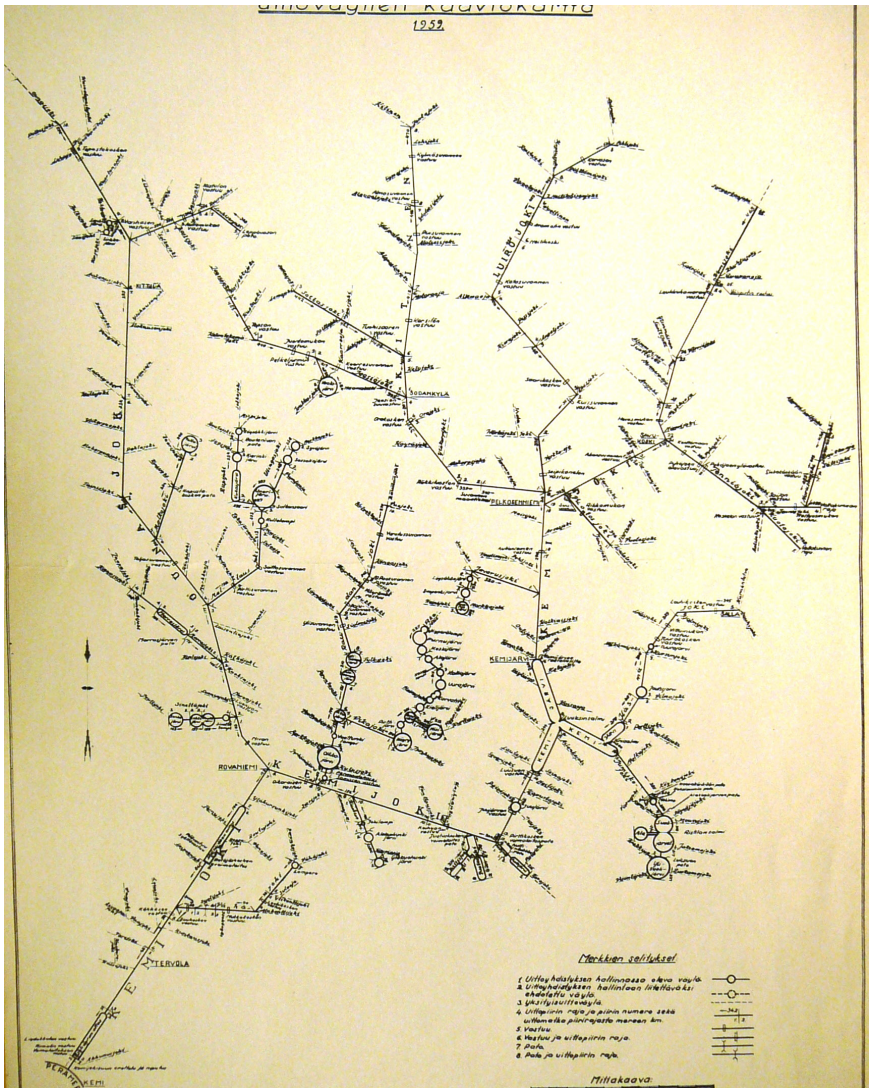
When large-scale lumbering campaigns expanded into Lapland around the turn of the 20th century, forestry employment brought to the banks of the Kemi River both the opportunity for monetary income and a large number of new people. For the area's inhabitants, logging and timber-floating provided seasonal wages and could be integrated well with other types of seasonal work, such as fishing and dairy farming, which had their labour peaks during different times of the year. One of these timber-floating veterans is Paavo, who was fourteen years old when he made his first money in timber-floating. It was the summer of 1948, when Paavo worked ten hours a day, distributing logs that had been floated down the river to their different owners. When Paavo later attended forestry school in Helsinki, he worked for the Kemi River Floating Association during the summers, and, once graduated, he got a job in floating management. First, he was sent to an upstream tributary of the Kemi, where he worked during the summer and followed the "tail", the final logs of the season, downstream along the tributary, into the Kemi River's main course, across Lake Kemi and all the way to the wood-processing plants at the estuary. Paavo says he learnt a lot during this summer, most of all about the challenges of coordinating an activity that depended both on the fluctuating dynamics of a large catchment and on the moods of a large number of human workers.

In autumn, Paavo was sent to another tributary, where he was to participate in the clearing of a floating channel through the stream. Larger rocks and sandbanks had to be removed to afford a smoother movement of logs the following season. All the subsequent summers he returned to timber floating. In 1963 he worked first on the headwaters of the Kemi River, then later in the summer he was sent to a timber barrier upstream

from Lake Kemi, where the logs were bundled to be tugged across the lake. During the following five years, he was in charge of the timber-sorting mechanism in the river's estuary, overseeing a large array of floating channels and workers, through which the mass of logs were distributed to their various owners. After 1968, Paavo continued to work for the Finnish Forest Authority, mostly in areas other than timber-floating, but still engaged indirectly with floating throughout his career, as this activity was tied up with many forestry issues until the early 1990s.

Paavo's account of his involvement in timber-floating makes clear that it was an extremely multifaceted set of activities, including the preparation of timber launches, the clearing of the riverbed, the annual setting-up and decommissioning of equipment, the timing of timber transport on different river sections, the deployment of rafting teams along the river, the tugging of logs across lakes and reservoirs, and the sorting of timber according to its various owners.

But why, one might ask, was all this effort necessary in the first place? Wouldn't the river's currents transport the logs to the estuary naturally, as it were? The answer to this question can be found in the many stories that former timber rafters on the Kemi can tell about logjams, drowned timber, and logs caught in eddies, stranded on banks or distributed across the floodplain after a sudden high-water spell. The river does move timber, but not necessarily in the way that forestry companies would have wanted. The Kemi River was made into a timber transport artery by conditioning its flow through an array of work practices and implements. This means that this timber-floating infrastructure, if this is what we should call it, was consciously constructed; it also means, however, that it was not made from scratch, but crafted from what was already there, including seasonal labour availability, local river skills, and, most of all, the waters of the Kemi.



Managing Heterogeneous Infrastructure

Since its establishment in 1901, one of the most complicated tasks of the Kemi River Floating Association was the coordination of the manifold tasks involved in timber transport. The Kemi River's main course measures about six hundred kilometres, but the total distance of floating channels during the 1950s and early 1960s was around three thousand kilometres annually, including over twenty tributaries, subdivided into 122 work-group sections manned by a total of 1,776 rafters (in 1957), and spread across an area of over 50,000 km^2 (Itkonen 2001:135–136, 147).

One of the most remarkable characteristics of the Association's infrastructuring work was its seasonality – all activities and equipment were in use only when the river had enough open and moving water. During winter, the summer- or springtime rafters would work in forestry camps, on their own smallholdings or with their reindeer herds. As soon as the snow began to melt, however, people were hired by the Floating Association or local rafting groups. One of the first tasks was always to prepare each stream and tributary for floating, before the flood began to decline and actual floating could commence. Towards the end of the season, rafters would move down the river following the final logs, clearing the last remaining wood from the shores and accumulating more and more local rafting groups on the way, often until reaching the mouth of the respective tributary. Each season, thus, not only did timber move downstream along the rivers of the catchment basin, but so did workers. Annual festival-like fairs, for instance in the village of Suvanto close to the mouth of the Kitinen River, are remembered by rafters and villagers alike (Pihlaka, Sippola, and Yli-Tepsa 1986:57). Finally, the rafters had to dismantle the floating constructions before the river began to form an ice cover. Should logs – once they were in the river – not reach the sorting mechanism before the winter, they would be lost to the next spring flood.

The Concept of Infrastructure

Although the metaphor of infrastructure is taken from the world of engineering and planning, anthropologists have used it not only to analyse the social effects of technology and hardware, but also to understand attempts at aligning wider social and ecological processes to produce particular outcomes. This aligning may take the form of land-use planning, regulations and environmental management, and thereby turn such processes into "environmental services" and "natural capital" (Carse 2012). Analysing the processes through which the areas around the Panama Canal were reconfigured as the water-provisioning part of the canal infrastructure, Carse concludes that "infrastructure is not a specific class of artefact, but a process of relationship-building. This is to say that dams, locks, and forests are connected and become water management infrastructure through the ongoing work – technical, governmental, and administrative – of building and maintaining the sprawling socio-technical system that moves ships across the isthmus" (Carse 2012:556).
This understanding of infrastructure is very useful in grasping how the social and material effects deriving from these arrangements are situated within wider fields of relations. However, weren't the watershed forests already part of the relations that facilitated ship transport across the isthmus, even before the managers focused on them? Isn't this a classic case of infrastructures as invisible facilitators that are noticed only when they break down (Star 1999)?

Infrastructure is therefore not something that is planned out in advance and subsequently realised in a passive environment, but an arranging of what is already there in the world, and responsive to the material and social processes with which it works (cf. Lippert, Krause, and Hartmann 2015). Timber-floating – as the conditioning of different flows – illustrates how infrastructures evolve in relation to the affordances and obstacles of the world they are designed to transform.

The layout and hydrology of the Kemi contributed directly to the infrastructural project of timber transport. For instance, because there was only one major lake on the river's main course, the Kemi River has been praised as a great watercourse for timber-floating. While a *river's currents* provide for the transport by itself, a *lake* merely holds the logs – locomotion has to be provided from elsewhere. Another key characteristic of

the river that afforded timber transport was its correspondence with the socioeconomic setup of the province (Krause 2017): while its headwaters were in the peripheries, its mouth had been developed into a centre of trading and industry. The river's main currents ran unidirectionally from resource periphery to industrial centre, a pattern that chimed perfectly with the contemporary logic guiding development for the province (Massa 1994).

Infrastructure as a Way of Seeing

If "infrastructures are extended material assemblages that generate effects and structure social relations" (Harvey, Jensen, and Morita 2017:5), then this must definitely include rivers. But wouldn't this imply that ANYTHING can be called infrastructure? If everything can be seen as infrastructural, what meaning can this term retain? Indeed, we should be wary, as Ivars (2016) reminds us, of using the term *infrastructure* indiscriminately. What reminds hidden when we call a river "infrastructure"? How does our analysis change if we instead call a river an "organic machine" (White 1996), or the principle for water flows the "hydrosocial cycle" (Linton and Budds 2014)?

Realising that the whole world may "generate effects and structure social relations", we need to be careful when, why and with what effects we call something infrastructure. The Kemi River has certainly fulfilled infrastructural functions, as I have illustrated for timber transport, not simply as a hydrological phenomenon, but through the successful conjunction of the river's flow with the coordinated skilled practices of hundreds of seasonal workers. Calling this assemblage "infrastructure" may help to highlight how its components became used and exploited in industrial capitalist fashion. It may also trace how it was intended to serve particular political interest at the expense of others (notably fishing, and later hydropower) (Krause 2011). Nevertheless, it may downplay many other important facets of river life in the 20th century. Sometimes, therefore, it may be best to simply call a river a river.

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