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a comparative analysis of four settlements with diverging ideologies on Svalbard

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Publication date

2018

Document Version

Final published version

Citation (APA)

de Koning, R. E., & van Nes, A. (2018). *Morphological analysis of settlements in the Arctic: a comparative analysis of four settlements with diverging ideologies on Svalbard*. 76-76. Abstract from ISUF 2018: 25th International Conference on Urban Form , Krasnoyarsk, Serbia.

Important note

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BOOK OF ABSTRACTS

25th ISUF International Conference

Krasnoyarsk 2018. 5-9 July

**Urban Form and Social Context:
from traditions to newest demands**



SIBERIAN FEDERAL UNIVERSITY

УДК 711(083)
ББК 85.118я431
Б906

Scientific Editors:

I. Kukina, I. Fedchenko, Ia. Chui

Б906 Book of Abstracts. **25th ISUF International Conference:**

Urban Form and Social Context: from traditions to newest demands. Krasnoyarsk 2018, 5-9 July / ed. : I. Kukina, I. Fedchenko, Ia. Chui. – Krasnoyarsk : Sib. Feder. University, 2018. – 214 p.

ISBN 978-5-7638-3952-4

The content of this publication have been evaluated by the Scientific Committee which it relates and the procedure set out <http://conf.sfu-kras.ru/en/isuf2018>.

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ББК 85.118я431

ISBN 978-5-7638-3952-4

Morphological analysis of settlements in the Arctic: a comparative analysis of four settlements with diverging ideologies on Svalbard

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Abstract

The Norwegian archipelago of Svalbard contains the northernmost permanently inhabited settlements in the Arctic region. Two of these are Norwegian settlements: the ‘capitol’ Longyearbyen was founded as a coal-mining town. Ny-Ålesund is today an international research settlement. The other two, Pyramiden and Barentsburg, are Russian coal mining towns, constructed during the former Soviet Union. The four towns are separated from each other due to the extreme climate and landscape. Each town has its own local community with limited possibilities to interact with the other towns. Therefore, they represent unique cases for understanding the relationship between economic system, two diverging political ideologies and built form.

In this inquiry, comprehensive morphological analyses are made of the street network configuration, urban form and the functional distribution pattern to reveal the differences in settlement patterns. The tools used are those that constitute the three primary elements of the natural urban transformation process: Space Syntax (Hillier et al., 1993), Spacematrix (Berghauser Pont and Haupt, 2009; Rådberg, 1996) and the Mixed-Use Index (van den Hoek, 2009). The theory of the natural urban transformation process suggests that the spatial configuration of the street network guides urban developments (Ye and van Nes, 2014). Along well-integrated streets, the building density and the mix of public functions tends to be higher than along segregated streets, which tend to be more mono-functional.

The analysis reveals that political ideology influences the types and distribution pattern of public functions. In capitalistic/liberated economy types of settlements, public functions along well-integrated streets consist of commercial facilities such as shops, bars, restaurants, vinmonopolet (alcohol sales point), offices, educational, governmental and cultural institutions. Since commercial functions are lacking in (former) communistic/state controlled economy types of settlements, it is housing, cultural and social facilities and Lenin’s statue that are located along the most highly integrated streets.

Keywords

Natural urban transformation, Space Syntax, Spacematrix, Mixed-Use Index, arctic settlements, political ideology