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High Mountain Agriculture and Changing Socionatures in Nagar, Northern Pakistan

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This dissertation focuses on high-mountain farming in Nagar, a rural district in the Karakoram Mountains of northern Pakistan. It deals with the question of how local farming systems have been affected over the last 30–40 years by multiple interacting processes of change, including climate change. More specifically, it investigates how a diversity of actors and factors — or ‘actants’ — have contributed to these changes in manifold ways. This investigation follows an assemblage approach to agricultural change, emphasising the complexity and heterogeneity of change processes that are simultaneously co-produced by multiple actants.

Two important events triggered substantial changes in local farming systems: the integration of the former principality of Nagar into Pakistan’s political system in 1972, and the completion of the Karakoram Highway in 1978 — a major road that connects Nagar to downcountry Pakistan and China. Since then, there has been a considerable shift from subsistence-oriented cropping practices to the production of cash crops. At the same time, agriculture has lost much of its importance for livelihoods, as new income opportunities have emerged and farm sizes have decreased. Shifting priorities and shortages of agricultural labour have resulted in a decline of certain practices, most notably in animal husbandry. Technological innovations have considerably altered local farming techniques — not only through the proliferation of chemical fertilisers and new varieties of high-yielding wheat, but also through the widespread adoption of agricultural machinery. At the same time, improvements of the irrigation infrastructure have

led to an overall enhancement of the water supply. To some extent, farming systems in certain villages have also been affected by changes in the local environment: glacier dynamics, among other things, have desiccated irrigation channels; rising temperatures have benefited crop production; and a drop in snowfall has negatively affected water supply. However, these changes have so far been of little significance compared to other processes of agricultural change.

Several actors and factors have been found to be responsible for recent agricultural developments in Nagar. Government actors have played an important role through political reforms, subsidies and infrastructure projects. The new road infrastructure, especially the Karakoram Highway has been particularly pivotal in facilitating access to agricultural markets. Local and external traders, new sources of financial capital, and social networks have also played major roles in these developments. Much of the technological change has been initiated by external development agencies in collaboration with local community organisations and individual activists. By and large, social, political, and economic actors and factors have been far more influential in transforming local farming assemblages than changes in the biophysical environment. Nonetheless, significant trends in local climate change indicate that this may evolve to some extent in the future. As the assemblage approach suggests, the effects of these trends can only be evaluated by considering them as one of many co-occurring and often interrelated processes of local change.

Keywords: high-mountain farming, agricultural change, climate change, assemblage theory, Karakoram, Pakistan

Michael Spies is currently TRANSECT group leader at Eberswalde University for Sustainable Development in Germany. His dissertation was published in 2019 as *Northern Pakistan: High Mountain Farming and Changing Socionatures*, Vanguard Books, Lahore, ISBN 9789694026091.

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