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Rural–Urban Change in Highland Peru: Perceived Impacts and Preferred Performance

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In recent decades, the mountains of Latin America have undergone massive rural–urban change. In Peru, this has led to strong growth of population and settlement on the spatially limited valley floors of the

Quechua elevational zone, which is part of a sophisticated vertical land use system that includes the adjacent slopes (Suni elevational zone) and high plains (Puna elevational zone). Periurban villagers not only benefit from this rural–urban change, but also bear its negative social and environmental consequences. Future-oriented mountain development in highland Peru could benefit from detecting and understanding the perceived impacts and preferred performance of rural–urban change in periurban villages. In an effort to do so, this study used structured, computer-assisted personal interviews with closed questions, complemented by informal talks, in 2 case study villages near the intermediate cities of Cusco

(Huatanay Valley) and Huaraz (Santa Valley): Oropesa and Taricá. The responses of 420 interviewees, selected through nonprobability quota sampling, confirm negative impacts known from comparable studies. However, these perceptions do not lead to a negative overall assessment of rural–urban change. This supposed contradiction becomes easier to understand when considering the periurban villagers' preferred performance of future developments, which point in particular at the desire to preserve cropland and woodland on the valley floor, while, at the same time, making greater use of the high plains as settlement areas. Given these views, performance-based management of rural–urban change could potentially lead the way to a socially inclusive and environmentally balanced development and help in overcoming rural–urban dichotomies in highland Peru.

Keywords: urbanization; environmental perception; urban planning; mountain cities; Andes; Latin America.

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Introduction

Background and aims

Contrary to the widespread belief that mountains are rural retreats on our increasingly urban planet, many mountainous regions of the global South are undergoing massive urbanization, facing diverse social and environmental challenges (Grau and Aide 2007; Izquierdo et al 2018; Joshi et al 2022; Onaolapo et al 2022) related to rural–urban linkages (Haller and Branca 2022a). In the mountains of Latin America, this rural–urban change is not least a result of the increased economic and sociocultural attraction of globalizing cities (Aide and Grau 2004). The Central Andes of Peru, with their accelerated urban development (Córdova-Aguilar 2000) and highly diverse nature/culture gestalt (Gade 1999), are a perfect case in point. Depending on the locational characteristics of Central Andean cities, numerous challenges associated with urbanization around medium-sized and larger Andean metropolises encounter a regional geographical setting that presents planners and policymakers with special challenges for which one finds hardly any experience from other regions

(Stadel 2000; Goluchowska 2002; Córdova-Aguilar 2009; Borsdorf and Stadel 2015; Borsdorf and Haller 2020). A prime example is the effect of rural–urban change on periurban villages—understood in a double sense as marginally urban settlements on urban margins—in valley locations of the Quechua elevational zone of the Peruvian Andes (2300–3500 masl; Pulgar Vidal 1996; for critique on this regionalization, see Zimmerer and Bell 2013), where the ongoing urbanization of the most-favored but limited agricultural areas impacts on society and the environment in a specific manner.

In addition to other economic activities, a significant proportion of periurban villagers in this elevational zone of the Central Andes is dedicated to small-scale farming on the valley floor. This forms part of a sophisticated vertical system that builds on the complementary land use of valley floors, steep slopes, and high plains (Murra 1975; Lauer and Erlenbach 1987; Stadel 1992). According to traditional models of vertical land use in Peru, which can still be helpful for heuristic reasons, the soils of the valley floor are often irrigated—in contrast to the steep slopes (Suni; 3500–4000 masl) and high plains (Puna; 4000–4800 masl)—and thus enable year-round agriculture and the generation of

FIGURE 1 Central Andean valley floors of the Quechua elevational zone (2300–3500 masl), like in Huaraz Metropolitano (Santa Valley, Province of Huaraz), are experiencing uncontrolled rural–urban change. (Photo by Andreas Haller)



monetary income during the dry season. As a result, many periurban villagers, who often own only a few small parcels, lease additional land on the valley floor to improve their economic situation. However, as land on the valley floor is mostly privately owned, many landowners tend to sell lots for—often unplanned and dispersed—urban development (Figure 1) rather than lease them to periurban villagers. Together with the topographical constraints of the relief and the vertical complementarity of land use in the different elevational zones, this impacts both society and the environment of periurban villages.

Although the social and environmental effects of rural–urban change on periurban villagers are, of course, not only negative, the mentioned groups of disadvantages call for approaches to the management of rural–urban change that take the viewpoints of local people into account. Not least because of the many ecosystem services provided to the city proper by periurban areas. Therefore, a geographical approach to sustainable rural–urban development (Moschella-Miloslavich 2019), including the study of perceived impacts and preferred performance of rural–urban change in mountain valleys, can be of crucial importance for planning and policymaking. This is particularly important as local Andean attitudes toward rural–urban change can differ from perspectives influenced by Western dichotomous thinking—a situation that underlines the need for alternatives to widely used prescriptive management approaches that usually separate rural from urban areas.

Taking the Peruvian villages of Oropesa (Huatanay Valley, Province of Quispicanchi) and Taricá (Santa Valley, Province of Huaraz) as examples, the present idiographic

and problem-oriented study aims to gather, describe, and explain perceptions periurban villagers have of rural–urban change. We consider the seminal work of Ingold (2000) and apply a mountain-specific, “ontological” angle (Sarmiento 2020; Sarmiento et al 2023; on its development, see Haller and Branca 2020) that considers the particular location of Andean cities in valleys of the Quechua elevational zone and their vertically arranged “hinterland.” Which negative impacts of rural–urban change for periurban villages in Peruvian mountain valleys do local inhabitants perceive? Which performance of rural–urban change is preferred to reduce the perceived impacts? Do the impacts lead to a negative overall assessment of rural–urban change?

Conceptual thoughts on rural–urban change

Historically, “urban” cities and “rural” countryside were conceptualized as a dichotomy (see Williams 1973): the urban as modern and dynamic, the rural as traditional and static (Ferguson 1997; Andersson et al 2009). From a Romanticist perspective (Tuan 2013), mountains were—and still very often are—seen as part of the rural realm. Such a Western dichotomous view follows, as Berque (2011) makes clear in a structural (not functional) perspective on rural and urban categories, a certain cultural-historical sequence: the original wilderness on our planet was characterized by forest (as, for example, the etymological proximity of *salvajel selva* in Spanish underlines). The ruralization of the wilderness therefore meant the clearing of forest with the aim of cultivating nature (“rural” has an Indo-European root **reue-* meaning “to tear out”). Although the rural initially represented the cultivated, this changed with the

construction of the first cities and their demarcation from the countryside (“urban” possibly comes from Indo-European **werb^h*- meaning “to enclose”). A change in meaning set in and increasingly turned the cultivated rural area into nature, while the city was seen as a place of the cultivated. This view was transferred to large parts of Latin America, including the Andes, by the Spaniards (Wilhelmy and Borsdorf 1984). It is characterized by its ambivalence, depending on the meanings attributed to it. In the Peruvian Central Andes of the 1950s and 1960s, for instance, a developmentalist vision advocated the “deindianization” of peasants to integrate them into the national economy and politics as full citizens (De la Cadena 2006). This vision remains typical of certain economically liberal perspectives and is evident in certain externalizations about the Andean *campesinos*’ opposition to the “modern.” Another narrative illustrates the “rural” Andes as an idyllic place, where both Indigenous and Spanish traditions are alive, representing the last bulwark against the decadence of “urban” city life (see Rapport and Overing 2000).

Authors of various disciplines agree that “the city” is no longer a settlement delimited by definite boundaries, which clearly divide it from “the countryside.” According to Follmann (2022), main bodies of literature supporting this include the notions of (1) “planetary urbanization” (Brenner and Schmid 2014), (2) “peripheral urbanization” (Caldeira 2017), and (3) “agrarian urbanism” (Waldheim 2012). A result of this quest to overcome the rural–urban dichotomy is the conceptual proposal of the “periurban interface,” which “constitutes an ‘uneasy’ phenomenon, usually characterized by either the loss of ‘rural’ aspects (loss of fertile soil, agricultural land, natural landscape, etc) or the lack of ‘urban’ attributes (low density, lack of accessibility, lack of services and infrastructure, etc)” (Allen 2003: 136). This represents an area of rural–urban material and nonmaterial flows leading to a number of social and environmental heterogeneities. The underlying process of periurbanization (in the sense of a rural-to-more-and-more-urban transformation reminiscent of the planetary urbanization discourse) is, however, not always understood uniformly. Follmann (2022) attempted to bring order to the academic discourse on this and identified 3 strands of literature: first, those that understand the periurban as a territorial category (eg “rural–urban fringe”); second, a group that emphasizes the functional category (eg “rural–urban linkages”); and, finally, another that understands the periurban as a transitional category (eg “rural–urban change”). We emphasize here that in concrete regional development contexts, for instance, in Oropesa and Taricá in the Peruvian Central Andes, the interplay of all 3 conceptual vectors is of importance. Rural–urban change is facilitated by the use of ecosystemic, infrastructural, demographic, economic, and sociocultural connections (functional dimension) and eventually changes the shape of mountain valleys, slopes, and high plains on the edge of cities (territorial dimension).

The increasing impossibility of dividing space into mutually exclusive rural and urban components, and the emergence of new conceptual proposals, presents spatial development with the challenge of how prescriptive approaches to rural–urban management (eg traditional zoning)—often dominated by Western ontologies—can be

adapted to local contexts or appropriately replaced in the sense of Indigenous planning (Sandercock 2004).

Material and methods

Study villages

The periurban villages of Oropesa (13°35′41″S, 71°45′49″W; approximately 3125 masl) and Taricá (9°23′37″S, 77°34′31″W; approximately 2820 masl) are located in the Quechua elevational zone of the Huatanay Valley, on the periphery of Cusco Metropolitano, and the Santa Valley, on the periphery of Huaraz Metropolitano (Figure 2). As centers of the homonymous districts, they fulfill important political, social, and economic functions for a number of minor settlements at different elevations. Because of the proximity to their respective regions’ capitals, both periurban villages have undergone a strong growth in the total population and the number of dwellings over the last 4 decades (Figure 3; Branca and Haller 2021a, b): Oropesa grew from 3978 (in 1981) to 10,281 people (in 2017); Taricá experienced a growth from 4533 (in 1981) to 6959 (in 2017) people. At the same time, the number of dwellings registered in censuses increased from 992 to 3453 (in Oropesa) and from 1036 to 2663 (in Taricá). Yet, although the Cusco example developed in a morphologically more compact way, the Huaraz case resulted in a more dispersed settlement structure (Figure 4). In turn, hardly any differences are seen in the settlements’ building materials and forms (Table 1).

Structured interviews

After a pilot phase, data collection, following Monge-Rodríguez et al (2022), was conducted from May to July 2023. The total sample planned was 400 participants over 18 years of age, 200 from the district of Oropesa and 200 from the district of Taricá. Further, gender quotas were considered for each district, targeting 100 males and 100 females to ensure the external validity of the study. In addition to nonprobability quota sampling, the participants were selected using a “snowball technique,” starting at the central *plaza de armas*. As the current total population of the central areas of the districts of Oropesa and Taricá is not known, it is not possible to draw conclusions that go beyond the total number of people interviewed. However, experience has shown that surveys based on quota sampling can provide meaningful results (Yang and Banamah 2014).

The target total number of participants was slightly exceeded (210 interviewees per study village), and the quotas were reached during the field campaign. Interviews were conducted face to face, in either Spanish or Quechua (according to the interviewees’ preferences), using the computer-assisted personal interview method (KoboToolbox software was used). All participants gave informed consent. The study was conducted with consideration of the Helsinki declaration, emphasizing the autonomy of the participant. The questionnaire consisted of 4 different sections. The first section on sociodemographic profile included questions on age, sex, length of residence in the district, whether interviewees were farmers or had a family member engaged in agriculture, and educational level. The second section presented 15 questions about the negative impacts of rural–urban change on the valley floor. These were originally identified through an inductive research process in the

FIGURE 2 Location of the contiguous built-up areas of Cusco Metropolitano and Huaraz Metropolitano in the Quechua elevational zone of Peru (2300–3500 masl). The study villages of Oropesa and Taricá are indicated. (Graphic by Kati Heinrich)

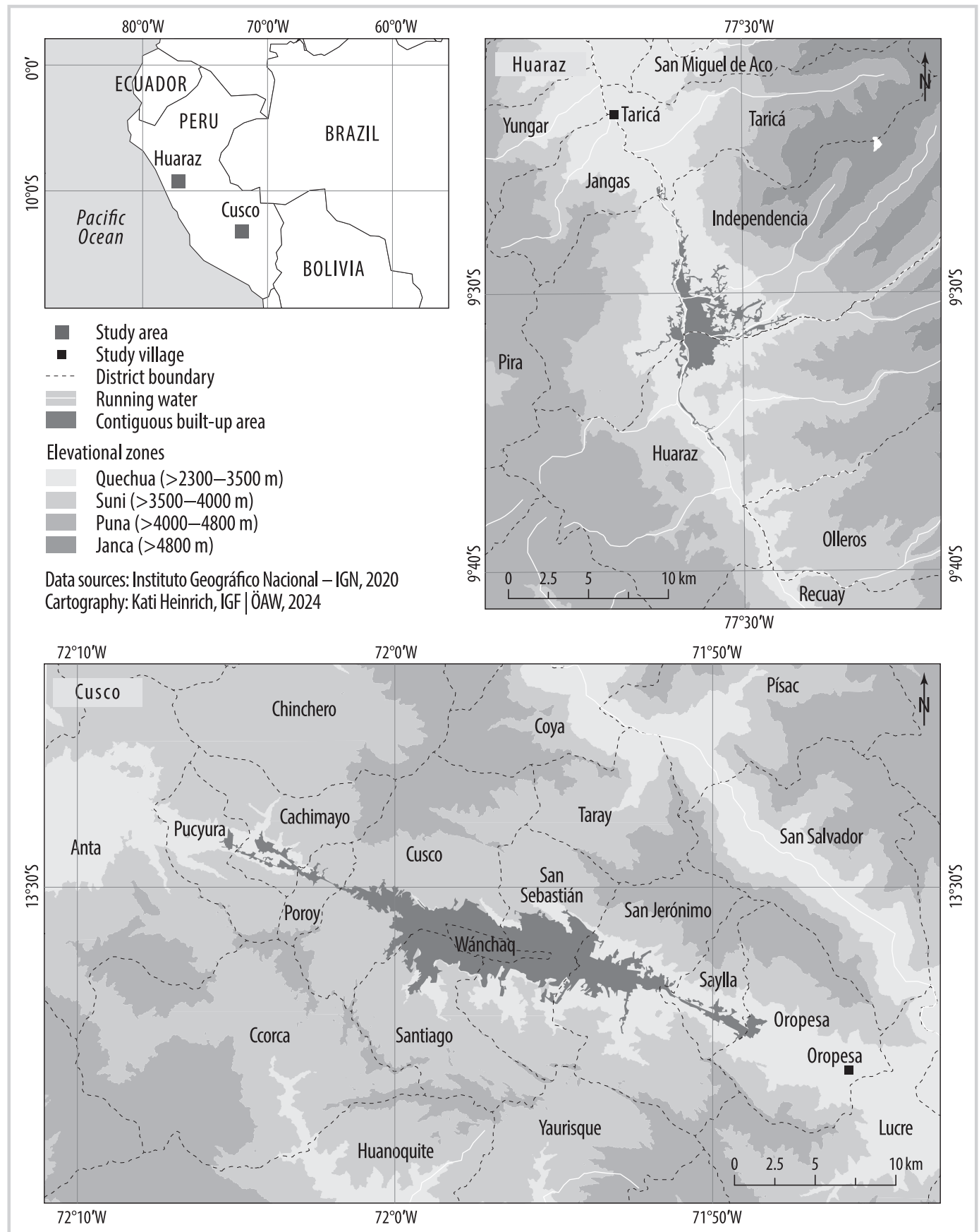
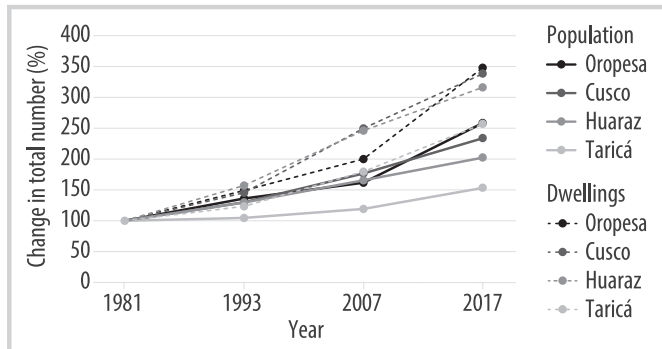


FIGURE 3 Relative changes 1981–1993–2007–2017 of the total population and number of dwellings in Oropesa (Cusco Metropolitano) and Taricá (Huaraz Metropolitano) according to census data. Following Haller et al (2023), this has led to an estimated increase of the built-up area from approximately 12 km² to 38 km² in Cusco Metropolitano and from 5 km² to 8 km² in Huaraz Metropolitano in the period 1991–2021. (Data source: INEI 1981, 1993, 2007, 2017)



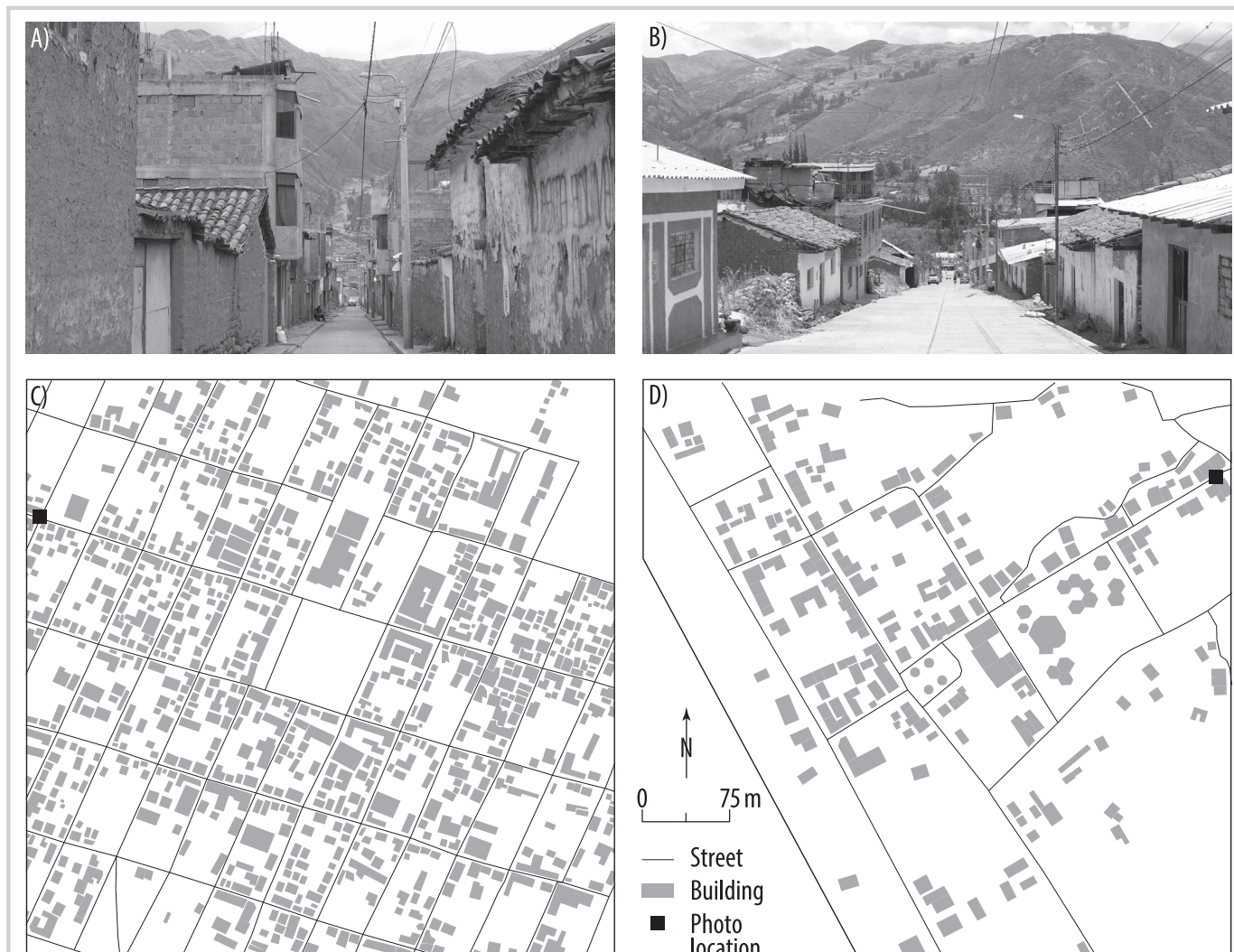
Andean city of Huancayo, in Central Peru, where periurban villagers from Uñas, Vilcacoto, and Chamisería were asked their opinions on rural–urban change (structured but open questions; the answers were recorded, transcribed, and systematically classified applying a qualitative content analysis; see Haller 2014). The third section comprised 12 questions on the interviewees’ preferred future performance of rural–urban change, including blocks on settlement location, material, form, and structure (for the current state, see Table 1). Finally, a last question referred to the overall assessment of rural–urban change to find out whether it is generally perceived as positive or negative. Apart from structured and closed, unstructured and open questions were asked during informal talks with interviewees to complement the answers of the questionnaires.

Rural–urban change: results and discussion

Sociodemographic profile of the interviewees

The sample in Oropesa included 105 males and 105 females. The average age of the interviewees was 41.8 years (the

FIGURE 4 The rural–urban tissues of the centers of Oropesa (A; Huatanay Valley, Province of Quispicanchi) and Taricá (B; Santa Valley, Province of Huaraz) show a mixture of traditional and modern Andean buildings. Oropesa is characterized by a regular (C) and Taricá by an irregular (D) street block pattern. Graphic: Kati Heinrich.



Data sources: OpenStreetMap (streets and buildings); photos: Andreas Haller, 2023; graphics: Kati Heinrich, IGF | ÖAW, 2024

TABLE 1 Summary of key characteristics of location, material, form, and structure of the rural–urban tissue of Oropesa and Taricá according to direct field observation in 2023.

Element	Oropesa	Taricá
Location	Both settlements are located in river valleys at around 3000 masl (Quechua elevational zone), at an approximate distance of 10 km from the nearby contiguous built-up area of the urban agglomerations. Their respective districts have a share in the contiguous built-up area of the agglomerations, yet the districts' central places themselves are not part of it.	
Material	The buildings are either made of clay bricks (occasionally also concrete bricks) or adobe bricks. The roof cladding is usually made of clay roof tiles (in the case of adobe brick buildings) or corrugated sheet metal or corrugated polycarbonate sheets (in the case of clay and concrete brick buildings).	
Form	Buildings made of clay and concrete bricks mostly have more than 2 stories. Buildings made of adobe bricks have a maximum of 2 stories. Clay and concrete brick buildings are dominated by mono-pitched roofs, and adobe brick buildings by pitched roofs (in both cases with eaves facing the street).	
Structure	The distribution of the buildings according to material and form is irregular. The arrangement of the buildings themselves follows the grid plan. The building density is relatively high. There are open spaces within the built-up area, but these are often limited to kitchen gardens. Occasionally, cropland and grassland are visible.	The distribution of the buildings according to material and form is irregular. The arrangement of the buildings themselves is just as irregular as the street layout. The building density is relatively low, open spaces in the built-up area are numerous, especially cropland (harvested wheat fields, also used as stubble pasture).

median value was 39), with a minimum of 18 years and a maximum of 96 years. Most interviewees stated that Oropesa had been their place of residence since they were born (110); 54 interviewees had lived there for 4 to 10 years, and 46 people had made Oropesa their place of residence in the last 3 years. Regarding their agricultural background, 140 interviewees stated that they (or family members) practiced agriculture; 70 people had no such linkage. In terms of the highest educational level finished, 8 interviewees stated that they had no formal education, 42 people indicated primary school, 90 reached secondary school, 44 studied at university, and 26 got a tertiary technical education.

The sample in Taricá included 105 males and 105 females. The average age of the interviewees was 43.7 years (the median value was 39), with a minimum of 18 years and a maximum of 89 years. A majority stated that Taricá had been their place of residence since they were born (160); 34 interviewees had lived there for 4 to 10 years, and 16 people had made Taricá their place of residence in the last 3 years. With respect to their agricultural background, 176 interviewees stated that they (or their family members) were involved in agriculture; 33 people had no such linkage. Finally, regarding the highest educational level finished, 16 interviewees stated that they had no formal education, 59 people indicated primary school, 79 reached secondary school, 25 studied at university, and 31 got a tertiary technical education.

Perceived impacts of rural–urban change

The majority of the interviewees in both Oropesa and Taricá (Figure 5) agreed (or even totally agreed) on the several negative impacts of rural–urban change. In terms of social impacts, the in-migration of uneducated people (ie people who do not care about the environment) was considered a

big problem in the Huatanay Valley and Santa Valley; also the arrival of so-called *gente de mal vivir* (literally “evil-living people”) was seen as a negative impact. One consequence was a perceived increase in delinquency and drug abuse. Moreover, rural–urban change is seen as a driver behind more egoism and competition in Oropesa and Taricá.

Regarding the environmental impacts, a perception was found that rural–urban change caused a loss of cropland and drove the destruction of woodland. In addition, it was perceived that land and water became more contaminated and the air became increasingly polluted. Rural–urban change was thus seen as an important driver of biological resources scarcity and loss in the valleys of the Huatanay and Santa rivers.

At the interface of the social and environmental disadvantages, the social–environmental impacts encompassed the negatively perceived need to use more fertilizers to maintain agriculture on the valley floor. The impaired health of the villagers was another negative impact clearly confirmed by the interviewees in Oropesa and Taricá. They also agreed that villagers increasingly felt obligated (or seduced) to sell parcels of agricultural land, which, all too often, then became building land and was sold at much higher prices. All this was perceived to affect subsistence and food and income security, and some eventually felt forced to cultivate high-elevation land in the surroundings of both villages. This was reflected by a comment of a local inhabitant in Oropesa:

I do not agree with that urban growth at all, because that costs us much land, land for agriculture. Going up to the slopes is necessary but not a good option because there is almost no water for irrigation, that is the problem. Hence, some farmers go to Cusco, to work in whatever.

(male inhabitant of Oropesa, 28 September 2023)

FIGURE 5 Agreement and disagreement with negative impacts of rural–urban change among 105 male and 105 female interviewees in Oropesa (A; Huatanay Valley, Province of Quispicanchi) and 105 male and 105 female interviewees in Taricá (B; Santa Valley, Province of Huaraz). Bars show relative shares while numbers represent absolute values of responses. The statements stem from Haller (2014).

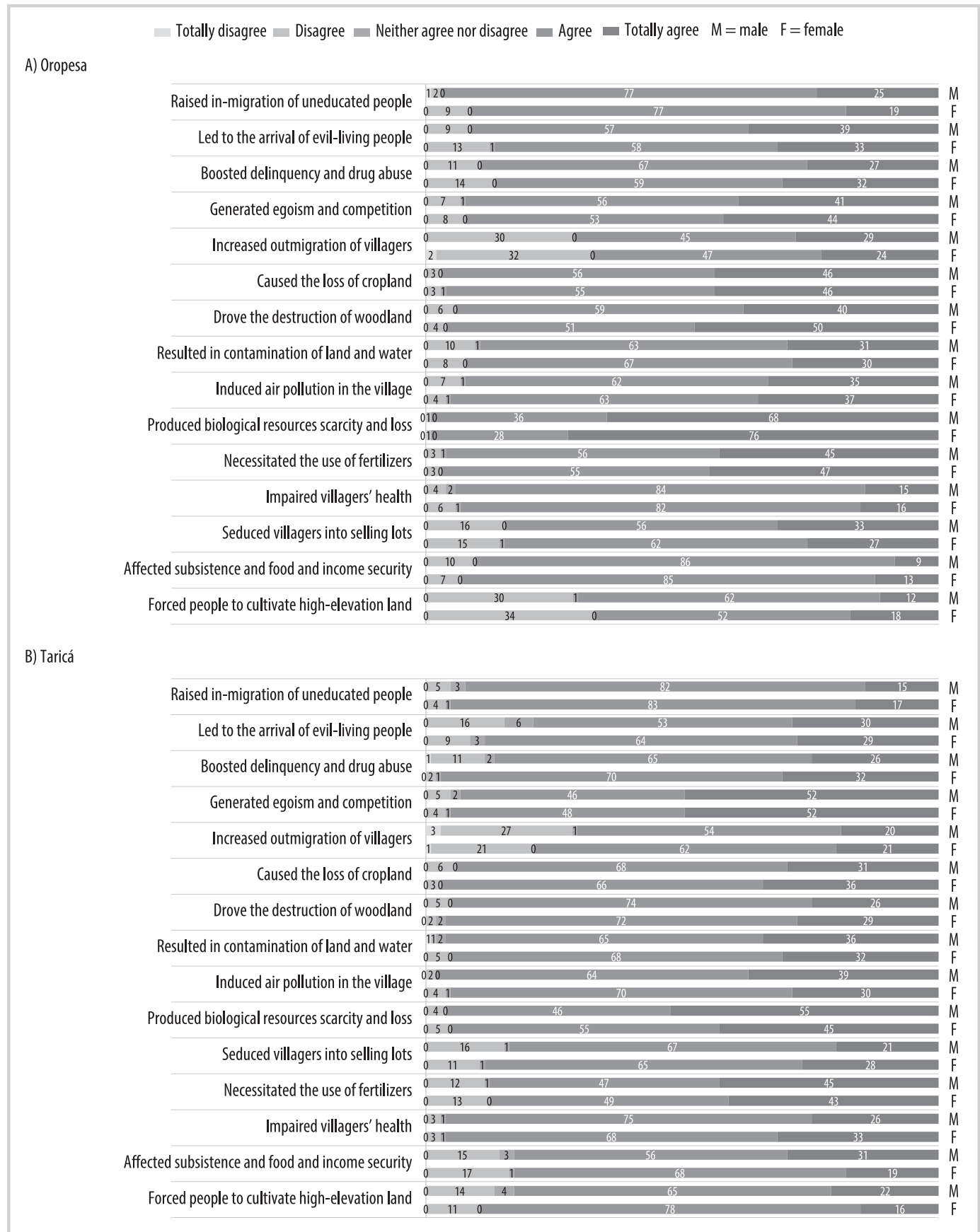
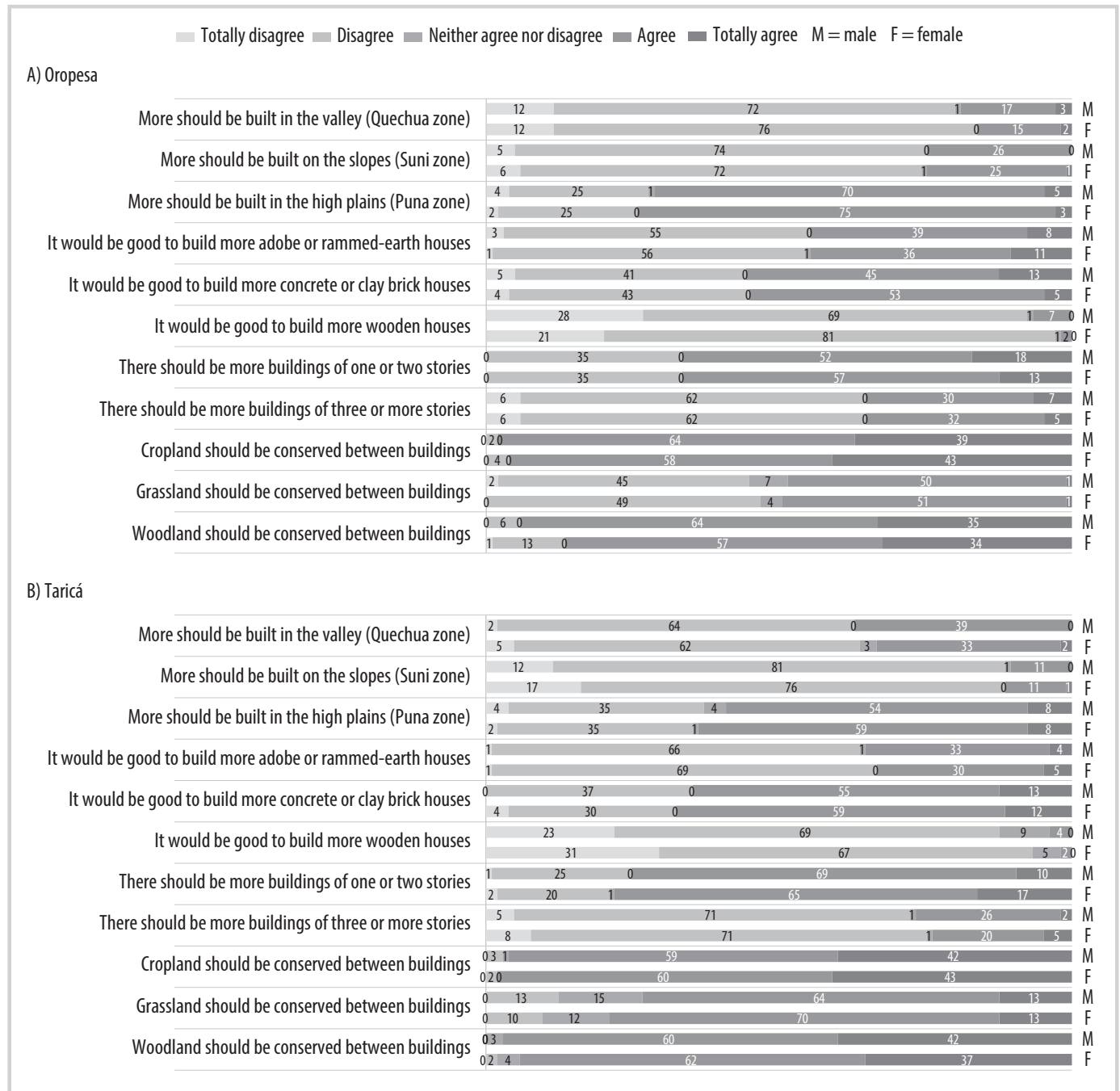


FIGURE 6 Agreement and disagreement with statements on preferred rural–urban change among 105 males and 105 females in Oropesa (A; Huatanay Valley, Province of Quispicanchi) and 105 males and 105 females in Taricá (B; Santa Valley, Province of Huaraz). Bars show relative shares while numbers represent absolute values of responses.



In sum, a comparison of the results from Oropesa and Taricá shows that the majority of ratios regarding (total) agreement versus (total) disagreement are the same. The interviewees in Oropesa and Taricá clearly agreed with perceived impacts surveyed in a study near the Andean city of Huancayo (Haller 2014). It is also striking that no noticeable differences are seen in the answers between the 2 genders. Assuming that the strength of the negative effects of the confirmed social, environmental, and social-environmental impacts is significantly influenced by the location, material, form,

and structure of the built-up land, this inevitably raises the question of the preferred performance of future rural–urban change from the periurban villagers' perspective inevitably.

Preferred performance of rural–urban change

Regarding the preferred performance of rural–urban change (Figure 6) to reduce the perceived impacts, questions on location, material, form, and structure were included. Surprisingly, despite certain structural differences of both study villages outlined in Table 1, the tendencies

FIGURE 7 Periurban grassland in Oropesa (Huatanay Valley, Province of Quispicanchi) is becoming a *zona urbana*. (Photo: Andreas Haller)



were the same in both villages. In addition, hardly any differences were seen between male and female interviewees. A majority consensus seemed to be that no more construction should take place on the valley floor of the Quechua elevational zone or on the slopes of the Suni elevational zone. In contrast, the majority of interviewees stated that more should be built on the plains of the Puna elevational zone; however, this view was more pronounced in Oropesa than in Taricá, which is possibly because of the greater settlement pressure and density in the Huatanay Valley. In terms of preferred building materials, adobe and rammed earth were rejected by the majority, while around a third of respondents in Oropesa and around a fifth of interviewees in Taricá demonstratively spoke out in favor of these traditional building materials, mostly arguing that the village centers should maintain their traditional character. Majorities in favor of concrete or clay brick houses were found among men and women in both Oropesa and Taricá; in Taricá, one strong argument referred to the risk of earthquakes and the higher resistance of buildings made of concrete or clay bricks. On the other hand, the use of wood as a building material for houses was rejected by a large majority in both study villages. With regard to the preferred number of stories, majority agreement also was seen that future buildings should have a maximum of 2 stories, but 3 or more stories were predominantly rejected. This was illustrated by a comment of an inhabitant of Taricá, who stated:

Most people now construct houses of 3, 4, or 5 stories, so that each child can get its own apartment. But their children go to the city, and then father and mother end up living alone in an oversized house.

(male inhabitant in Taricá, 5 October 2023)

Finally, the responses also revealed a clear preference for dispersed settlement structures: cropland and woodland between buildings should be protected. A majority was also in favor of protecting periurban grassland (Figure 7), although a strong minority came out against this in Oropesa.

Overall assessment of rural–urban change

Regarding the overall assessment of rural–urban change in Oropesa, only 3 interviewees considered it very negative, and 54 saw it as negative. One participant assessed it neither negative nor positive, whereas 135 found it a positive and 17 a very positive development. With respect to the overall assessment of rural–urban change in Taricá, only 1 interviewee considered it very negative, and 48 saw it as negative. One participant assessed it as neither negative nor positive, whereas 154 found it a positive and 6 a very positive development.

At first glance, this positive overall assessment of urbanization, both in the Huatanay Valley of Oropesa and in the Santa Valley of Taricá, which is in line with the results of the study by Haller (2014) in Huancayo, is somewhat contradictory to the perceived impacts and preferred performances. However, this possible contradiction could be due to the division into “urban” and “rural” categories that still exists in the Western perspective, whereby “urban” is almost always associated with nonagricultural cities and “rural” is generally associated with villages based on agriculture. Even if it makes sense to continue using categories such as “urban” and “rural” for heuristic reasons, it still seems useful to be aware of possible deviations from a regional “Andean” perspective. The perceived social, environmental, and social-environmental impacts and the

preferred performances lead to the conclusion that the increasing population and settlement density in the valley area due to urbanization was a particular problem for the periurban villagers. This is suggested in particular by the preferred performances, which include, for example, lower numbers of stories and the preservation of cropland between buildings. In addition, respondents agreed to the “stretching” of the rural–urban tissue in the sense that the higher plains of the Puna zone were seen as a future settlement area to enable lower densities of population and settlement on the valley floors. With regard to rural–urban agglomerations in the Andes, Stadel (2019: 10) stated that “[these] newly emerging or rapidly expanding clusters are facing the challenge of integrated and effective regional planning and policy actions that attempt to regulate the nature of the growth processes, to recognize the interests of urban and rural stakeholders and to harmonize economic goals with ecosystem services.”

Overall, the preferred performances are strongly reminiscent of concepts of low-density “agricultural urbanism” or “agrarian urbanism” (Fletcher 2011; Waldheim 2012) and raise the question of how to develop urbanizing mountain regions sustainably in such a fuzzy direction.

Performance-based rural–urban change?

For the development of rural–urban or periurban spaces, such as Oropesa and Taricá, Tan et al (2023) proposed an integrative landscape-based framework that places people at the center and is based on a morphogenetic approach. It emphasizes the integrative capabilities of the landscape concept to consider diverse natural and cultural spatial components and relationships of rural–urban change that make periurban spaces a distinct, interrelated phenomenon. The inherent morphogenetic approach of the geographical landscape concept (Antrop 2000) enables a deeper understanding of spatial changes through the relationship of location, material, form, and structure. Finally, the proposed framework points to societal worldviews on the environment that reflect periurban spaces, which are perceived by the local population and in turn incorporated into their land use decisions. However, the different societal worldviews on the environment (“cosmophanic diversity”; Haller and Branca 2022b) in periurban spaces of the Huatanay Valley and the Santa Valley also pose challenges for prescriptive approaches to the management of rural–urban change (eg traditional zoning; see Sclar et al 2020).

Prescriptive approaches, such as traditional zoning (also known as “Euclidean” zoning; Hirt 2013), with unambiguous uses assigned to clearly demarcated land use zones, do not do justice to either the local environmental perception or the temporal dynamics that characterize periurban villages in Peru’s Andean valleys. This becomes clear from the described effects of urban growth on periurban villagers in Oropesa and Taricá, their preferences regarding the future development of the periurban surroundings of Cusco and Huaraz, and the peculiarities in the Andean perception of seemingly dichotomous categories such as “rural” and “urban.” Prescriptive techniques aim to restrict supposedly undesirable uses and apply standardized zones to variable situations, and they hardly consider the participatory

delimitation of zones. This often leads to official regulations that are difficult to adapt and thus can represent an important source of permanent conflict (Kohl and Herrera-Fernández 2021).

Therefore, the question arises of whether performance-based approaches (Cortinovis and Geneletti 2020; see also Faludi 2000) to the management of rural–urban change—long known but little applied (eg flexible zoning that does not impose any restrictions on use as long as certain quality criteria are met in a certain area; Marwedel 1998)—are a better alternative to prescriptive approaches in the Huatanay Valley and the Santa Valley. Performance-based approaches can be defined as “the broader context of land use regulation focusing on zoning and planning outcomes, where results-based measurement is used at both the strategic and operational levels to attain desired outcomes” (Baker et al 2006: 396–397). If they are applied in a collaborative manner, where “individuals representing differing interests engage in long-term, face-to-face discussions, seeking agreement on strategy, plans, policies, or actions” (Innes and Booher 1999: 11), they offer the opportunity to incorporate people’s environmental perceptions and worldviews into a broad process around jointly defined quality criteria. This can include perceived social, environmental, and social-environmental conditions, including the form of the rural–urban tissue. Here it would be decisive to not only focus on objectively measurable quality criteria (eg yearly land consumption in a given area) but also on intersubjectively assessable perceptions of local people in the periurban villages of Oropesa and Taricá. Just like environmental monitoring approaches, regular and standardized social surveying of perceptions toward rural–urban change could provide planners and policy makers with the necessary information to steer future development. Preferences for the location, material, form, and structure of future settlement development on the valley floor could be better considered and the perceived effects of urban growth on periurban villagers could be incorporated into the definition of the performance of designated zones around Cusco Metropolitano and Huaraz Metropolitano. This would make it easier to consciously avoid thinking in terms of common, counterproductive “rural” and “urban” categories—as also claimed by Ledo Espinoza (2021).

Following Sleeswijk Visser and Kouprie (2008; see also Haller 2017), a workshop approach could be introduced in 4 major phases: first, an introduction to the problem should be provided; second, participants should be given time for introspection and self-reflection; third, they should establish a cognitive connection with the others’ experiences; and, fourth, detachment and repositioning of the participants should be applied. These steps, aimed at creating empathy between stakeholders, could form a joint basis for defining the desired performance in a certain area. However, Cools et al (2002) make clear that 3 major factors must be considered in the application of performance-based approaches: first, it is necessary that clear formulations are found and performance objectives can be observed; second, one should have no contradictions in the performance objectives; and, third, instruments for monitoring and controlling should be available to promote successful implementation of the concept. In social-environmentally diverse and spatially limited mountain

valleys in the Central Andes of Peru, these points appear particularly important. In the long run, however, this improved participation of civil society should go hand in hand with improvements in the governments' capacities and the planners' education (Pineda-Zumarán 2018; Fernández-Maldonado 2019).

In sum, the described performance-based approach to the management of rural–urban change could mean an important step toward “humanizing” planning tools that still often stick to the positivist assumption of objectivity and a supposedly absolute truth (Allmendinger 2002). Here, however, it would be crucial not to fall into the trap of neoliberal planning, considering the different possibilities of influence of various interest groups and intervening in a regulatory manner (Sager 2011). If this succeeded, the approach could contribute to the Sustainable Development Goals' target 11.a, to “Support positive economic, social, and environmental links between urban, periurban and rural areas by strengthening national and regional development planning.”

Conclusion

Relief and elevation are distinctive features of mountains and require a mountain-specific perspective on rural–urban change in the valleys of the Peruvian Andes. Overall, this idiographic and problem-oriented research in 2 case study villages confirmed that periurban villagers in urbanizing valleys of the Quechua elevational zone of highland Peru do perceive negative social, environmental, and social–environmental impacts of rural–urban change in a similar way. To solve these problems, they mostly agreed that low-density rural–urban change is preferred and that the inclusion of the high plains into the rural–urban tissue would help to preserve the heterogeneous periurban mosaic of built-up land, cropland, and woodland on the valley floor. However, the vast majority of the interviewees evaluated rural–urban change per se as a positive process.

This indicated that Western dichotomous thinking in rural and urban categories, often inherent in prescriptive approaches to the management of rural–urban change (eg traditional zoning), could contradict local people's perceptions in developing mountain regions like the Peruvian Central Andes. Therefore, this study discussed performance-based alternatives and found that they bear—if applied in a collaborative manner—the potential to be an important component of a more “periurban” and people-oriented way to manage rural–urban change.

The idiographic methodological approach of this study, mainly combining nonprobability quota sampling of periurban villagers and structured, computer-assisted personal interviews with closed questions, proved to be a useful and practice-oriented solution to detect perceived impacts and preferred performances of rural–urban change under the often challenging conditions of developing mountain regions. In this context it was crucial to collaborate with multilingual interviewers who offered interviewees the option of answering in their language of preference. Limitations of the approach used relate primarily to the low number of cases investigated. Adopting the approach used here for further studies in comparable development contexts in the Central Andes—from southern

Colombia to northern Chile and Argentina—would enable typologization, facilitate modeling, and make it easier to derive recommendations for action that go beyond national planning contexts.

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