

## Empowerment of Urban Peripheral Villages (A Case Study: Peripheral Villages in Neka City, Iran)

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### Abstract

*This study aims to develop a comprehensive model of village empowerment in the periphery of the city of Neka by identifying different dimensions of empowerment and their interrelationships in order to provide a practical framework for planning and implementing empowerment initiatives. This mixed-methods (quantitative-qualitative) research consisted of two phases. In the qualitative phase, data were collected through in-depth semi-structured interviews with 17 local elites. In the quantitative phase, data were collected through a researcher-designed questionnaire from 384 residents of 6 villages in the urban periphery of Neka, selected through stratified random sampling, and analyzed using descriptive and inferential statistical tests. The results showed that the empowerment of villages in the urban periphery is a multidimensional process with five main dimensions. The economic dimension was identified as the strongest empowerment. Among these dimensions, the social dimension had the highest average, while the infrastructural dimension had the lowest. The correlation analysis showed the strongest relationship between the economic and social dimensions. A regression model indicated that the independent variables explained a significant proportion of the variance in the dependent variable. In addition, significant differences in empowerment levels were observed between villages.*

**Key words:**  
rural empowerment,  
empowerment model,  
peri-urban villages,  
sustainable rural  
development, Neka City

### 1 INTRODUCTION

In recent decades, the rapid growth of urbanisation and the physical expansion of cities have introduced new challenges for rural areas surrounding urban centres (Bosworth & Bat Finke, 2020). These villages, located in the urban periphery, face numerous issues, including land-use changes, youth migration to cities, and a decline in traditional agricultural activities (Dilley et al., 2022). Empowering villages situated in the urban periphery has emerged as an effective approach to preserving rural identity and improving the quality of life for residents in these areas (Ghorbani & Rahmani, 2015). The concept of empowerment in rural development literature refers to a process through which individuals and local communities gain greater control over their lives and surrounding environments (Dimitrovski et al., 2012). This concept encompasses various dimensions, including economic, social, cultural, and political empowerment, aiming to enhance local capacities and improve living conditions in rural areas (Guimond & Simard, 2010). Empowerment holds particular importance for villages in urban peripheries, as these areas are subject to pressures stemming from urban expansion and rapid socio-economic changes (Hadizadeh, 2014).

One of the most important dimensions of empowering villages in the urban periphery is

economic empowerment. This includes creating new employment opportunities, diversifying the rural economy, and improving economic infrastructure. The development of rural industries, rural tourism, and modern agriculture can also play an important role in the economic empowerment of these areas (Mohammadi et al., 2022). Creating stronger economic linkages between villages and cities can help increase incomes and improve the living standards of villagers. Actions taken in this direction will lead to the realisation of goals such as social integration, skills training, and the provision of local jobs, and will bring the public and private sectors together to achieve mutual benefits (Schrock, 2013).

Another dimension of empowerment is social empowerment, which focuses on strengthening local institutions such as village councils, NGOs, and self-help groups can play an important role in increasing social cohesion and empowering the local community. In the process of empowerment, the institutional, executive and political power in a community increase so that individuals gain the ability to improve their living conditions (Nkosi, 2003). In principle, community-based empowerment and its relationship to local development is a decentralized and participatory approach that complements sectoral development, which, in addition to participating in neighborhood coordination, considers it necessary

to involve neighborhood residents in the planning process to identify priorities for action and support implementation in order to secure property rights and economic development in poor neighborhoods (UNESCAP, 2015). The participatory approach to development is mainly known as „participatory rural appraisal“ or PRA, which Chambers defines as: „a set of approaches and methods in which an outsider acts as a facilitator and through which rural people are empowered to share their knowledge, analyze it, and plan, act, and monitor accordingly“ (Chambers, 1994). Chambers’ participatory development model is a foundational framework in the field of development studies, particularly associated with bottom-up, people-centred approaches. His model stands in contrast to traditional top-down, expert-driven development practices (Koralagama et al., 2007). The key components and their strengths in PRA are shown in Fig. 1.

Cultural empowerment is another important dimension in this regard. Preserving and reviving rural culture and identity in the face of the cultural impact of cities is a major challenge for villages located within the boundaries of these cities (Akhgari & Taleshi, 2020). In this regard, programs such as organising cultural festivals, supporting local handicrafts, and promoting native dialects can help preserve and strengthen the cultural identity of these villages. Paying attention to the role of culture, using historical and cultural values as resources for development, and also paying attention to people’s leisure time are the most important aspects of this trend (Beatriz, 2004).

The environmental dimension of empowerment is also particularly important in urban villages (Cherim et al., 2018). Due to their proximity to the city, these areas face problems such as environmental pollution, destruction of agricultural land, and depletion of natural resources (Alipour et al., 2019). Empowerment in this regard can include training and promotion of sustainable agricultural practices, waste management, protection of water and soil resources, and development of renewable energy. These interventions not only help preserve the environment but can also create new economic opportunities for villagers.

One of the main challenges in empowering villages located within urban boundaries is to strike a balance between preserving rural identity and

reaping the benefits of urban development. In this regard, integrated urban-rural planning can be an effective solution (Akhgari & Taleshi, 2020). This approach emphasizes cooperation and coordination between urban management and the management of surrounding villages, and can help distribute the benefits of development more equitably and reduce spatial inequalities (Saeedi & Taghizadeh, 2017). The role of information and communication technology (ICT) in empowering villages within the boundaries of cities is also significant. The expansion of communication infrastructure and access to high-speed internet can provide villagers with new opportunities for distance learning, e-commerce, and access to information and services (Alipour et al., 2019). This can help reduce the digital divide between cities and villages and pave the way for the development of new and innovative jobs in villages. Cowie et al. (2020) believe that the Fourth Industrial Revolution (IR4) can have a positive impact on rural areas around cities and can effectively transform rural areas into smart villages by understanding the technological aspects of IR4.

The city of Neka, located in Mazandaran Province (Iran), is an example of a city that has experienced significant growth and expansion in recent years (Statistical centre of Iran, 2021). The villages within this city, like many villages surrounding growing cities, are facing numerous challenges. These challenges include a shift in economic structure from agriculture to services, rising land prices, environmental degradation, and loss of rural identity (Karimi et al., 2024). The empowerment of villages within the city of Neka requires a comprehensive and multidimensional approach that takes into account all economic, social, cultural, and environmental aspects. This requires the active cooperation and participation of all stakeholders, including the local government, NGOs, the private sector, and the local community. Given the strategic importance of these villages for regional sustainable development, their empowerment is essential not only for the benefit of the rural population, but also for the balanced and sustainable development of the entire Neka region. This study aims to closely examine the challenges and opportunities in the villages within the boundaries of the city of Neka, in order to provide practical solutions for the empowerment of these areas and

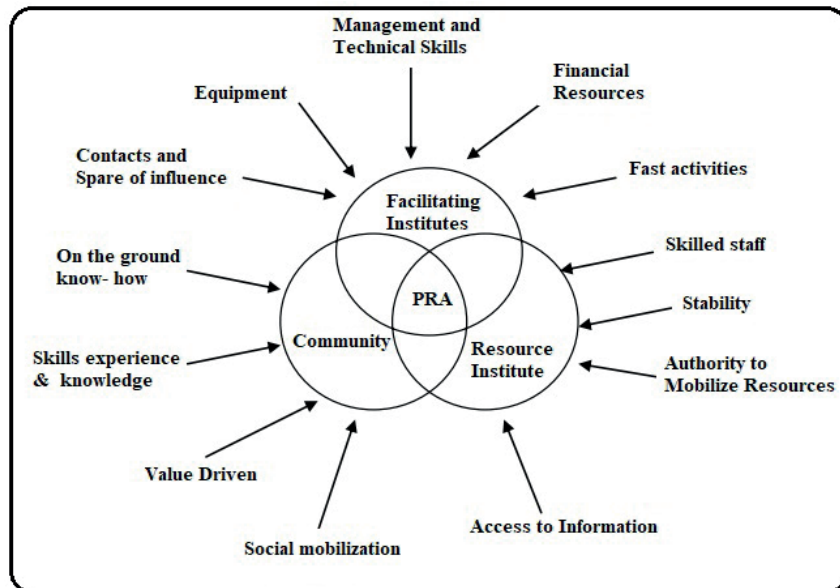


Fig. 1. The key components and their strengths in PRA

Source: Koralagama et al, 2007

to serve as a model for other similar areas in the country. Therefore, the main research questions are: What are the main challenges in the villages within the boundaries of Neka City, and what solutions will be effective in empowering them?

## 2 THEORETICAL FRAMEWORK

Many theories have been proposed in the field of understanding and analysing urban-rural relations with a regional approach, most of which have been based on economic growth in developing countries, including the Harrod growth model (1948), the Rostow model (1956), and Hirschman (1985). Given the changes in urban-rural relations and the complex nature of these relations, concepts such as space have also changed. Geographic space, relative space, and social space are among them. For Lefebvre, however, space is a social production. In order to understand this fundamental theory in depth, it is first necessary to dispel the widespread notion that space is a self-contained material reality. For this reason, Lefebvre uses the concept of the production of space. This means that space in itself cannot be the starting point of epistemology. Space as such does not exist, but is produced. On the other hand, according to Lefebvre, time refers to the temporal order and historical process of social production. This highlights the need to pay attention to the historical process and past of space, including parks (Makinde & Amao, 2024).

Around the world, people use different words to speak about the urban periphery. They are different not only in the obvious way, because of the variety of languages, but also in having widely contrasting connotations and meanings (Harris & Vorms, 2017). The urban periphery, a huge geographical space immediately next to the main urban built-up areas, is probably the most dynamic place in contemporary urbanization (Yang et al., 2015). Some scholars have argued that these urban fringes cannot be adequately understood from a bird's-eye view that sees them primarily as products of urban development. Rather, they are constituted by a number of distinct logics enacted by states, private developers, households, and communities (Meth et al., 2024).

About 3.3 billion people live in the rural areas of Africa, Asia and Latin America. An additional 1.3 billion reside in provincial towns and small and medium cities, most of which are functionally entwined with their surrounding rural areas by their economies and labour markets, their social networks, their culture, and the proximate environment that they share. Rural transformation as a process of broad societal change in which rural societies diversify their economies and become less dependent on agriculture; become more dependent on distant places for trade and the acquisition of goods, services, and ideas; move from scattered villages to towns and small and medium-sized cities; and become more culturally similar to large urban agglomerations. Despite these common trends, the rural transformation within different countries has different outcomes in terms of economic growth, social inclusion, and environmental sustainability (Berdegué et al., 2013). The transformation of dispersed or rural settlements per se has several causes, beginning with political changes connected to historically changing land ownership conditions, social changes implied by time changing priorities and preferences for housing, employment, etc., demographic changes (ageing and migration) and others (Najdený & Guriňák, 2024).

From the perspective of urban management, slums

and urban villages are normally within the city or urban growth boundary, but they are excluded by the urban service boundary (USB). The USB refers to the extent of urban service provision, which encourages orderly urban expansion (Pendall et al., 2002). Within the USB boundary, the city provides social services, while outside the border, it does not. Since the costs of reconstruction and governance of slums and urban villages are high, urban governments have little incentive to extend urban services to them, which, in turn, results in a lack of inclusive governance in slums and urban villages (Wu et al., 2020). Zavratinik et al. (2020) by publishing an article titled "Sustainable and community-centred development of smart cities and villages" combined the four basic features of society, rural, urban and sustainable, and analyzed the links and relationships between them, and proposed a new paradigmatic approach to development to emphasize that sustainable living is not achieved through technological solutions alone, and examined the three dimensions of smart living, namely energy, mobility and connectivity, through the rural-urban nexus and the role of information and communication technology. Afrakhteh et al. (2013) published an article titled "The Position of Urban Villages in Urban Development Plans (A Case Study of Tehran's Comprehensive Plan, Detailed Plan, and Development Pattern of Region One)." The results of their research show that urban development plans have addressed the position of urban villages by adopting and implementing policies such as the protection of natural and environmental characteristics, the development of tourism functions, and the protection and management of historical and cultural fabric.

Zhang (2025) in their study titled "Analysis of the Sustainable Development Pathway of Urban-Rural Integration from the Perspective of Spatial Planning: A Case Study of the Urban-Rural Fringe of Beijing" employs various comprehensive research methods to thoroughly analyze the relationship between urban-rural integration and sustainable development, proposing corresponding optimization pathways. The results indicate a significant positive correlation between urban-rural integration and sustainable development levels, with a regression coefficient of 0.48, demonstrating its role in promoting sustainable development. Singh and Basu (2020), in their study titled "Empowering Rural-Urban Transition: A Study of Peri-Urban Villages in India," examined the process of empowering villages located in the periphery of major cities in India. The researchers used a mixed-method approach and gathered data from 400 households in 10 peri-urban villages around Delhi and Mumbai to analyse the challenges and opportunities for empowering these communities. The study showed that peri-urban villages in India face several challenges, including rapid land-use changes, pressure on natural resources, and socio-cultural transformations.

The study by Martínez-Fernández et al. (2021), titled "Empowering Peri-Urban Communities through Sustainable Agriculture: Evidence from Spain," explored the role of sustainable agriculture in empowering rural communities in peri-urban areas of Spain. Using a multiple case study approach, the researchers analysed data from five urban and peri-urban agricultural projects in Barcelona, Valencia, and Madrid. The findings revealed that sustainable agriculture significantly contributes to economic empowerment by generating income and sustainable employment, social empowerment by enhancing social cohesion and civic participation, and environmental

empowerment by preserving natural resources and biodiversity.

A review of the background of this research shows that the empowerment of villages within urban boundaries requires a comprehensive, multidimensional and participatory approach. Economic, social, cultural and environmental factors all play a role. Also, the importance of new technologies and creating stronger links between rural and urban areas has been emphasized in many studies. However, there are also numerous challenges in this area, including rapid land use changes, pressure on natural resources, socio-cultural changes, and the need for new skills. These challenges show that empowering peri-urban villages requires careful planning, integrated urban-rural policymaking, and attention to the specific needs and potentials of each region. Also, there is a need to conduct further studies in areas such as the impact of climate change on peri-urban villages, the role of the digital economy in empowering these communities, and solutions to deal with social harms caused by the expansion of urbanization in these areas.

One of the projects implemented in Iran to empower villages is the „TEKAM“ project. In order to expand the presence of people in official government organizations and to utilize the potential and capacities available in the country's villages, in June 2023, the TEKAM (Empowerment and Entrepreneurship of Grassroots People) project was notified to governors across the country by the Policy Council of the Ministry of Interior as a document for the fundamental transformation of villages (Jihadi headquarters of the Ministry of Interior of Iran, 2023).

### 3 MATERIAL AND METHODS

This study adopts a descriptive-analytical approach and employs a mixed-methods strategy (qualitative and quantitative). The qualitative approach is used to gain a deeper understanding of the challenges and opportunities for empowering villages through in-depth interviews and field observations, while the quantitative approach is utilised for collecting and analysing statistical data through questionnaires. The study area includes villages located within the jurisdiction of Neka County in Mazandaran Province. Neka County, with an area of approximately 1,358 square kilometres, is situated in the eastern part of Mazandaran Province. The statistical population of this research comprises all residents of the villages within Neka County's jurisdiction. Due to the area's vastness and population dynamics, the population was considered infinite. To determine the sample size, Cochran's formula for an infinite population was applied. With a 95% confidence level and a 5% margin of error, the sample size was calculated as follows:

$$n = (Z^2 \times p(1-p)) / d^2 \quad (1)$$

where:

$Z = 1.96$  (for 95% confidence level)

$p = 0.5$  (proportion of the trait in the population)

$d = 0.05$  (desired probability accuracy)

Putting these values into the formula:

$$n = (1.96^2 \times 0.5 \times 0.5) / 0.05^2 \approx 384 \quad (2)$$

Therefore, the sample size was determined to be 384 individuals. Stratified random sampling was employed, with the sample distribution based on the population of each village as follows:

1. Noodhak: 67 individuals
2. Chaleh Pol: 66 individuals
3. Doghanlou: 67 individuals
4. Siyavashkala: 67 individuals
5. Golbastan: 66 individuals
6. Ablo: 67 individuals

This study was conducted with a mixed-methods approach (a combination of quantitative and qualitative methods) and aimed at designing a model for empowering villages located within the jurisdiction of Neka city. In the qualitative section, an inductive content analysis approach was used, and data were collected through in-depth, semi-structured interviews with 17 local experts (including local administrators, village heads, council members, rural development specialists, and university professors). Sampling in this section was purposive, utilizing the snowball technique, and the interview process continued until theoretical saturation was reached. In the quantitative section, a survey method was employed, and data were collected using a researcher-designed questionnaire. The validity of the questionnaire was confirmed by specialists, and its reliability was assessed using Cronbach's alpha coefficient (0.87). For the qualitative data analysis, open, axial, and selective coding methods were used, while the quantitative data were analysed using SPSS software and statistical tests such as descriptive statistics (mean, standard deviation, skewness, and kurtosis) and inferential statistics (Pearson correlation, multiple regression, and ANOVA). Finally, by combining the quantitative and qualitative findings and using a systems analysis approach, the final empowerment model for the villages within the urban perimeter was designed and presented. The spatial scope of the study included all the villages within the legal boundary of Neka city (6 villages, Fig. 2), and the research was conducted during 2024. The validity and reliability of the qualitative findings were ensured through participant review, continuous data comparison, and the use of the audit trail technique.

### 4 RESULTS

The results of the expert interviews based on the main codes are presented in the Tab. 1. Based on the news topic with 17 people from the GAN and the surveys of the empowerment and training supervisors about the study area, a Delphi panel was formed based on different groups of participants and the results are presented in Tab. 1. Then, 10 codes were extracted based on the category and 5 main categories. Then, based on the main and sub-category codes, the open-ended codes of the 42 main identifiers were identified. The 42 identifiers on which the questionnaire and interview were based are not shown in the table due to a lack of space.

The results of a questionnaire (384 people) filled out by the residents of the villages studied and interviews with 17 elites (401 people in total) regarding the empowerment of villages located within the boundaries of the city of Neka are presented in Tab. 1.

Next, to better explain the open codes and their main patterns, MAXQDA software was used, which provides a suitable environment for text content analysis and analysis of unstructured data such as interviews, articles, media, surveys, and qualitative studies. Next, these data were organized into different groups and their data were related to each other. After extracting the main codes, in the second step, the components were sent to the

experts in the Likert scale framework. After receiving the responses, they were analysed in SPSS software. The indicators whose average was less than 3 were removed, and the other indicators were left to continue the research process.

The findings from in-depth interviews with 17 elites (including local managers, village heads, members of the village council, rural development experts, and university professors) regarding the empowerment

of villages located in the urban perimeter of Neka have been classified into five main categories. Each of these categories reflects different dimensions of the challenges and opportunities related to empowering these villages.

In the economic dimension, interviewees believed that the unique position of the villages in the urban perimeter offered special economic opportunities for the residents. Proximity to urban markets and access

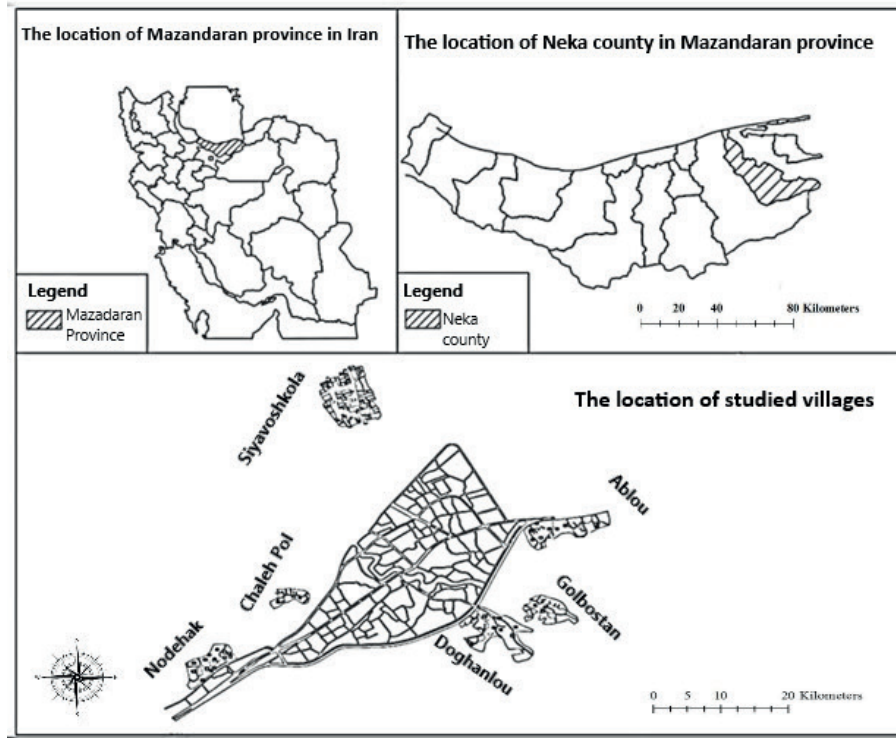


Fig. 2. Geographic location of the study area

Tab. 1. Main and subcategories of empowerment of villages in the urban perimeter of Neka

| Main category  | Subcategory       | Parameters   | frequency | Percentage |
|----------------|-------------------|--|-----------|------------|
| Economic       | Job opportunities | - Proximity to the urban market<br>- Possibility to sell agricultural products<br>- Access to urban jobs | 45        | 11.25%     |
|                | Investment        | - Attracting urban investors<br>- Developing local businesses<br>- Increasing land values                | 38        | 9.5%       |
| Infrastructure | Public services   | - Access to water and electricity<br>- Road conditions<br>- Health facilities                            | 52        | 13%        |
|                | Transportation    | - Access to public transport<br>- Quality of communication routes<br>- Distance to the city              | 47        | 11.75%     |
| Social         | Participation     | - Cooperation with the village<br>- Participation in development projects<br>- Collective activities     | 41        | 10.25%     |
|                | Social capital    | - Trust between residents<br>- Relationships with urban dwellers<br>- Social solidarity                  | 35        | 8.75%      |
| Environmental  | Natural resources | - Agricultural land conservation<br>- Environmental pollution<br>- Waste management                      | 49        | 12.25%     |
|                | Physical          | - Construction expansion<br>- Land use change<br>- Residential fabric                                    | 43        | 10.75%     |
| Management     | Institutional     | - Village performance<br>- Relationship with the municipality<br>- Government support                    | 31        | 7.75%      |
|                | Legal             | - Building Regulations<br>- Land Ownership<br>- Villagers' Rights  | 19        | 4.75%      |
| Total          |                   |  | 400       | 100%       |

to urban jobs were considered the key advantages of this location. However, local elites expressed concerns about the changing livelihoods of villagers and the decline in traditional agricultural activities.

In the infrastructural dimension, the interview results revealed that despite their proximity to the city, some villages still faced deficiencies in public services. Public transportation and the quality of connecting roads were among the main concerns of the interviewees. Rural development experts emphasized that improving infrastructure would not only enhance the quality of life for residents but would also create opportunities for attracting investment and fostering economic development.

In the social dimension, interviewees emphasized the importance of preserving and strengthening social capital in villages. Public participation in rural development projects was proposed as a way to strengthen the sense of belonging and social cohesion.

In the environmental dimension, local elites expressed concerns about the destruction of natural resources and the conversion of agricultural lands. Environmental pollution due to the proximity to the city and waste management issues were among the serious challenges raised.

Finally, from a managerial and institutional perspective, interviewees stressed the need for coordination among the responsible organizations. Overlapping responsibilities between the municipality and the village administration, lack of clarity in construction regulations, and land ownership issues were identified as major challenges. It was suggested that a coordinating body be established to strengthen integrated management of urban perimeter areas.

The summary of the experts' opinions indicates that the empowerment of villages in the urban perimeter of Neka requires a comprehensive and integrated approach that simultaneously addresses the economic, social, infrastructural, environmental, and managerial dimensions. Maintaining a balance between development and preserving rural identity, strengthening infrastructure, empowering the economy with an emphasis on local advantages, and improving the management system are among the most important proposed solutions. Additionally, the active participation of the local community in the planning and implementation process is recognised as a key factor for the success of empowerment initiatives (Tab. 2).

## Interpretation and explanation of inferential findings

### Overall empowerment level

The analysis of descriptive findings shows that among the various dimensions of empowerment, the social dimension, with an average score of 3.78, has the highest level. This is followed by environmental empowerment (3.52), economic empowerment (3.45), and infrastructural empowerment (3.23). These results indicate a relatively favourable status of empowerment in the studied villages, though some dimensions require further strengthening.

### Dispersion Analysis

The standard deviation of the indicators shows that the highest dispersion is in the infrastructural dimension (0.95), while the lowest is in social participation (0.68). This reflects greater consensus among respondents regarding the state of social participation and differing viewpoints on the condition of infrastructure.

#### Status of subcomponents

- In the economic dimension, economic diversity (3.68) has a better status compared to employment and income (3.12), indicating relative success in creating diverse economic opportunities.
- In the social dimension, social participation (3.91) has performed better than social capital (3.65), which could be attributed to the strengthening of local institutions and increased public participation in decision-making processes.
- In the infrastructural dimension, access (3.31) is slightly better than public services (3.15).
- In the environmental dimension, environmental quality (3.61) scored higher than environmental sustainability (3.43).

### Normality of Distribution

The skewness and kurtosis values for all variables fall within the acceptable range (-2 to +2), indicating an approximately normal distribution of data. Negative skewness across all variables shows that the data distribution leans toward higher values.

### Range of Variations

The range of variations (difference between the minimum and maximum values) is notable for most variables, indicating diversity in the level of empowerment among the studied villages. The

Tab. 2. Inferential findings of the research variables

| Variable                       | Average | Standard deviation | Variance | Lowest | Highest | Skewness | Kurtosis |
|--------------------------------|---------|--------------------|----------|--------|---------|----------|----------|
| Economic empowerment           | 3.45    | 0.86               | 0.739    | 1.2    | 4.8     | -0.342   | 0.156    |
| -Employment and income         | 3.12    | 0.92               | 0.846    | 1      | 4.9     | -0.287   | 0.223    |
| -Economic diversification      | 3.68    | 0.79               | 0.624    | 1.5    | 5.0     | -0.456   | 0.189    |
| Social empowerment             | 3.78    | 0.74               | 0.547    | 1.8    | 4.9     | -0.512   |          |
| - Social participation         | 3.91    | 0.68               | 0.462    | 2.0    | 5.0     | -0.623   | 0.189    |
| - Social capital               | 3.65    | 0.81               | 0.656    | 1.6    | 4.8     | -0.398   | 0.245    |
| Infrastructure empowerment     | 3.23    | 0.95               | 0.902    | 1.0    | 4.7     | -0.267   | 0.178    |
| - Public services              | 3.15    | 0.98               | 0.960    | 1.0    | 4.6     | -0.234   | 0.156    |
| - Accesses                     | 3.31    | 0.91               | 0.828    | 1.2    | 4.8     | -0.312   | 0.198    |
| Environmental empowerment      | 3.52    | 0.83               | 0.688    | 1.4    | 4.9     | -0.423   | 0.234    |
| - Environmental sustainability | 3.43    | 0.87               | 0.756    | 1.3    | 4.8     | -0.389   | 0.212    |
| - Environmental quality        | 3.61    | 0.78               | 0.608    | 1.5    | 5       | -0.467   | 0.256    |

highest range of variation is in the employment and income index (3.9), while the lowest is in the social participation index (3.0).

#### Descriptive Findings

The descriptive findings indicate that the studied villages are on the path to empowerment, but this progress is not uniform across dimensions. The social dimension has seen significant progress, whereas the infrastructural dimension requires more attention. Differences in averages and indicator dispersion highlight the need for balanced planning tailored to the needs of each village.

#### Interpretation and Explanation of Inferential Findings

The significance level of the Kolmogorov-Smirnov test for all variables is greater than 0.05, indicating that the data follow a normal distribution. This allows for the use of parametric tests for further analyses (Tab. 3).

The strongest correlation is observed between economic and social empowerment ( $r = 0.685$ ), indicating a close connection between these two dimensions. Infrastructure empowerment has a notable correlation with the social dimension ( $r = 0.634$ ), highlighting the importance of infrastructure in social development. All correlations are significant at the 0.01 level, indicating strong relationships between various empowerment dimensions.

The regression model with an adjusted  $R^2$  of 0.684 indicates that approximately 68.4% of the changes in rural empowerment are explained by the independent variables. The economic dimension, with a beta coefficient of 0.412, is the strongest predictor of empowerment. All dimensions have a significant effect ( $p < 0.001$ ) on overall empowerment. The significant F-statistic (86.423) indicates a good fit for the regression model.

There is a significant difference in the level of empowerment among villages ( $F = 12.456$ ,  $p < 0.001$ ). Nodehak village, with an average score of 3.78, has the highest level of empowerment, while Golbestan village, with an average score of 3.34, has the lowest. These differences may result from factors such as geographical location, access to resources, and quality of local management. Thus, the inferential findings suggest that the empowerment of villages in the vicinity of Neka is a multidimensional process in which various dimensions are significantly interrelated. The economic dimension plays a key role in this process, but the success of empowerment programs requires simultaneous attention to all dimensions. The significant differences among villages indicate that empowerment policies should be designed and implemented according to the specific conditions of each village. Additionally, the high explanatory power of the regression model (68.4%) indicates that the theoretical framework of the research is adequately robust.

Tab. 3. Results of the data normality test

| Variable                   | Kolmogorov-Smirnov statistic | Significance level |
|----------------------------|------------------------------|--------------------|
| Economic empowerment       | 0.062                        | 0.214              |
| Social empowerment         | 0.058                        | 0.187              |
| Infrastructure empowerment | 0.071                        | 0.165              |
| Environmental empowerment  | 0.066                        | 0.198              |

Tab. 4. Results of correlation between variables (Pearson coefficient)

| Variables      | Economic | Social  | Infrastructure | Environmental |
|----------------|----------|---------|----------------|---------------|
| Economic       | 1        | 0.685** | 0.592**        | 0.548**       |
| Social         | 0.685**  | 1       | 0.634**        | 0.612**       |
| Infrastructure | 0.592**  | 0.634** | 1              | 0.573**       |
| Environmental  | 0.548**  | 0.612** | 0.573**        | 1             |

\*\*Significant at the 0.01 level

Tab. 5. Results of multiple regression analysis

| Independent variable       | Beta coefficient | T statistic | Significant level |
|----------------------------|------------------|-------------|-------------------|
| Economic empowerment       | 0.412            | 8.245       | 0.000             |
| Social empowerment         | 0.387            | 7.856       | 0.000             |
| Infrastructure empowerment | 0.325            | 6.734       | 0.000             |
| Environmental empowerment  | 0.298            | 5.987       | 0.000             |
| Adjusted $R^2 = 0.684$     |                  | F = 86.423  | Sig = 0.000       |

Tab. 6. Results of analysis of variance (ANOVA) for comparing villages

| Villages    | F statistic | Average | Significant level |
|-------------|-------------|---------|-------------------|
| Nodehak     | 12.456      | 3.87    | 0.000             |
| Chaleh Pol  |             | 3.45    | 0.000             |
| Doghanlu    |             | 3.62    | 0.000             |
| Siavashkola |             | 3.56    | 0.000             |
| Golbostan   |             | 3.34    | 0.000             |
| Ablou       |             | 3.67    | 0.000             |

## 5 DISCUSSION

The results of the study clearly show that empowering villages located in the outskirts of Neka city is a multidimensional and complex process. The qualitative findings derived from interviews with 17 experts confirm this multidimensionality, as the extracted categories are classified into five main dimensions (economic, social, infrastructural, environmental, and managerial). This finding is consistent with the quantitative results, which indicate significant correlations among various dimensions of empowerment.

Statistical analyses indicate that the economic dimension plays a key role in the empowerment process. This finding is consistent with the opinions of experts who emphasized the importance of job opportunities and investments. The high explanatory power of the regression model indicates that economic variables play a significant role in explaining the variance of empowerment.

Interrelation of Dimensions:

Inferential findings showed that there are significant relationships among various dimensions of empowerment. This finding aligns with the results of interviews, which suggested that success in one dimension could influence other dimensions. For example, improving infrastructure can contribute to economic development, and strengthening social capital can enhance participation in empowerment programs.

Spatial Differences:

Statistical test results showed that there are significant differences in the level of empowerment among the studied villages. This finding is consistent with the opinions of experts who emphasized the need to consider the specific conditions of each village. Spatial analyses show that factors such as distance from the city, access to infrastructure, and environmental characteristics play a role in these differences.

The high explanatory power of the regression model indicates the appropriate validity of the study's theoretical framework. This finding is confirmed by the content analysis of interviews, which shows that the extracted categories align with the existing theoretical foundations.

The results of this research showed that it is necessary to emphasize all five dimensions simultaneously in order to achieve sustainable rural development and active participation of people in administrative affairs. Therefore, it is consistent with the findings of Zavrtnik et al. (2020) research on the use of technology, with Afrakhteh et al. (2013) research in most aspects, with Singh and Basu (2020) research on the challenges of villagers. However, due to research limitations, including the lack of adequate cooperation from some interviewees or officials of rural executive institutions, the research process did not proceed as it should have, and some issues, such as explaining the specific characteristics of each village and the way villagers participate in executive institutions, were suggested as suggestions for future research.

The integration of quantitative and qualitative findings indicates that empowerment policies should:

- Have a comprehensive and integrated approach.
- Pay attention to local differences.
- Engage local community participation.
- Focus on strengthening infrastructure.
- Pay attention to preserving rural identity.
- Utilize the capacities available in the urban outskirts.

The findings indicate that the sustainability of empowerment programs requires:

- Balancing various aspects of development.
- Strengthening local institutions.
- Protecting natural resources and the environment.
- Developing the internal capacities of villages.
- Improving rural-urban communications.

In summary, the integration of quantitative and qualitative findings indicates that empowering the villages in the outskirts of Neka city requires a systemic and integrated approach that considers various aspects of development while also taking into account the specific characteristics of each village. The success of this process requires active participation of the local community, support from governmental institutions, and simultaneous strengthening of economic, social, infrastructural, and environmental capacities.

## 6 PRESENTATION OF THE FINAL MODEL

Interpretation and Explanation of the Final Model for Empowering Villages in Urban Peripheries.

### Overall Structure of the Model

The final model for empowering villages in urban peripheries is designed in three main levels:

- a. First Level: Key Empowerment Factors
  - Economic empowerment, with an impact coefficient of 0.684, is identified as the strongest factor.
  - Local governance and management, with a coefficient of 0.612, ranks second.
  - Social (0.542), environmental (0.523), and infrastructural empowerment (0.498) occupy the subsequent ranks.
- b. Second Level: Implementation Strategies
 

Specific strategies have been defined for each dimension:

  - Economic diversification: Create diverse job opportunities and strengthen local value chains.
  - Participation enhancement: Increase public involvement in decision-making and project implementation.
  - Infrastructure development: Improve basic services and accessibility.
  - Environmental protection: Preserve natural resources and manage the environment sustainably.
  - Managerial integration: Foster coordination among responsible institutions and strengthen local management.
- c. Third Level: Expected Outcomes
 

Successful implementation of strategies will lead to the following outcomes:

  - Economic sustainability: Stable income and flourishing local businesses.
  - Social cohesion: Strengthened social relations and local solidarity.
  - Quality of life: Improved living conditions and resident welfare.
  - Environmental balance: Preservation of natural resources and reduction of pollution.
  - Institutional efficiency: Enhanced effectiveness of local institutions.

### Interconnections

- Two-way interactions among outcomes indicate a systemic relationship between model components.
- Contextual conditions and local characteristics are identified as influencing factors for the entire process.

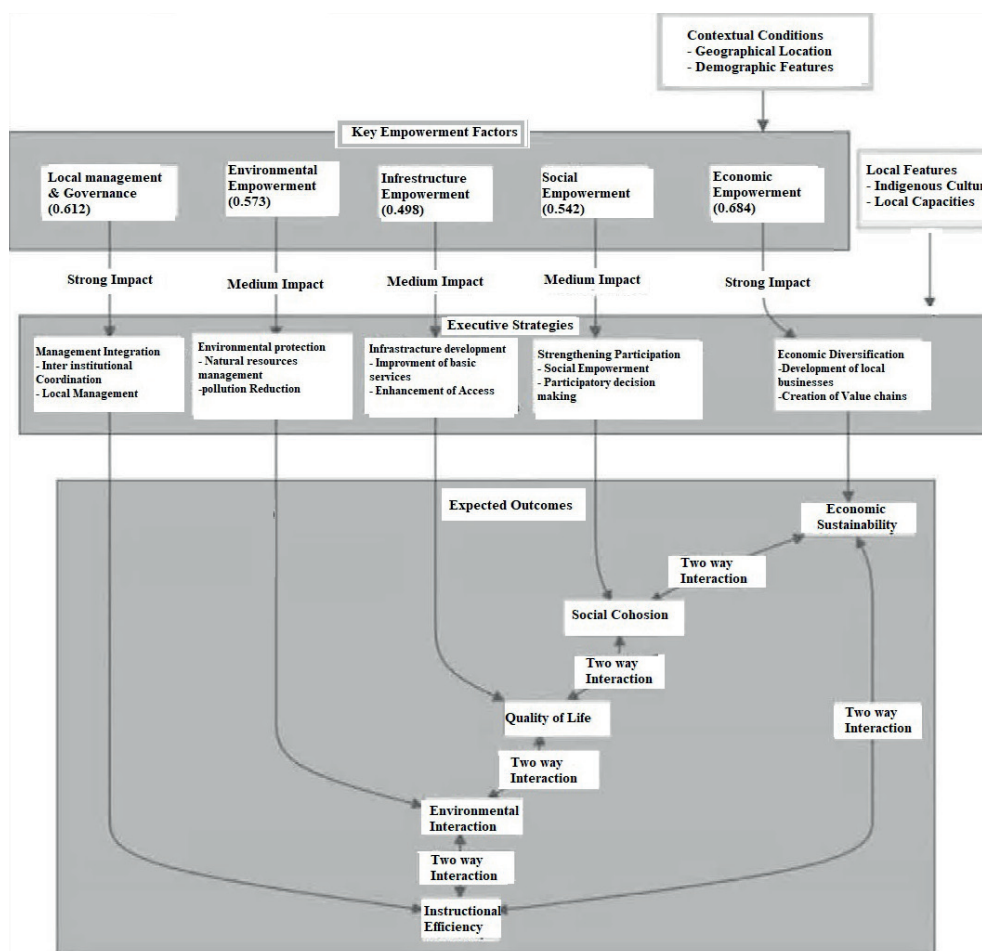


Fig. 3. Final model for empowering peri-urban villages

#### Implementation Requirements for the Model:

- Systemic approach: Concurrent attention to all dimensions.
- Flexibility: Adapting strategies to the specific conditions of each village.
- Stakeholder participation: Involving all stakeholder groups in the process.
- Continuous monitoring: Regular evaluation of results and feedback for program adjustments.

#### Innovations of the Model

- Emphasis on the pivotal role of the economic dimension (with an impact coefficient of 0.684).
- Identification of interconnections among various dimensions.
- Attention to contextual conditions and local characteristics.
- Providing practical strategies for each dimension (Fig. 3).

This model can serve as a guiding framework for planning and implementing empowerment initiatives in villages within urban peripheries.

## 7 CONCLUSION

This study aimed to provide a model for empowering villages located in the urban periphery of Neka, using a mixed approach (quantitative and qualitative). The findings of the study indicate that the empowerment of these villages is a multidimensional and complex process, which requires simultaneous attention to

the economic, social, infrastructural, environmental, and managerial dimensions. In this regard, the final model of the study was designed by emphasising the interrelationships between these dimensions and considering the specific contextual conditions of urban peripheral villages. In the economic dimension, which was identified as the strongest factor, the qualitative findings show that the unique position of the urban peripheral villages provides special opportunities for economic development. The proximity to the urban market and access to urban jobs are among the main advantages of this location. However, challenges such as changes in livelihood patterns and the reduction of traditional agricultural activities also exist. Quantitative findings confirm this, as the economic diversification index shows better performance than employment and income, highlighting the need for balancing traditional and modern activities.

In the social dimension, the qualitative findings emphasize the importance of preserving and strengthening social capital. The main concern in this regard is the weakening of traditional relationships and social cohesion due to the influence of urban culture. However, quantitative results indicate that social participation has performed well, which may be due to the strengthening of local institutions and increased public involvement in decision-making. The strong correlation between the social and economic dimensions further confirms the close relationship between these two dimensions in the empowerment process.

In the infrastructural dimension, which has the lowest level among the empowerment dimensions, the qualitative findings show that despite being close to the city, some villages still face deficiencies in public services. Key concerns include public transportation and the quality of road networks. The significant correlation between infrastructural and social empowerment highlights the importance of infrastructure in social development.

In the environmental dimension, concerns include the degradation of natural resources and the conversion of agricultural land to other uses. Qualitative findings point to environmental pollution from urban proximity and waste management as key challenges. Quantitative results show that environmental quality performs better than environmental sustainability, indicating the need for more attention to sustainability aspects.

In the managerial and institutional dimension, identified as a facilitating factor in the model, the findings emphasize the need for coordination among responsible agencies. The final model emphasizes managerial integration as one of the key strategies, demonstrating the importance of this dimension for the success of empowerment programs.

Variance analysis among villages reveals significant differences in empowerment levels. This finding emphasizes the need to consider the unique characteristics of each village when planning empowerment strategies.

In summary, the final model of the study emphasizes five main dimensions and, by considering the interrelations between them, provides a comprehensive framework for empowering villages in urban peripheries. By identifying specific implementation strategies for each dimension and predicting expected outcomes, the model can be used as a roadmap for planning and executing empowerment initiatives. The key to the model's success lies in simultaneously addressing all dimensions and strengthening the interrelations between them.

It is recommended that while emphasizing the economic dimension, the strengthening of the other dimensions should not be overlooked. Given the significant differences among villages, it is necessary to adjust and localize implementation strategies based on the specific conditions of each village. Active community participation at all stages of planning and execution, along with enhanced coordination among relevant institutions, is essential for the success of the model.

## REFERENCES

- Afrakhteh, H., Azizpour, F., & Shamsi, R. (2013). Investigating the role of urban villages in urban development plans - Case study: Tehran Master Plan, Detailed Plan, and Regional Development Model 1. *Sepehr Journal*, 22(75), 112–103.
- Akhgari, M., & Taleshi, M. (2020). Spatial Organization of Annexed Rural Settlements in the Periphery of Mashhad Metropolis Using the Structural-Functional Scanning Approach, *Journal of Geography and Regional Development*, 18(1), 145–170. <https://doi.org/10.22067/geography.v18i1.83959>
- Alipour, H., Barari, M., & Sobhani, N. (2019). Reflections on the expansion of second homes in the Periphery of Cities of Mazandaran province. *Peripheral Urban Spaces Development*, 1(2), 47–58. <https://doi.org/20.1001.1.26764164.1398.1>
- 2.4.6
- Beatriz, G. (2004). Cultural Policy and Urban Regeneration in Western European Cities: Lessons from Experience, Prospects for the Future. *Local Economy*, 19(4), 312–326. <https://doi.org/10.1080/0269094042000286828>.
- Berdegúe, J.A., Rosada, T., & Bebbington, A.J. (2013). The Rural Transformation. In B. Currie-Alder, R. Kanbur, D.M. Malone, & R. Medhora (Eds.), *International Development: Ideas, Experience, and Prospects* (pp. 463–478). Oxford Academic. <https://doi.org/10.1093/acprof:oso/9780199671656.003.0028>
- Bosworth, G., & Bat Finke, H. (2020). Commercial counterurbanisation: A driving force in rural economic development. *Environment & Planning A: Economy and Space*, 52(3), 654–674. <https://doi.org/10.1177/0308518X19881173>
- Cherim, S.M., Jola, G., & Khodadadi, M. (2018). Investigating the role of tourism in social empowerment of women in villages integrated into cities (Case study: Kuhyeh Vahab, Shush County, Khuzestan Province). *Specialized Scientific Quarterly Journal of Tourism Research and Sustainable Development*, 1(1), 53–45.
- Cowie, P., Townsend, L., & Salemin, K. (2020). Smart rural futures: Will rural areas be left behind in the 4th industrial revolution? *Journal of Rural Studies*, 79, 169–176. <https://doi.org/10.1016/j.jrurstud.2020.08.042>.
- Chambers, R. (1994). Participatory Rural Appraisal (PRA): Analysis of Experience. *World Development*, 22(9), 1253–1268. [https://doi.org/10.1016/0305-750X\(94\)90003-5](https://doi.org/10.1016/0305-750X(94)90003-5)
- Dimitrovski, D.D., Todorović, A.T., & Valjarević, A.D. (2012). Rural tourism and regional development: Case study of development of rural tourism in the region of Gruža, Serbia. *Procedia Environmental Sciences*, 14, 288–297. <https://doi.org/10.1016/j.proenv.2012.03.028>.
- Dilley, L., Gkartzios, M., & Odagiri, T. (2022). Developing counterurbanisation: Making sense of rural mobility and governance in Japan. *Habitat International*, 125, 102595. <https://doi.org/10.1016/j.habitatint.2022.102595>
- Ghorbani, J., & Rahmani, B. (2015). The effect of physical expansion of Soltanieh city on surrounding villages. The first national conference on tourism, geography and clean environment, Hamedan, Iran. <https://civilica.com/doc/384820>
- Guimond, L., & Simard, M. (2010). Gentrification and neo-rural populations in the Quebec countryside: Representations of various actors, *Journal of Rural Studies*, 26(4), 449–464. <https://doi.org/10.1016/j.jrurstud.2010.06.002>
- Harris, R., & Vorms, C. (2017). What's in a Name?: Talking about Urban Peripheries. University of Toronto Press. <http://www.jstor.org/stable/10.3138/j.ctv1n35bkw>
- Hadizadeh, B.M. (2014). Land Management of Urban Fringes: A Principled Solution in Reducing Urban Problems. *Haft Shahr Journal*, 43(44), 1–6.
- Jihadi headquarters of the Ministry of Interior (2023). TITLE. Jihadi headquarters of the Ministry of Interior. <https://www.moi.ir/news/220394/%D9%86%DA%AF%D8%A7%D9%87%DB%8C-%D8%A8%D9%87-%D8%B7%D8%B1%D8%AD>
- Koralagama, D.N., Wijeratne, M., & De Silva, W.N. (2007). Emergence of Participatory Rural Appraisal (PRA) Technique as a Strategy towards Sustainable Development: A Sri Lankan Experience. *Journal of Agriculture and Rural Development in the Tropics*

- and Subtropics, 108(2), 149–160.
- Karimi, S., Mohammadi, Y., & Rezaei, P. (2024). A comprehensive model for 568 empowering urban fringe villages in Iran. *Quarterly Journal of Regional Planning*, 14(1), 120–101.
- Meth, P., Charlton, S., Goodfellow, T., & Todes, A. (2024). Living the urban periphery. Infrastructure, everyday life and economic change in African city-regions. Manchester University Press. <https://doi.org/10.7765/9781526171221>
- Makinde, O.O., & Amao, F. (2024). Henri Lefebvre Theory of Space and Social Production Philosophy: A Critical Interpretation. *Global Journal of Arts Humanity and Social Sciences*, 4(1), 67–80. <https://doi.org/10.5281/zenodo.10577092>
- Mohammadi, N., Rahmani, B., & Shafiei Thabit, N. (2022). Empowerment of local stakeholders to form non-governmental organizations for the spatial transformation of rural settlements (Case study: Javanrood County). *Quarterly Journal of Spatial Economy and Rural Development*, 11(40), 251–272. <https://dor.isc.ac/dor/20.1001.1.23222131.1401.11.40.12.7>
- Najdený, R., & Gurňák, D. (2024). Spatio-temporal changes in rural settlements: A case study of the Bošácka dolina valley. *Geografický časopis/Geographical Journal*, 76(3), 279–295. <https://doi.org/10.31577/geogrcas.2024.76.3.15>
- Nkosi, A.L. (2003). An Evolution of a Women Empowerment: Life Skills Program in an Informal Settlement. [Theses, University, Johannesburg]. <https://hdl.handle.net/10210/1270>
- Pendall, R., Martin, J., & Fulton, W. (2002). Holding The Line: Urban Containment in the United States. The Brookings Institution Center on Urban and Metropolitan Policy. <https://www.brookings.edu/wp-content/uploads/2016/06/pendallfultoncontainment.pdf>.
- Saeedi, A., & Taghizadeh, M. (2017). Integrated urban-rural planning: A new approach in managing peri-urban areas. *Geography and Environmental Planning Journal*, 28(2), 38–21.
- Schrock, M. (2013). The potential use of land readjustment as an urban redevelopment strategy in the United States: assessing net economic value. [Theses, Department of Urban Studies and Planning and Program in Real Estate Development. The Ohio State University]. <https://dspace.mit.edu/handle/1721.1/77127>
- Singh, R., & Basu, S. (2020). Empowering rural-urban transition: A study of peri-urban villages in India. *Habitat International*, 98, 102–114.
- Statistical Centre of Iran (2021). Mazandaran province statistics. <https://www.amar.org.ir/en/>
- UNESCAP. (2015). Municipal and Management in Asia: A comparative study. United Nation Economic and Social Commission for Asia and the Pacific. [https://www.unescap.org/sites/default/files/2015%20Year-End%20Update\\_0.pdf](https://www.unescap.org/sites/default/files/2015%20Year-End%20Update_0.pdf)
- Wu, Y., Sun, X., Sun, L., & Choguill, C.L. (2020). Optimizing the governance model of urban villages based on integration of inclusiveness and urban service boundary (USB): A Chinese case study. *Cities*, 96, 102427. <https://doi.org/10.1016/j.cities.2019.102427>.
- Zavratnik, V., Podjed, D., Trilar, J., Hlebec, N., Kos, A., & Stojmenova Duh, E. (2020). Sustainable and community-centred development of smart cities and villages. *Sustainability*, 12(10), 3961. <https://doi.org/10.3390/su12103961>
- Zhang, A. (2025). Analysis of the Sustainable Development Pathway of Urban–Rural Integration from the Perspective of Spatial Planning: A Case Study of the Urban–Rural Fringe of Beijing. *Sustainability*, 17(5), 1857. <https://doi.org/10.3390/su17051857>
- Yang, X., Day, J., & Han, S.S. (2015). Urban Peripheries as Growth and Conflict Spaces: The Development of New Towns in China, Population Mobility. In T. C. Wong, S. S. Han, H. Zhang (Eds.), *Population Mobility, Urban Planning and Management in China* (pp. 95–112). Springer. [https://doi.org/10.1007/978-3-319-15257-8\\_6](https://doi.org/10.1007/978-3-319-15257-8_6)



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