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# Modelling and using a pattern language to inform land-use change decisions in rural Mooiplaas, Great Kei Municipality, South Africa

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Research article

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## Abstract

This article uses a case study research design to explore the possibility of using a pattern language as part of a spatial planning and land-use management process. In this process, municipalities and communities make decisions to change land use, taking into account the extent to which these decisions respond to the ever-changing context and aid the vision for the area to emerge. Using a qualitative research methodology, 67 semi-structured individual and key informant interviews as well as three focus group discussions were conducted in two villages within the Mooiplaas communal land area in South Africa. Thematic data analysis shows the specific socio-spatial needs (themes) that were used to modify initial predetermined broad pattern language themes to form the basis of the pattern language and spatial planning model that was developed for Mooiplaas. The study, using visioning and needs analysis techniques, demonstrates that a community can develop a pattern language that reflects a comprehensive vision for its area. This pattern language can then be expressed as local spatial development principles in the municipality's Spatial Development Framework. In addition, as part of its land-use scheme regulations, the municipality can establish natural, intensive agricultural and settlement overlay zones, overlaid on an underlining extensive agricultural base zone. Anyone wanting to use land for any purpose not provided for in these zones must submit a land-use change application and the authorising structures are required to use the local spatial development principles to help inform their decision-making. Further, the study advances a new understanding of the pattern language as an expression of a community's vision for a particular area and demonstrates how a pattern language planning approach could work in a communal land area in South Africa within the context of existing spatial planning legislation.

**Keywords:** pattern language, communal land, spatial planning, land-use management, overlay zoning

## MODELLERING VAN 'N PATROONTAAL OM GRONDGEBRUIKVERANDERING IN LANDELIKE MOOIPLAAS, GROOT KEI MUNISIPALITEIT, SUID-AFRIKA IN TE LIG

Hierdie artikel gebruik 'n gevallestudie navorsingsontwerp om die moontlikheid van 'n patroontaal as deel van ruimtelike beplanning en grondgebruikbestuur te ondersoek. Munisipaliteite en gemeenskappe neem besluite om grondgebruik te verander, met inagneming van die veranderende konteks en die visie vir die gebied. Deur 'n kwalitatiewe navorsingsmetodologie is 67 semi-gestruktureerde onderhoude en drie fokusgroepbesprekings in twee dorpies binne die Mooiplaas kommunale grondgebied in Suid-Afrika gevoer. Tematiese data-analise het die sosio-ruimtelike behoeftes geïdentifiseer wat die basis van die patroontaal- en beplanningsmodel vir Mooiplaas gevorm het. Die studie toon aan dat 'n gemeenskap 'n patroontaal kan ontwikkel wat die visie vir sy gebied weerspieël. Hierdie patroontaal kan as plaaslike ruimtelike ontwikkelingsbeginsels in die munisipaliteit se Ruimtelike Ontwikkelingsraamwerk ingesluit word. Die munisipaliteit kan ook grondgebruikskemaregulasies opstel wat spesifieke landgebruiksones aandui, wat grondgebruikveranderingsaansoeke vereis vir enige ander doeleindes. Die studie bevorder 'n nuwe begrip van die patroontaal as 'n uitdrukking van 'n gemeenskap se visie en toon hoe dit binne bestaande wetgewing in 'n kommunale grondgebied kan werk.

## HO SEBELISA PUO EA PATERONE HO TSEBISA LIQETO TSA PHETOHO EA TS'EBELISO EA MOBU HO MOOIPLAAS, GREAT KEI, AFRIKA BOROA

Sengoliloeng sena se sebelisa moralo oa lipatlisiso tsa mohlala ho hlahloba monyetla oa ho sebelisa puo ea paterone e le karolo ea moralo oa sebaka le taolo ea ts'ebeliso ea mobu. Ka tshebetso ena, bomasepala le ditjhaba ba etsa diqeto tsa ho fetola tshebediso ya mobu, ho ela hloko hore na diqeto tsena di arabela ho fihlela kae mabapi le maemo a fetoha le ho thusa ponelopele ya hore sebaka

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seo se hlahe. Ho sebelisoa mokhoa oa ho etsa lipatlisiso tsa boleng, lipuisano tse 67 tsa batho ka bomong le litsebi tsa bohlokoa hammoho le lipuisano tse tharo tsa lihlopha li ile tsa tšoaroa moo Mooiplaas, Afrika Boroa. Tlhahlobo ea lintlha tsa sehlooho e bonts'a litlhoko tse khethehileng tsa maemo a bophelo le sebaka, tse ileng tsa sebelisoa ho fetola lihlooho tsa pele tsa puo e pharalletseng ho theha motheo oa puo ea paterone le mohlala oa moralo oa sebaka o etselitsoeng Mooiplaas. Nyakišišo e laetša hore setšhaba se ka hlama polelo ea paterone e hlalosoang e le melao-motheo ea ntlafatso ea sebaka. E le karolo ea melaoana ea tšebeliso ea mobu, 'masepala o ka theha libaka tsa tlhaho tsa temo le tsa bodulo tse amanang le sebaka se sephara sa temo. Mang kapa mang ea batlang ho sebelisa mobu o tlameha ho fana ka kopo ea phetoho ea tšebeliso ea mobu mme meaho e tlameha ho sebelisa melaoana ea lehae. Phuputso e ntlafalitse kutloisiso e ncha ea puo ea paterone e le pontšo ea ponelopele ea sechaba bakeng sa sebaka se itseng.

## 1. INTRODUCTION

Nearly one third of all South Africans live in communal land areas (Hornby *et al.*, 2017). These are areas where traditional land tenure systems are followed that are based on more customary notions of a nested system of communal landholding combined with more 'individual' or family forms of landownership (Winkler, 2019). The land administration system in communal land areas, which governs who can be and what they can do on this land, has broken down as a result of the repeal of various pieces of legislation such as the *Bantu Areas Land Regulations, Proclamation* No. R188 of 1969 (R188) and the state failing to effectively introduce alternative mechanisms to administer land in these areas (HDA, 2016). This has led to various local actors such as traditional and other leaders in these areas stepping in to determine who can be and what activities they can undertake on this land. In certain areas, especially areas close to main roads and larger settlements, where there is a growing demand for land, these local leaders are struggling to effectively manage and administer who can do what on the land, leading, for example, to good agricultural land being used for settlement purposes and rural villages losing their rural character and becoming more like townships.

The foregoing is happening in a context where the Spatial Planning and Land Use Management Act, No. 16 of 2013 (SPLUMA) (South Africa, 2013) requires municipalities to plan and manage the use of land across their entire municipal area, including communal land areas, where they did not perform this function in the past. There is, however, uncertainty as to exactly how municipalities should best perform these functions, especially given that there are no formally registered erven and no formal owners of the land in these areas (as understood by Western notions of individual land ownership). An opportunity now exists, within the framework provided by SPLUMA, to explore new and innovative approaches to spatial planning and land-use management in communal land (and other) areas that can overcome these challenges. The pattern language planning approach discussed in this article is an example of a potentially new and innovative approach to spatial planning and land-use management that could be used in a communal land area such as Mooiplaas to manage the activities taking place on this land.

The broader study, on which this article is based, answered three research questions: the first explored the socio-spatial planning principles (expressed as patterns) that the community of Mooiplaas was using and would like to use in future to guide land-use change decisions, while the second examined how effective socio-spatial planning has been and is in guiding land-use change decisions in the area. The third question, which this article answers, probed the legal and social possibilities of using a pattern language planning model to guide land-use change decisions within the legislative framework provided for by SPLUMA. This article builds on the Eglin (2020) article, which answered the above first research question, through new conceptual arguments and theoretical extension as well as tabling questions for further enquiry.

The broader study, from which this article emerges, found that hardly any research has been done in South (or Southern) Africa to investigate the use of pattern languages in spatial planning and land-use management. In filling this knowledge gap, Eglin (2020) – in precursor to this article – demonstrated what a pattern language could look like for the Mooiplaas communal land area in the Eastern Cape of South Africa. Namwanje (2022) used the pattern language template to identify 40 patterns (and 12 principles or higher level patterns) for the protection of the Nakivubo wetland area in Kampala, Uganda, drawing from both formal and informal practices of flood control in the area. The approximately 80 patterns identified by Steyn (2006), from those of Alexander *et al.* (1977), for the Kenyan city of Malindi were used to describe spatially what certain parts of Malindi are like but were not used as part of any forward-looking planning process. This article, therefore, presents, for the first time, an example of how the pattern language described by Eglin (2020) for a specific rural area in South Africa and elaborated on in this article could be used to guide land-use change and development within the context of existing spatial planning legislation.

## 2. LITERATURE REVIEW

The architect-planner Christopher Alexander and his colleagues (Alexander, 1964, 1965, 1979, 2002a, 2002b, 2004, 2005; Alexander, Neis & Moore-Alexander, 2012; Alexander *et al.*, 1975, 1977, 1987) have, for over nearly five decades, developed a broad theory on how quality spatial environments are created. Alexander and his colleagues argue that quality environments are generally created through the involvement of multiple stakeholders, each using culturally derived principles or 'rules of thumb' to incrementally build the environment over time. By contrast, many poor-quality environments are created when one or a few people try to design and plan all aspects of the environment in one go, prior to implementation.

As part of his broad theory, Alexander *et al.* (1977) developed a set of 253 patterns – forming a pattern language – from the scale of a region, towns, and neighbourhoods (94 patterns), through buildings, houses, and rooms (110 patterns), down to construction details (49 patterns).[1] At the core of Alexander's pattern language is the idea that people should design their own houses, streets, and communities for themselves. Mulder (1992: online), paraphrasing Alexander, states that this idea "comes simply from the observation that most of the wonderful places of the world were not made by architects [or planners] but by the people". According to Alexander (1979), the seed for the idea of a 'pattern language' came from his observations about how traditional communities around the world were able to produce beautiful buildings, villages, and places such as the Mooiplaas village (see Figure 1).

The concept of a pattern, as it is used in this article, is a general solution to a common problem in a given context. The most quoted definition of a pattern, as the term is understood by Alexander *et al.* (1977: x), is that it "describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice".

Patterns emerge over time as a way for a society or a culture to describe how they have generally solved common problems in given contexts. As an example, in response to the problem that people want to be able to experience the benefits of both country life and city life simultaneously, Alexander and his colleagues developed the pattern called Lace Of Country Streets (5):[2] "... place country roads at least a mile apart, so that they enclose squares of countryside and farmland at least a square mile in area. Build homesteads along these roads, one lot deep, … with open countryside or farmland behind the houses" (Alexander *et al.*, 1977: 31).

The development processes through which patterns are used is very important in creating quality environments (Alexander, 2002b). Patterns should not simply be good descriptors of what a good environment is like, as if frozen in time; patterns need to be used as part of a generative process that allows quality environments to emerge over time (Alexander, 2002b). In the process of land-use management, this means that every time those responsible for making land-use change decisions need to decide whether to allow a new development on a piece of land to take place or not, they need to evaluate the extent to which the proposed land development will contribute towards supporting and enhancing the growth or emergence of any of the patterns. Then, once the intervention has been implemented, a diagnosis needs to be undertaken to determine to what extent the intervention contributed towards supporting the emergence of the vision as expressed by the pattern language – or in Alexander's terms, determining the success of the wholeness extending transformation (Alexander, 2007: 14). In this way, subsequent interventions build on previous interventions, thus always making the environment more whole, alive, and beautiful.

Alexander and his colleagues have argued that existing approaches to planning, based on what is now called master planning or top-down planning, lead to poorly performing environments. He and his colleagues believe that environments that have been developed in a top-down manner by only a few people, based on their own preconceived ideas about what the environment should be like, generally lead to environments that the vast majority of people would describe as disjointed, dead, and ugly. On the other hand, environments created by the people living in the area, drawing on local 'rules' – or patterns – that have been articulated over long periods of time, lead to the creation of better environments that are more whole, alive, and beautiful (Mehaffy, 2017; Mehaffy & Salingaros, 2015; Galle, 2020; Davis, 2022).

In one of Alexander's first attempts to use the pattern language as part of a process of developing a particular area (the development of the Eugene campus of the University of Oregon in the USA), he and his colleagues (Alexander *et al.*, 1975: 5-6) identified six principles that were used to help guide the planning process, namely:

- Organic order – Interventions are "guided by a process which allows the whole to emerge gradually from local acts".

Figure 1: Soto village in Mooiplaas (Great Kei Municipality, Eastern Cape)
Source: Authors, 23 November 2018

1 For a full list of these 253 patterns, see: <https://patternlanguage.cc>

2 Alexander's convention of numbering patterns is used in this article.

- Participation – All decisions about what interventions to make "will be in the hands of the users".
- Piecemeal growth – Interventions over time "will be weighed overwhelmingly towards small projects".
- Patterns – All interventions "will be guided by a collection of communally adopted planning principles called patterns".
- Diagnosis – "The wellbeing of the whole will be protected by … [a regular] diagnosis which explains … which spaces are alive and which are dead, at any given moment".
- Coordination – The emergence of organic order will "be assured by a funding process which regulates the stream of individual projects put forward by users".

## 3. CASE STUDY AREA

Primary data collection for the study, upon which this article is based, was conducted from 2018 to 2019 in two of the 15 villages in the Mooiplaas communal land area (the Bhola and Ngxingxolo villages) within the Great Kei Municipality in the Eastern Cape province of South Africa. Mooiplaas (see Figure 2) is located roughly 42km north-east of East London (which is within one of eight metropolitan municipalities in South Africa). The Great Kei Municipality is the smallest (in terms of both physical size at 1,421km$^2$ and population size) of six municipalities in the Amatole District Municipality. It is bounded by Mnquma Municipality to the east (across the Great Kei river), Amahlathi Municipality to the north, and Buffalo City Metropolitan Municipality to the west (Statistics South Africa, 2011). Mooiplaas is a former 'black spot' area that was earmarked for incorporation into the Ciskei homeland by the apartheid government of South Africa, prior to the democratic dispensation of 1994 (Wotshela, 2014). Residents of the area resisted being relocated and refused to be subject to what they perceived as being an imposed headman. As a result, the area does not have any chiefs or headman but rather democratically elected local village committees that oversee development in the area.

All the villages in the Mooiplaas area are found on land that is demarcated as government land (where government is holding the land in trust for the residents living on the land) as well as unregistered land. The land in Mooiplaas is owned communally in the sense that "households living on this land have, through their customary land tenure practices, strong rights to occupy and use much of this land on an individual family basis" (HDA, 2016: 7), with many also having rights to use allotment gardens, communal grazing, and forest areas following rules and conventions that have been developed over decades.

## 4. METHODOLOGY

### 4.1 Research design

The research paradigm used in this study combined interpretivist elements and pragmatist elements (Abbadia, 2022; Jansen, 2023; Morgan & Sklar, 2012; Du Toit, 2015). The interpretive elements corresponded with how the study aimed to investigate the subjective experiences, meanings, and local knowledge of Mooiplaas community members when it came to understanding their development challenges and aspirations (Morgan & Sklar, 2012: 73; Du Toit, 2015: 63). The pragmatist elements corresponded with how the study focused on the practical application of ideas and solving real-world problems such as developing a pattern language planning model that is able to address identified problems with land-use management in a communal land area, and that can be integrated within existing planning legislation and then piloted and tested. Within the context of interpretivist and pragmatist philosophical world views, qualitative research was conducted, which is "a type of social science research that collects and works with non-numerical data" (Crossman, 2017: on-line). In this study, interviews determined the challenges and future development vision for Mooiplaas as well as the challenges and opportunities for spatial planning. Qualitative research allows for thematic data analysis (Braun & Clarke, 2022). Predetermined broad pattern language themes were modified based on the additional socio-spatial themes identified from the interviews; the modified themes formed the basis of the pattern language and spatial planning model that was developed for Mooiplaas.


Figure 2: Location of Mooiplaas
Source: Google; Great Kei Municipality, 2018

### 4.2 Population, sample and data collection

According to the 2021-2022 Integrated Development Plan of the Great Kei Municipality, 16,026 people live in traditional areas in the municipality (Great Kei Municipality, 2021: 23). Since Mooiplaas is the only communal area in the municipality, this means that all these people must be living in Mooiplaas. Ritchie *et al.* (2014: 118) suggest as a rule of thumb that a sample size of fewer than 50 people to be interviewed is adequate for qualitative research, with ranges between 12 and 60 people. They argue that, for larger sample sizes, it becomes difficult to collect and analyse the data. Non-probability sampling techniques were used in the study as the focus of the research was to obtain more in-depth responses to research questions from respondents and not to generalise the findings across the whole Mooiplaas population (Morgan & Sklar, 2012; Roberts, 2010). The data-collection methods used as part of the qualitative research included semi-structured interviews with 50 community members (identified using purposive sampling) and semi-structured interviews with 17 key informants (using a combination of purposive and snowball sampling). The community semi-structured interviews were spread evenly between participants from two of the 15 Mooiplaas villages, with a balanced mix of men and women and old and young. Interviewees were asked to describe their understanding of the history of their community and how it had developed over time as well as what they believed were the key challenges facing the community and what vision they had for how they would like their village and community to develop in future economically, socially, and physically. The interviews were recorded, and local interpreters were used to interpret between isiXhosa and English. These responses were then transcribed.

For the key informant interviewees, seven were drawn from officials working in provincial or municipal government with experience in rural development, seven from the private sector, and three from the community who had a deep understanding of the history of the Mooiplaas area. These interviewees where asked similar questions to the community participants but with more emphasis on their understanding of the problems and visions for communal land areas more broadly, as well as for their views on the challenges and opportunities for spatial planning and land-use management processes in these areas.

Two separate focus group discussions (Seabi, 2012) were held with eight community members in each village drawn randomly from those interviewed and a focus group discussion was held with eight of the key informants who could make the discussion. The draft pattern language designed for Mooiplaas was reviewed by community members during these discussions, and the proposed spatial planning and land use management process was presented to the key informants to comment on and provide their suggestions on the process. Field observations were also made during trips to the community interviews and community focus group discussions to get a sense of what issues and patterns could be seen and observed in the community (Seabi, 2012).

### 4.3 Data analysis and interpretation

The main data-analysis method used in the study was thematic analysis which involves categorising data (such as quotes from semi-structured interviews) into themes (Caulfield, 2019). Nowell *et al.* (2017) define thematic analysis as “a method for identifying, analyzing, organizing, describing, and reporting themes found within a data set”. Thematic analysis allows one to make sense of and summarise large amounts of data such as community and key informant interviews. Data in the form of quotes from participants was categorised according to a set of predetermined themes that were identified from the pattern language literature review such as the themes (or patterns) described in the pattern language developed by Alexander and colleagues (1977). The main themes included regions, broad land-use categories, movement, social services and facilities, economic development, engineering services, and local places (see Table 1). These themes were then modified, and additional themes were identified from the community member semi-structured interviews and key informant semi-structured interview transcripts. The modified themes formed the basis of the pattern language that was developed for Mooiplaas.

In order to determine what socio-spatial principles the community uses (at least subconsciously) and would like to use to inform land-use change, a pattern language template (modified from the one developed by Alexander *et al.* [1977: x-xi]) was used to help capture the socio-spatial principles – or themes – that could be identified during the study. The template included a pattern name, a general problem that needed to be addressed, a broad solution to that problem, and linkages between patterns. As all the community and key informant interview transcripts were analysed, themes or patterns were developed based on participants’ responses to the questions relating to what challenges they faced in the community and what vision they had for the future development of Mooiplaas.

Prior to conducting the two community focus group discussions and the key informant focus group discussion, a draft pattern language was developed that showed how all the patterns that had been identified through the interviews (and observations and literature review) were combined to form a coherent pattern language. This was then presented at the focus group discussions; modifications were made based on feedback. In preparation of the key informant focus group discussion, a proposed spatial planning and land-use management process was outlined (drawing on the literature review, the SPLUMA, and the key informant interviews) that demonstrated how the pattern language could be accommodated within this process.

This process was presented to focus group participants who were asked to comment and make suggestions on where further attention needed to be directed to improve this process. These responses were used to help fine-tune the spatial planning model described in this article.

### 4.4 Limitations to the study

The study, upon which this article is based, focused on only two villages within the Mooiplaas community. One cannot definitively conclude that the findings from this study will be applicable to other villages in Mooiplaas or in other similar communal land areas in the region and country. However, given the similar history and spatial patterns of the Mooiplaas villages, it is likely that the findings from the research in the two villages will also be generally applicable to the remaining 13 villages in Mooiplaas. The relevance and applicability of the research findings to other communal land areas in South Africa is less certain. It is likely that researchers and practitioners involved in spatial planning and land-use management in other communal land areas will be able to learn from this study and modify aspects of the findings to suit local circumstances. For example, although Mooiplaas does not have traditional leaders, as one finds in many other communal land areas, it is possible that very similar planning processes could be followed to those recommended for Mooiplaas, by simply substituting the village committees referred to in this Mooiplaas case study with traditional leadership structures.

## 5. PRESENTATION OF MAIN FINDINGS

### 5.1 Socio-spatial principles as a pattern language

The study found that the community of Mooiplaas does not have any written down or articulated set of socio-spatial principles to guide land-use change decisions. One of the key informants summed this up well:

> "The people of Mooiplaas have some spatial planning principles though not written down. For example, they have farmland where they plough their maize, and this is not touched for both residential and grazing purposes. Their grazing land is at the edge of the settlement a bit away from people's houses. … Their spatial principles are underpinned by existing social networks where residents are aware of their roles as custodians of the land … to maintain the spatial form. So even though there is no zoning scheme or whatever, there is a distinction between grazing, agricultural and residential land and any person who comes in to build in the village has to adhere to these principles" (KI-17, personal interview, 17 May 2019).

The analysis managed to articulate a set of socio-spatial principles – that can be expressed as patterns – that reflect how, subconsciously at least, the community sees future development happening in their area. It was found that the pattern language approach of creating an interlinked set of patterns that provides a general solution to a common problem (and/or response to a broad opportunity in a particular context) provides a valuable tool to help capture a community's vision (Eglin, 2020). This vision is based on both those patterns presently found in the environment that the community would like to keep going forward (as they help solve problems identified in the past) as well as new patterns they would like to introduce, in order to address existing problems and build on opportunities (Eglin, 2020).

The modified pattern language template (as explained in section 4.3) provided a useful way to write socio-spatial principles in a way that captured information collected through the study. To make better sense of all the patterns that were identified, these patterns were categorised according to both the realm (social, natural, agricultural, and settlement) within which the pattern was found, as well as the scale (regional, neighbourhood, village, and plot) at which the pattern manifested itself. Initially, a set of roughly 300 patterns were identified for the area but then, by combining multiple patterns into single consolidated patterns, a final pattern language of 33 patterns was developed for Mooiplaas. See Table 1 for a list of these patterns and Figures 3 and 4 for examples of the (9) network of villages and (31) homesteads patterns. Earlier versions of these two patterns are found in Eglin (2020: 36-37).

The pattern language developed for Mooiplaas was supported by key informants, who critically discussed the pattern language in a focus group discussion, and by community members in two community focus group discussions. The community members who discussed the pattern language indicated that it truly expresses their vision for the area, and that they would like to use the pattern language to help guide future land-use change decisions in their villages in Mooiplaas. For example,

Table 1: List of patterns for Mooiplaas pattern language

| | |
|---|---|
| A. Regions | 17. recreation network |
| 1. landscape realms | 18. cultural and spiritual places |
| 2. social realm | 19. population mix |
| 3. scales of realms | E. Economic development |
| 4. network of settlements | 20. local economies |
| 5. land tenure | 21. economic support network |
| 6. organisational arrangements | 22. local Markets |
| B. Broad land-use categories | 23. tourism support |
| 7. conservation network | F. Engineering services |
| 8. agricultural realm | 24. water and sanitation network |
| 9. network of villages | 25. waste management system |
| 10. settlement nodes | 26. energy network |
| C. Movement | G. Local places |
| 11. road network | 27. rural lifestyle |
| 12. public transport network | 28. place making |
| D. Social services and facilities | 29. special places |
| 13. learning services network | 30. multi-purpose spaces |
| 14. health services network | 31. homesteads |
| 15. safety and security services network | 32. construction |
| 16. information and communication network | 33. landscape edges |

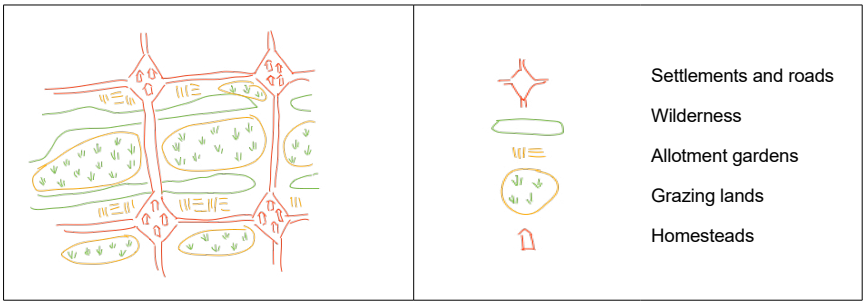
Source: Eglin, 2020: 35

9. NETWORK OF VILLAGES

Problem: If people are too spread out, it is harder to provide services and facilities to them. If they are too close together, it is difficult to maintain the rural lifestyle. If villages get too big, the residents begin to lose their connection to the rural and natural landscape.

Opportunity: People are already organised into rural villages and there is still an opportunity to expand some of these villages in a limited way and increase their densities without destroying the rural landscape.

Solution: Cluster homesteads and other settlement land uses (schools, shops, etc.) within villages. Locate these villages in areas where it is easy to access the plots and build structures, such as along ridge lines or within relatively flat valleys. Orientate villages along main access routes through villages and/or at road intersections. Maintain agricultural and natural areas between villages and maintain clear sharp edges between settlement areas and agricultural or natural areas. Alternate settlements on ridges with agriculture or wilderness, so that households can see agriculture and/or wilderness in the distance. Connect these villages through a road network.




Links

- Up: The network of villages is a key component of the network of settlements and needs to be juxtaposed with the Conservation network and the Agricultural realm.
- Down: The Learning services network, Health services network, Safety and security services network, Communication network, and Recreation network are all located within the Network of villages. Use Landscape edges around village settlement areas.

Figure 3: Pattern 9: Network of villages

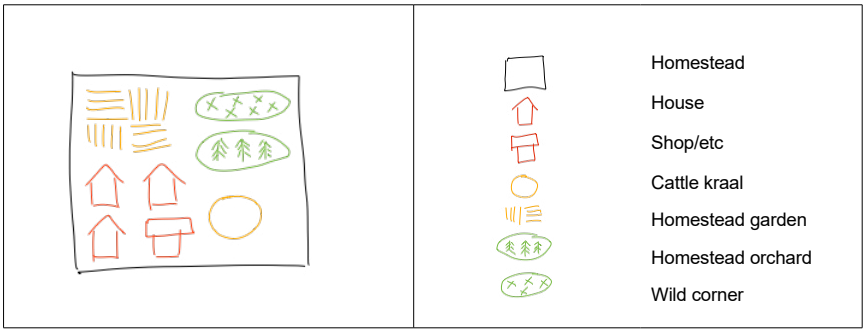
Source: Adapted from Eglin, 2020: 36

31. HOMESTEADS

Problem: People cannot do all the activities they want on small plots. Big plots reduce densities, making it difficult to provide facilities and services. Space is running out in some of these homesteads for expanded families and for all the activities people want to undertake (keeping animals and running a local business, etc.).

Opportunity: The homestead remains a core feature of rural-village lifestyle. Many of the modern amenities and services such as water, electricity, and telecommunication are still compatible with homestead living.

Solution: Use the homestead as the base for the village lifestyle. Develop homestead plots of sufficient size to accommodate a variety of activities. Ensure each plot is accessible to the road network. Build relatively small, detached houses of up to two storeys as part of a compound of buildings. Allow for home-work opportunities such as small shops and offices. Provide space for homestead gardens and the keeping of small stock. Accommodate a cattle kraal and maintain a sense of culture and connection to the ancestors. Let wild nature find its place on the edges of homestead plots linking into the wider wilderness network. Fence homesteads with wire fencing that helps maintain the open views within the village.




Links

- Up: The water and sanitation network, waste management network, and energy network all need to service the homestead. The wilderness network, agriculture realm and network of settlements find expression in the homestead. A homestead relies on appropriate land tenure arrangements. Homestead plots need to be accessible to the road hierarchy and public transport network. Economic activity taking place in a homestead needs to benefit from the economic support network. A homestead provides a base from which people can build local economies. A population mix is needed in the homestead and a homestead is the core of the rural lifestyle.
- Down: A homestead is created through construction.

Figure 4: Pattern 31: Homesteads

Source: Adapted from Eglin, 2020: 37

when asked what they thought of the patterns presented to them, one participant in the Ngxingxolo focus group stated: “we understand and agree with these patterns, and they are good. We accept these patterns” (Participant, Ngxingxolo focus group, 23 May 2019).

### 5.2 A pattern language planning model

A set of ‘process principles’ were identified (drawing inspiration from the six principles Alexander developed for the University of Oregon (Alexander *et al.*, 1975: 5-6), and as presented in section 2) that helped inform a possible approach to spatial planning and land-use management that uses a pattern language to guide land-use change decisions. The process principles (as presented in Figure 5) describe a planning process where, in any given context (1. context grounded), a vision is identified that acts as the beacon towards which all development efforts are directed (2. vision inspired). Different land-development interventions are then proposed by development applicants (3. incrementally driven). A decision is then made by the relevant authorising structures as to whether to approve each intervention after an analysis has been conducted on how each intervention addresses and builds on challenges and opportunities found in the environment (4. diagnosis informed) and by determining the extent to which each intervention helps enhance, extend, build on, and support identified patterns (5. pattern enhancing). Community participation (6. participation enabled) is accommodated and supported throughout the entire development process from the development of the vision, through the diagnostic analysis, to making decisions on what the next intervention should be within the development process.

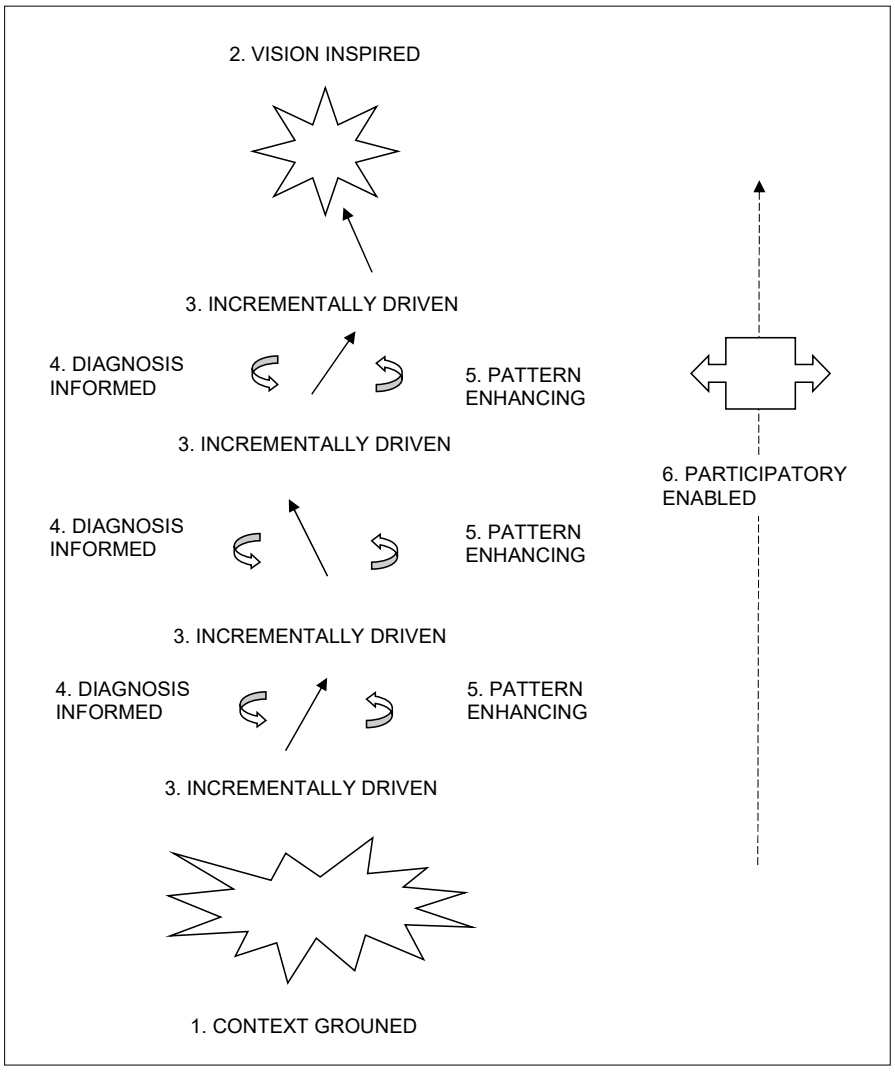



Figure 5: Principles that inform the process of using the pattern language
Source: Authors

When using the pattern language planning approach, development ideas and interventions are not imposed from the outside by a planner or developer. Rather, they emerge from the process of determining what the next best intervention is in any given context, based on the extent to which this intervention builds on what already exists and the extent to which the intervention helps move the environment closer to the broad vision expressed in the form of a pattern language for that area.

The pattern language planning model that emerged through this research is an approach to land-use development and change that starts with the municipality and the community jointly developing a pattern language for a clearly defined geographic area (the Mooiplaas communal land area) that reflects a vision for how the community and municipality would like to see the area develop in future. This means, as a minimum, that the Mooiplaas community can adopt the pattern language as a set of principles in its community rules (be they written or unwritten) to help guide it in its land-development and land-use change decisions. Their municipality (Great Kei) can then also approve the pattern language as a set of socio-spatial principles to be included within the municipality's spatial development framework (SDF). This will mean that all land development authorising structures, as provided for by SPLUMA (such as the authorised planning official, the municipal planning tribunal (MPT), and the appeals authority) as well as all other government structures and the courts will have to take these local spatial principles (or patterns) into account when making land-development and land-use change decisions. This approach is similar to how planning officials (and others) must consider, when making land-development decisions, the national spatial planning principles such as spatial justice and spatial sustainability, as outlined in Section 7 of SPLUMA.

Further, in the context of communal land areas such as Mooiplaas, the pattern language approach can be augmented and enhanced in its effectiveness by introducing the concept of overlay zoning (see Figure 6 for an overlay zone example). An overlay zone allows for special zones to be created that do not follow registered farm (or erven) boundaries (City of Cape Town, 2015; South African National Biodiversity Institute, 2019). Communal land areas in Mooiplaas are characterised by the fact that the broader outer boundary of the villages is registered farm boundaries and all the land within this boundary can be given a specified base zone. In the case of Mooiplaas, the underlying farm portions can be given a base zone of 'extensive agriculture', meaning that – in the absence of any overlay zone – this land should not be developed and should only be used for grazing-related activities. Three overlay zones are also proposed: a 'natural overlay zone' to protect valuable conservation and natural areas; an 'intensive agricultural overlay zone' to allow for more intensive agricultural activity such as crop farming and associated agriculture-related activities, and a 'settlement overlay zone' wherein all settlement-related activities that still fit within the rural-village lifestyle, such as homesteads, shops, business, light industries, schools, clinics, sports fields, churches, etc. can take place. Any area not covered by an overlay zone remains covered by the base zone.

A list of permitted primary and secondary land-use activities is then linked to the base zone and each of the overlay zones. If anyone wants to undertake an activity that is listed as a primary activity (*e.g.* residential

or small business) in a respective zone (*e.g.* a settlement zone), they can undertake that activity without having to obtain approval from the municipality. Depending on local community rules, they may still have to make an application to the community. If, however, the activity they wish to undertake is listed as a secondary activity or consent use (such as a crèche in a settlement zone), then they will need to apply to the municipality (and the community) to get consent from the authorised municipal planning official (and the community leadership) to undertake that activity. When considering this application, the authorised planning official will need to consider if and how the proposed activity helps the community move towards its vision, as expressed by the pattern language.

As per the provisions provided for in section 51 of *SPLUMA* and as per Chapter 4 of the SPLUMA regulations (DRDLR, 2015), land-use change decisions can be forwarded to the Appeals Authority, if any of the parties involved are not satisfied with the decision. Again, the pattern language (or local spatial principles) must be used to help inform the decision of the appeals authority. If the pattern language is incorporated as local spatial development principles in the SDF, then the procedures for modifying the SDF (such as following public participation processes and advertising the proposed changes in the local press) also need to be followed, if any changes are made to these principles. When introducing a pattern language as part of the spatial planning and land-use management procedures, the municipality also needs to review and update the municipal planning by-laws (that, among other things, outlines the procedures that need to be followed to make a land-use change application and explains how community participation procedures are to be undertaken) as well as the land-use scheme regulations (that define terms such as 'land' and 'owner' and specify what activities can occur in a particular zoning category).

## 6. DISCUSSION AND ANALYSIS OF FINDINGS

As shown in the previous section, it is possible to describe a 'pattern language' planning model that can be used within Mooiplaas and the legislative framework provided for by SPLUMA to guide land development and land-use change. The model also fits within the local socio-spatial planning process that is used by the community of Mooiplaas where community leadership structures such as village committees play an important role in guiding and informing land-development activities. The model shows that it is possible for both the community and the municipality to cooperate in terms of making land-development and land-use change decisions in a communal land area such as Mooiplaas.

Two key features of the pattern language planning model have been identified. The first is the development of a pattern language by both the community and the municipality that is then approved as part of the municipality's SDF. The second feature is the introduction of an overlay zoning approach as part of the municipality's land-use scheme regulations, which incorporates a base zone (allowing extensive agriculture) on all communal land and three overlay zones for natural, intensive agricultural, and settlement areas. Municipal planning authorising structures such as the authorised official or the MPT need to take the pattern language (as a component of the SDF) into account when making land-development decisions. The use of the second feature, the overlay zoning approach, helps inform when land-use change applications need to be submitted. The municipal planning authorising structures must take the pattern language (or local spatial development principles) into account when making land-use change decisions.

In addition, three key issues have been identified that need to be addressed, in order to make the pattern language spatial planning model work in the context of a communal land area such as Mooiplaas. The first issue is that, in communal land areas, there are no formally registered erven; the land is held in trust by the government on behalf of the community and those living on the land. Households and people have rights to live on and use certain pieces of land. These portions of land are not depicted on

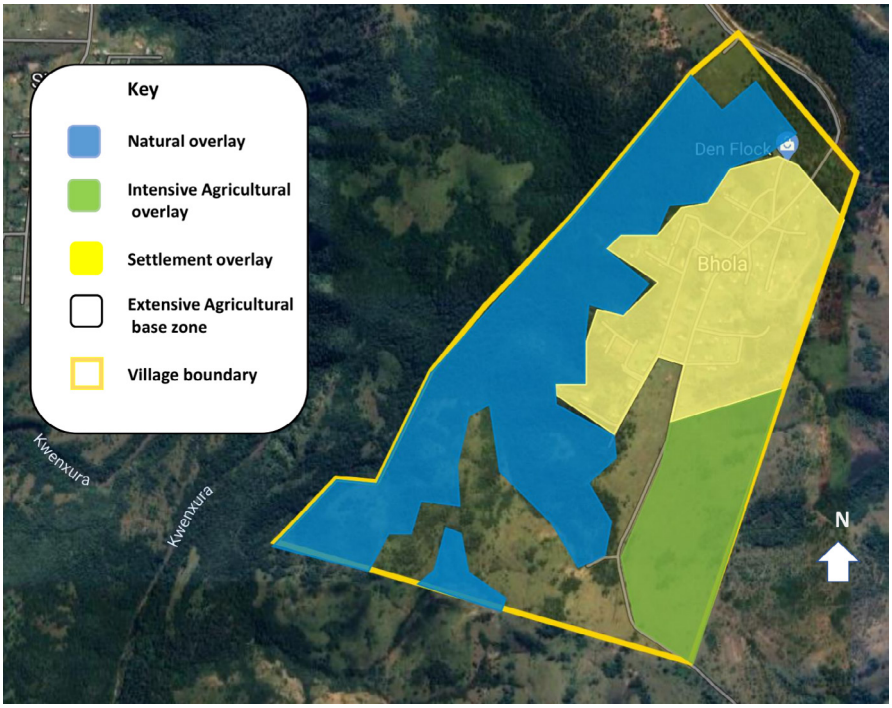



Figure 6: Example of overlay zoning map for Bhola Village in Mooiplaas
Source: Authors

any formal layout plan that is shown on any approved survey diagram. Land-use management systems and zoning schemes, as they have been undertaken in the past, in predominantly urban areas, are based on erven where each erf is given a specific land-use purpose (or zoning) category. Without erven (as one finds in communal land areas), if one is to still use the concept of land-use categories as a key feature of the land-use management system, then one needs to find a different way of depicting land-use purpose (or zoning) categories such as overlay zoning that does not rely on formally registered erven. As explained in section 5 above, overlay zones, as a zoning category, do not have to align with any formal property (cadastral) boundaries and can be overlaid on top of an existing base zone. The overlay zone can provide for additional and/or remove permitted land-use activities. The boundaries of any overlay zone can be independent of registered property boundaries, and they can cut across multiple property boundaries.

The second issue is that, in communal land areas, landownership and tenure is not understood and managed in the same way as it is understood and managed in urban areas where more conventional land-use management systems have been practised in the past. In urban areas there are title deeds. It is thus easy to identify who the landowner is of a given piece of land (or erf) and who then has the right to make a land-use change or development application on the land in question. In communal areas, one does not find land being owned in the same way. Is government the landowner, or is it the broader community, the community leadership, the traditional authority, the family that has the rights to use the land, or is it the head of that household (however that is determined)? If the landownership issue is uncertain, then who has the right to submit land-use change or development applications and respond to land-use change and land-development applications over land to which, they claim, they have rights? To address this issue, the definition of who a landowner can be needs to be revised in the land-use scheme regulations of the municipality from the standard definition used in SPLUMA to a definition that includes households that hold an exclusive right to a portion of communal land and/or a group of households or people that hold joint or overlapping rights to a portion of communal land, which rights are recognised in terms of the living customary law applicable to the area where the land is situated.

The third key issue that needs to be addressed to make any pattern language spatial planning model work in an area such as Mooiplaas is that one needs a mechanism or set of mechanisms to trigger the need for someone who wants to change land use (or develop land) to make a land-use change (or land-development) application, so that a decision can be made as to whether to accept this change or not. In urban areas, this trigger mechanism is provided for by a system whereby if anyone wants to undertake a land-use activity on a piece of land (an erf), for which that activity is not specified by the zoning category allocated to that piece of land, then the applicant, usually the owner of this land, needs to apply to the municipality asking for permission to change the zoning of the land, making it possible for that activity to take place. In communal land areas, where there are no erven and land-use categories and no 'clear' owners, there is no way to know when someone must make a land-use change application. If no land-use applications are made, then there is no need to make use of the pattern language to inform land-use change decisions. To address this issue, one can specify in the municipal planning by-laws the circumstances within which one must make a land-development and/or a land-use change application. These circumstances are broadly (a) when someone wants to undertake activities that are listed as secondary activities in the relevant land-use zoning categories in the land-use scheme regulations; (b) when activities are not listed as either primary or secondary activities in the relevant land-use zoning category; (c) when an activity requires a departure from what is allowed in the land-use scheme regulations (*e.g.* build a structure of three storeys when only allowed to build two storeys); or (d) for any other activity that has been elevated by the community as requiring the municipality to consider the application.

## 7. SIGNIFICANCE OF THE MAIN FINDINGS

This article builds on existing research done by Alexander and his colleagues (The Christopher Alexander & Centre for Environmental Structure Archive, [n.d.]) that investigates the use of a pattern language to create more alive, whole, and beautiful environments and it introduces the pattern language planning approach (or model) as a new way in which spatial planning and land-use management can be undertaken in a communal land area of South Africa. Currently, there is no study or scholarly work, undertaken in South (or southern) Africa, where a pattern language has been developed in the context of urban or rural planning and land-use management. This article thus presents, for the first time, an example of what a context-specific and forward-looking pattern language could be like for a specific (rural) area in South Africa.

The article makes three identifiable new knowledge and practical spatial planning contributions. First, in terms of how the study helps solve a practical problem, it shows how a municipality (and a community) can manage land development and land-use change within a communal land area where land administration has broken down and there are no formally registered erven and no title deeds. Since June 2015, municipalities have been required to incrementally introduce wall-to-wall municipal land-use schemes, including in areas such as communal land areas (and rural areas and informal settlements), where they have never had to perform this function in the past, but these municipalities have been

uncertain as to how best to do this. The 'pattern language' planning model outlined in this article provides an example of how this practical problem can be addressed.

Secondly, the article builds on existing research that led to the 'pattern language' planning approach developed by Alexander and his colleagues in the early 1970s (Alexander *et al.*, 1975), by exploring the development of a new pattern language planning model for a communal land area in South Africa. The study also builds on further research conducted by Alexander and his colleagues (Alexander, 2002b; Alexander *et al.*, 1985; Alexander *et al.*, 1987; Alexander *et al.*, 2012) and others (Calthorpe Associates, [n.d.]; Crawford *et al.*, 2017; Erickson, 2000; Hill, 2020; Mehaffy, 2008; Mehaffy, 2010; Mehaffy *et al.*, 2020, Park & Newman, 2017; Porta, Rofe & Vidoli, 2017; Rofe, 2012; Roos, 2017; Namwanje, 2022) on using a pattern language as part of a more organic, generative and wholeness extending transformation process that leads to environments that are more alive, whole, and beautiful.

Finally, the article advances a new understanding of how a vision for a communal land area such as Mooiplaas in South Africa can be expressed as a pattern language, and how this pattern language can be used within the spatial planning and land-use management framework provided by SPLUMA to inform land-development and land-use change decisions. It further advances a new understanding as to how the overlay zoning concept can be used within the communal land context, and within the context of using a pattern language to guide land-development and land-use change decisions.

## 8. CONCLUSION AND RECOMMENDATIONS

From the foregoing and building on Eglin (2020), it is evidently possible, using a needs and opportunity analysis and a visioning process, to identify and develop a set of socio-spatial planning principles (referred to in this article as patterns) for the communal land area of Mooiplaas. When patterns are combined to form a pattern language, this pattern language is able to reflect the vision that a particular community has for their area. In the case of Mooiplaas, this vision describes a pattern of natural, agricultural, and settlement areas found at all scales from the region to the neighbourhood, and down to the villages and plots.

The pattern language developed for Mooiplaas can be used within the context of the planning legislation of the country (SPLUMA and its associated rules and regulations) to inform land-development and land-use change decisions in that area. This is achieved by first adopting the pattern language as a set of local spatial development principles as part of the local municipality's SDF and, secondly, by creating, as part of the municipal land-use scheme regulations, special overlay zones (natural, intensive agriculture, and settlement) that are overlaid on top of the base zone (extensive agriculture) of the communal land area. These scheme regulations also need to make provision for definitions more aligned to customary law for terms such as 'land' and 'owner' in communal land areas where there are no erven and no formally registered owners. If anyone wants to undertake any land-use activity not permitted by the base or overlay zones (*e.g.* a new homestead on existing grazing land), that person is required to apply to the municipality (and the community) for permission to undertake that new activity in that area. The municipality, the community, and any other authorised structures are then required to use the pattern language (that is adopted as part of the SDF) to inform their decisions on whether to approve that activity or development or not.

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