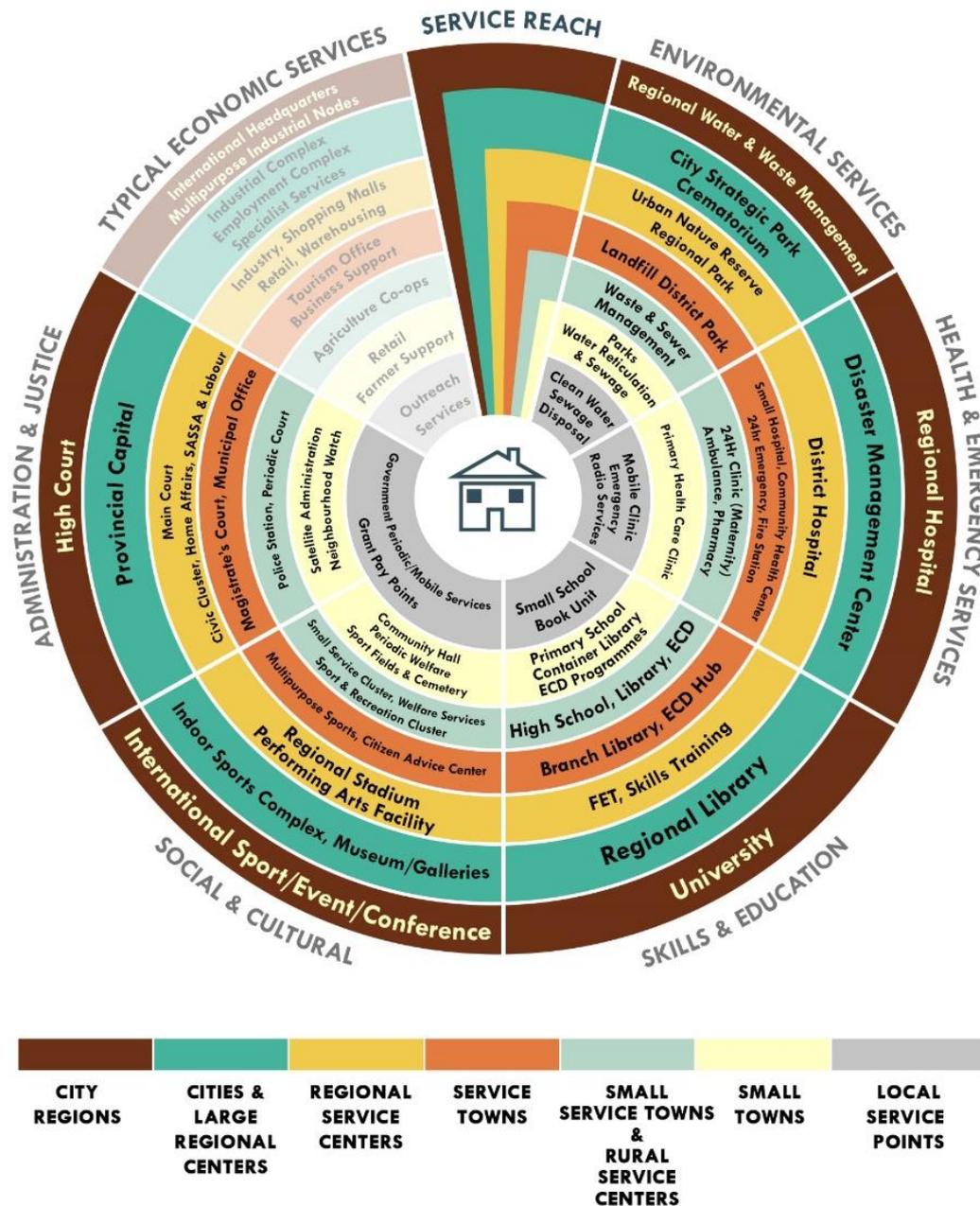


Developing standards for equitable location of social service facilities



Cheri Green and Elsona van Huyssteen
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Introduction

In South Africa, equitable and sustainable provision of social facilities, especially to vulnerable households in urban and rural areas, remains a challenge. The COVID-19 pandemic has starkly demonstrated a lack of capacity at health facilities in parts of the country, despite government's efforts to improve the delivery of social services as a means of addressing poverty and inequality, and reaching targets set out in the National Development Plan (NDP, 2011) and Sustainable Development Goals (SDGs).

Spatial targeting against established benchmarks is recognised as a way to improve the accessibility and quality of services, as well as the impact of investment and co-ordination among the three spheres government and different sectors.

Research and analyses on the provision standards, and evidence on options to improve spatial location of social facilities, clearly illustrate how improved social facility provision can contribute to spatial transformation, social justice, efficiency and sustainability as envisaged in the Spatial Planning and Land Use Management Act of 2013 (SPLUMA).

Over the last 15-20 years, the CSIR has supported metros and national departments in various sectors in:

- The development and application of access norms and standards for facility provision.
- The conduct of spatial assessments of facility backlogs and needs.
- The development of policy and investment approaches.

The documentation, refinement, collation, clarification and development of access provision standards has been a key focus. So has the generation of evidence of:

- Service provision statistics in relation to population distribution and densities.
- Travel access distance.
- The current or potential role of a range of service investment nodes.

This data has supported decision-makers in identifying suitable land and locating new facilities in a way that will have the greatest benefit to the largest number of people, while contributing to greater equity and sustainability in resource allocation.

In addition to providing planning decision support to cities and sector departments, the CSIR's development and application of access norms and standards for facility provision and its innovative generation of evidence have reduced a major gap in knowledge in southern Africa and the Global South. The *CSIR Guidelines for the Provision of Social Facilities in South African Settlements*, published in 2012 and reissued in 2015, played a critical role in this process. The application of the standards across all municipalities in South Africa has highlighted the importance of such normative guidelines in evaluating equitable access. This practice has been taken up in the National Spatial Development Framework (NSDF) as one of six key levers for shaping regional and local futures.

Except for the United Kingdom, *published* standards on facility provision are still not easily accessible and are often regulated by local councils, towns, provinces or counties rather than through national

guidelines. The need for contextually relevant guidelines has, however, been echoed in other BRICS countries.

China's State Council released new development guidelines in 2016 with the aim of stemming sprawling car-dependent development, improving access to commercial and public facilities, and reducing the resource-intensiveness of cities. The guidelines strive to improve access to diverse public and commercial amenities, including schools, supermarkets, retirement centres, parks and cultural centres.

In India, *Urban and Regional Development Plan Formulation and Implementation Guidelines* also speak to accessibility of facilities, with provisions for proportionate allocation of land for such uses. Unfortunately, due to contextual realities, neither of these guidelines could be used as inputs for revising standards used in South Africa today.

The purpose of the article is:

- To **raise awareness** among practitioners and decision-makers on the **value of the social facility access and threshold standards** and analyses not only in improving equitable access to services (especially for vulnerable households), but also in spatially transforming cities and regions.
- To provide an overview of, and **share learning** from, the innovative and practice-infused research and development process that enabled the development of the guidelines and their application in policy and decision-making.

The article provides a brief background on the need for standards to improve access to social facilities and an overview of the process of developing them. This is followed by a reflection on the value of applying these standards – in terms of equitable service delivery and other developmental objectives – the experience of the CSIR team.

The need for locally relevant approaches and standards

Planners and decision makers in South Africa faced a host of challenges arising from the dualistic apartheid-era use of land and public resources, with well-developed neighbourhoods within the city limits, under-developed settlements on the urban periphery, and a lack of facilities – or poorly located facilities – in rural areas. Facility provision was often spatially dispersed and sector-specific without consideration of co-location and settlement and urban formation. There was also often a lack of land available for social facility development within easy access of target communities as housing provision was often prioritised over sustainable and well-resourced settlement development.

In the early 2000s, while undertaking projects for various metros that involved the mapping of social facilities and identification of backlogs, the CSIR Accessibility Team identified as a major obstacle the lack of relevant and uniform standards on provision of and access to social facilities. This hindered the process of evaluating the sufficiency and equity of facility provision and measuring the impact of investment in eradicating backlogs.

This need for provision and access standards for social facilities relevant to South Africa's unique urban and rural contexts was confirmed by a project initiated by the KwaZulu-Natal Planning Commission (*The Planning Initiative Study*, 2008). The study indicated where facility planning guidelines had been adopted in various government sectors, these had generally failed to contribute to more equitable and sustainable service delivery or settlement development.

The above challenge was, however, not confined to South Africa. The gap in respect of both standards and relevant evidence to support decision-making on facility provision was observed across the Global South. The physical planning standards of several former British colonies in sub-Saharan Africa – including South Africa – were largely based on building regulations and township rules applicable in the United Kingdom after 1945. While some were appropriate, others were no longer relevant for the developmental context.

The regulations inherited by former colonies from Britain had their origins in the post-World War II development of New Towns which used the neighbourhood unit (defined by a population of about 5 000 people) as the key organising principle for residential development. Each local neighbourhood was planned to provide proximity to essential facilities such as nursery schools, a primary school, a pub and shops selling staple foods. These neighbourhood units were organised into clusters, with each cluster justifying defined higher-level facilities, such as a church, a library or a small business or industrial centre. This entailed the application of a hierarchy of social facility standards informed by population thresholds and spatial factors – and this principle of provision remains highly relevant to settlement and regional planning.

In apartheid South Africa in the 1970s, this “New Town approach” was applied mainly to planning of facilities in areas designated for white occupation. Up to 1975, townships developed for black residents in growing cities were regarded as temporary. Government facility provision in these townships and former bantustan areas was at a much lower level than in areas reserved for white people and churches and donor organisations compensated by establishing halls, schools and hospitals. Given the lack of adequate facility planning and the range of stakeholders involved in the provision and distribution of the facilities, facility location was often random, inappropriate and scattered rather than clustered at accessible locations.

The 1980s saw a move away from a normative, numbers-based planning approach to a participatory approach. With the abolition of the apartheid Group Areas Act and the introduction of a new democratised approach to planning in the form of Integrated Development Plans, community participation and the expressed needs of residents became firm features of planning in the 1990s. This approach was taken up in the *Guidelines for Human Settlement and Design* (2000). The move was understandable as a reaction to the past, when communities had a limited voice in planning their own residential areas.

However, over time this approach proved inadequate: the backlog in service delivery and inadequate access to social facilities merely increased. Many facilities came to be planned on the basis of individual wards or localities, without consideration of the regional context. Provision of facilities was sometimes intended to placate particular interests, or sector driven with limited alignment among various role players to ensure efficient service delivery.

This proved to be highly inefficient and unsustainable, limiting opportunities for co-use and integrated provision of facilities across communities. The approach often also resulted in a parochial focus and led to location choices that were not informed by population thresholds and accessibility. Little consideration was given to the service range required for large and growing populations, the resource constraints of relevant government departments, or the need (from an operational perspective) for larger and better equipped facilities to serve multiple community groups.

In response to this challenge, numerous city and government role players started to experiment with ways to enable a more equitable and efficient approach to social facility planning. They made use of access norms and standards, such as those published in *CSIR Guidelines for the Provision of Social Facilities in South African Settlements* and similar metro or rural-specific guidelines. These norms,

standards and guidelines, as applied to urban and rural areas, covered a range of facility types from early childhood development centres, to sporting facilities, libraries, and health and education facilities.

It is recognised that there are currently insufficient funds to provide all the facilities required in every settlement in the country. Therefore, it can be argued that services should be provided where they will have an impact on the largest number of people from the least number of service points. Often only a basic level of service to all areas is financially possible or desirable from an efficiency perspective. This is due to the costs of servicing settlements outside highly populated development areas and bulk service corridors where demand densities may be too low for viable services. Spatial targeting and the correct location of facilities in the most accessible areas is a key consideration that must be applied over and above sufficiency norms.

The Spatial Planning and Land-Use Management Act 2013 envisages that spatial transformation of South Africa will contribute to sustainability, efficiency and social justice, while the National Development Plan views spatial targeting, prioritisation and alignment as an important approach to improve access to services, improve quality of life and reduce poverty and inequality.

Practice innovation: generating standards and evidence for impact

Assessing backlogs, thresholds and possibilities

The development of provision standards and the associated evidence base was kick-started in 2001 by a project undertaken by the CSIR for eThekweni Municipality. This used a GIS-based system (novel at that time) to analyse the spatial location of facilities in terms of access and their sufficiency in meeting demand relative to population need. It reviewed the provision of clinics, community halls, fire stations, transport interchanges, libraries, police stations and municipal administration offices. This analysis clearly demonstrated:

- The provision of government services was highly unequal in terms of spatial location.
- There were no generally accepted benchmarks for spatial justice and equity against which facility provision could be measured.

Thanks to new GIS models and improved computing ability, it was possible to test iteratively different facility size thresholds and access distance indicators, and to evaluate these against actual service backlogs in eThekweni. This led to the use of the first cross-sectoral set of facility provision standards for eThekweni which were then included in *Guidelines for Planning of Facilities in KwaZulu-Natal (2008)*.

In 2006/7, the CSIR together with the City of Cape Town, and subsequently eThekweni, undertook the consolidation and documenting of access and provision guidelines that could be used for analysing and testing the accessibility and sufficiency of provision of a range of facilities.

In 2007 the City of Cape Town with the assistance of the CSIR published its own compendium of access and threshold guidelines. The use of these provision and location norms together with GIS tools enabled the CSIR team to spatially and quantitatively evaluate social facility backlogs. This data informed the planning of new social facility development to support managed city growth and development in relation to settlement formation.

Subsequent projects in eThekweni and Cape Town explored possibilities for co-location of different facility types using multi-purpose centres and multi-facility clusters located in priority investment areas. Facility clustering, with its potential to reduce trips made by citizens and achieve space and other operational savings, began to inform the spatial structure of the city. Facility provision norms

started to define the location and development of a hierarchy of facility types suited to the levels of the neighbourhood, suburb, district and sub-region in these cities.

Standards for facility location planning and decision-making

By 2009 it was evident there was a pressing need to review and consolidate facility location and access planning standards and guidelines. In terms of essential community facilities, consideration had to be given to how and where residents would access such facilities – regardless of whether the land under development was in an urban or rural area, part of a government housing development (such as an RDP scheme), a traditional authority, formal settlement or even private development.

Standards were required to ensure adequate consideration of social facility access for various types and sizes of settlement. At metropolitan and regional level, provision standards needed to take account of the collective requirements of several individual developments, the need for access to higher-order social facilities and the possible contribution of social facility location to other place-based development objectives within a regional context.

Since 2010, the review and consolidation of social facility provision guidelines has become a core focus of the CSIR. This was undertaken to cater to local and regional planning needs and to accommodate the unique developmental dynamics of the southern African landscape. The first comprehensive national level publication of such norms took place in 2012, with a reissue in 2015. Provision standards have been differentiated to take account of a range of development contexts, from deep rural areas to densely populated metropolitan areas, and from formal residential areas to informal settlements.

Applying standards to leverage investment

During 2016 the CSIR was commissioned by the Department of Rural Development and Land Reform (DRDLR) to refine the guidelines for the provision of social facilities to provide for greater differentiation of service levels in a range of rural contexts. The purpose was to consider different settlement landscapes, including various kinds of rural areas – sparsely populated, dispersed and densely populated.

The provision standards were differentiated and, in order to inform facility planning in rural areas, regional service catchment areas were defined for the whole country together with priority service points of different levels. The latter were identified by the use of a spatial targeting algorithm based on population density and access distance. The project spanned all settlements and towns in the country and included:

- The identification of higher-order service centres, for which not only population size and concentration was considered, but also the economic and service functions of cities and towns across the country. This exercise utilised evidence generated through the updated CSIR/SACN *Functional Settlement Typology*, 2015 and the *Functional Economic Network of Towns* study, conducted by the CSIR for the Department of Economic Development in 2014.
- The identification of a network of priority service nodes and small service towns. This process included an assessment of every node and settlement in the country, its development dynamics, population profile, growth/decline and settlement morphology within its surrounding catchment area. The role of a place was defined not merely in terms of its size, but in terms of the population in the surrounding service areas that depended on it for services.

Common principles underlying these access and threshold norms and standards were service distance, equity and longer-term sustainability of social service facilities. The types of services and capacity were to be differentiated on the basis of community size and density.

As indicated earlier, SPLUMA envisages that the spatial transformation of South Africa will contribute to sustainability, efficiency and social justice, while the NDP views spatial targeting as a tool for socio-economic upliftment. With constrained funding for facilities and services, spatial targeting evidence can inform where services should be provided to have an impact on the largest number of people from the least number of service points.

In order to support the above principles of equity and efficiency and give effect to the constitutional right of all citizens, especially the most vulnerable, to access basic services, spatial prioritisation and optimisation modelling was undertaken to support the choice of location for facilities when considering two or more competing places (See Text Box 1). The project resulted in the development of several tools, including *Guidelines for the Differentiated Provision of Social Services in Rural Areas*. This was accompanied by an application guide in which highlighted the risk of undue proliferation of small facilities that might hamper the subsequent development of larger, shared facilities offering a higher level of service more efficiently. The project also saw the development of the on-line [Social Facility Provision Toolkit](#) (through which all information can be accessed) to support the equitable allocation of services to a range of identified towns and catchments in accordance with the guidelines. The spatial prioritisation developed from this project in turn informed the updated [CSIR South African Town Typology](#) (Maritz et al, 2018).

Text Box 1

Spatial prioritisation and optimisation modelling for social service facility planning

Well-located and accessible priority places and regional service centres, as identified, could be used to develop facility clusters, multi-purpose centres, government precincts or “one-stop-shops” as efficient means of providing a broad range of services to rural communities. On a national and provincial scale, middle and higher-order services offered in towns must not only serve their residents but also the population of the surrounding area. The clustering of facilities in one-stop service nodes in well-located and well-connected regionally significant towns and villages is a core element of a rural-regional development model, as advocated by the NSDF.

Using the above approach may avoid problems that could develop in regions with several closely situated medium to large towns if service provision were to be based **only on minimum population or town hierarchy**. The latter approach may lead to redundancy or facilities having overlapping catchment areas. Rational location choices, based on spatial prioritisation analysis of towns in South Africa, can better inform decision makers when selecting the location of facilities.

The analysis underlying the approach made use of a base layer of towns and population attributes from the 2010 CSIR/SACN *Settlement Typology* as a starting point to identify spatially optimal regional service points for the location of a range of middle-order services to serve surrounding areas. This identified a range of service and other towns types that can be used to ensure an adequate spread of middle-order service locations across the country.

The analysis used GIS spatial optimisation that took into consideration population distribution and density as key selection factors. The other defining criterion was a 25 – 30km network access distance, which ensured the towns and villages identified as priority locations met the requirements for middle-order services, such as citizen registration and 24-hour health care facilities. It must be noted that the identification of places for middle-order service location does not indicate the scale or size of the facility or service.

The nature of the service facility, its size and frequency of operation must be determined according to the requirements of the population, as indicated by the application of the provision standards and facilitated by *Social Facility Provision Toolkit*. In areas where no large towns are found it has been necessary to identify regionally significant towns and provide guidance on adjusting service provision thresholds to accommodate remoteness.

The above spatial optimisation approach has demonstrated that it is possible to reach over 90% of the country's population (including those in metro areas) from 378 service areas falling within the specified access distance. This distance was increased to 50km in sparsely populated areas in the west of the country where density declines to fewer than 10 people per km². In metros the number of points needs to be disaggregated to limit the demand on any single location. The implication of the spatial prioritisation and optimisation analysis is that fewer than 50% of settlements require their "own" middle-order services when the selection of service points is spatially targeted according to town role, population number and concentration, spatial equity and rationality.

During 2018 and 2019 the first draft of the NSDF was developed. It was commissioned by the Department of Rural Development and Land Reform and the National Planning Commission and supported by a team led by the Enterprises Unit of University of Pretoria of which the CSIR team was part.

The NSDF process highlighted the significant role of towns and nodes in the development of regions and productive rural areas. This was evident from the Small Towns Regeneration Programme led by the South African Local Government Association, the Integrated Urban Development Framework (IUDF) spearheaded by Department of Co-operative Governance, and various provincial frameworks and plans.

The NSDF also identified the *National Spatial Social Service Provisioning Model* as one of six strategic national spatial development levers (See NSDF, 2019 p147 and Text Box 2). The social facility access and threshold standards, as outlined by CSIR for use at regional scale, were used in the CSIR *Town Typology* (2018) (See stepSA.co.za) to profile a national set of cities, regional centres, towns and rural settlements in terms of social facility provisioning. This served to identify the most prominent cities, towns and local settlements with respect to social and economic service roles depicted in the Service Wheel (Figure 1).

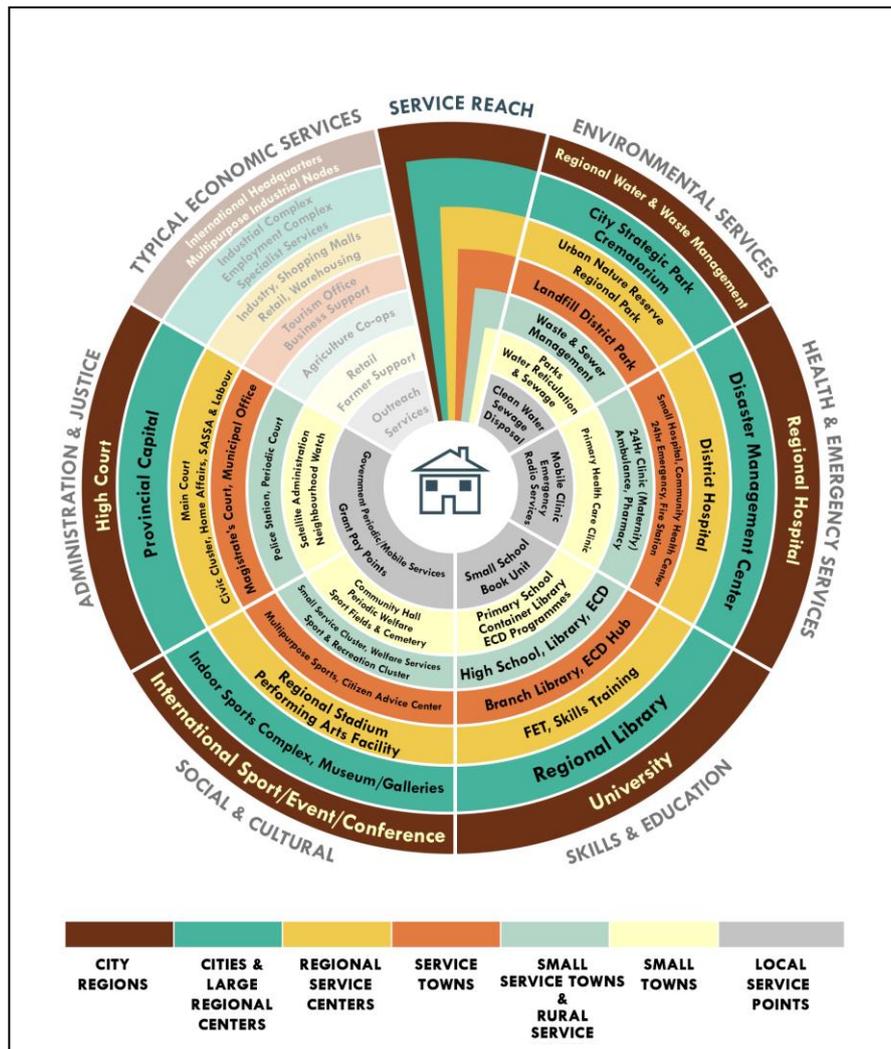


Figure 1: The CSIR Social Facility Service Wheel, 2019

The CSIR's *Town Typology* and the Social Facility Service Wheel, together with inputs from various provincial spatial frameworks, national sector plans and the functional regional role of towns and settlements identified, formed the foundation of the *National Spatial Social Service Provisioning Model*. The latter is intended to ensure just, effective and sustainable service delivery from a hierarchy of cities, towns, service centres and smaller settlements across South Africa to residents of these settlements and their surrounding rural hinterlands.

Text Box 2:

An extract from the National Spatial Social Service Provisioning Model

“The **National Spatial Social Service Provisioning Model** . . . put forward in the NSDF as a **national spatial development lever**, works on a hierarchical base, with the highest order services with the largest spatial reach in each category (see Figure 1), being placed in the highest order placesⁱ. For instance, in the case of health care, regional hospitals would be placed in ‘national urban cores’ and ‘regional development anchors’, and mobile clinics in small villages. Likewise, universities would be located in ‘national urban cores’, high schools in ‘rural service centres’, and small schools and mobile libraries in villages.

While rather rigid in appearance, the model does not propose an iron-caged spatial investment model, but instead envisages a situation by which municipalities and national and provincial sector departments would use the 'national and regional settlement and service network' or 'social service wheel' for short, as strong indicator and guide in jointly engaging and deciding on the spatial allocation of facilities across space. In addition to this, the wheel could also be used to:

- Avoid and resolve intergovernmental disputes regarding the spatial location of social service facilities.
- Inform, structure and guide engagements by communities with government regarding the provisioning and spatial location of social services.
- Engage and 'interrogate' spatial investment decisions by national and provincial sector departments and municipalities regarding social services in accordance with the NSDF's envisaged 'national spatial accountability model'.

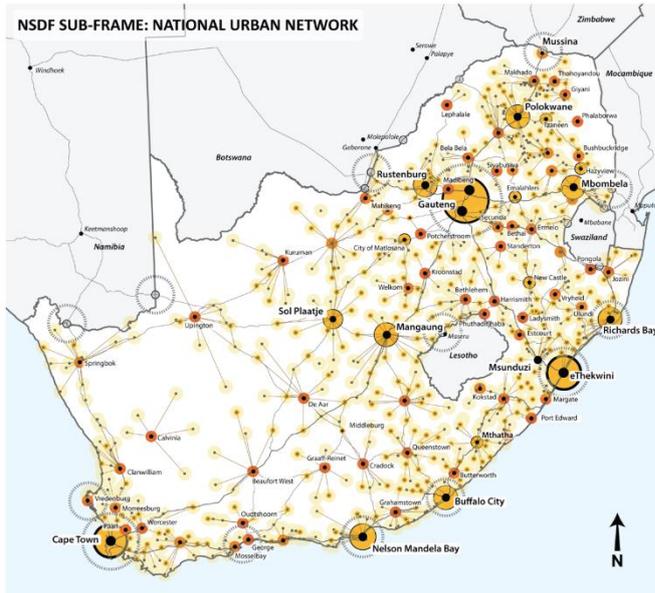
(Draft National Spatial Development Framework, 2019: 147)

The Social Service Wheel of the *National Spatial Social Service Provisioning Model* was developed as tool to facilitate alignment among multiple role players and impactful regional investment. It consists of a number of concentric circles that represent different types of settlements, from local areas at the centre of the circle to city regions at the periphery.

The Service Wheel represents the "ideal minimum" provision of services at different types of place. However, the specific location and distribution of services in any village, town or city (and the surrounding catchment area) requires agreement by various role players. The wheel does not imply any legislative requirements or mandatory provision of facilities. Relevant standards should be applied with a clear understanding of local context, including population distribution, community needs and preferences, and public transport routes and movement patterns.

All facilities indicated in the wheel should be viewed as cumulative: as one proceeds outward from the local to metro level, more services are added. Conversely, the reach of a facility located in the outer circular bands extends inwards to encompass smaller towns and service areas. The wheel indicates provision of facilities for education, healthcare, social and cultural development, environmental protection, and administration and justice.

The wheel is derived from research documented in the *CSIR Guidelines for the Provision of Social Facilities in South African Settlements*, the *Functional Economic Network, 2014* (prepared by the CSIR team for Economic Development Department), *Social Service Facility Toolkit* (prepared by the CSIR for DRDLR, 2016) and the *CSIR Functional Town Area Typology, 2019* (prepared by the CSIR for the NSDF, 2019).



Source: Draft National Spatial Development Framework, 2019

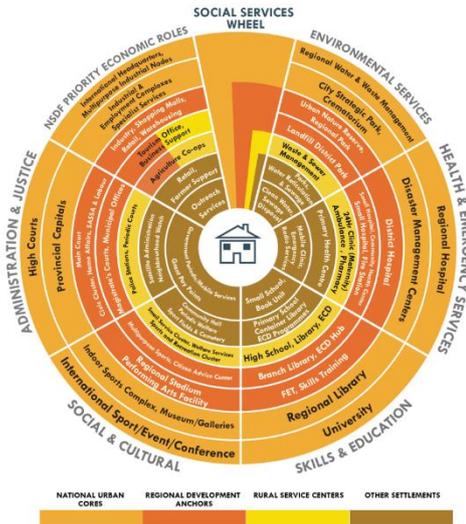
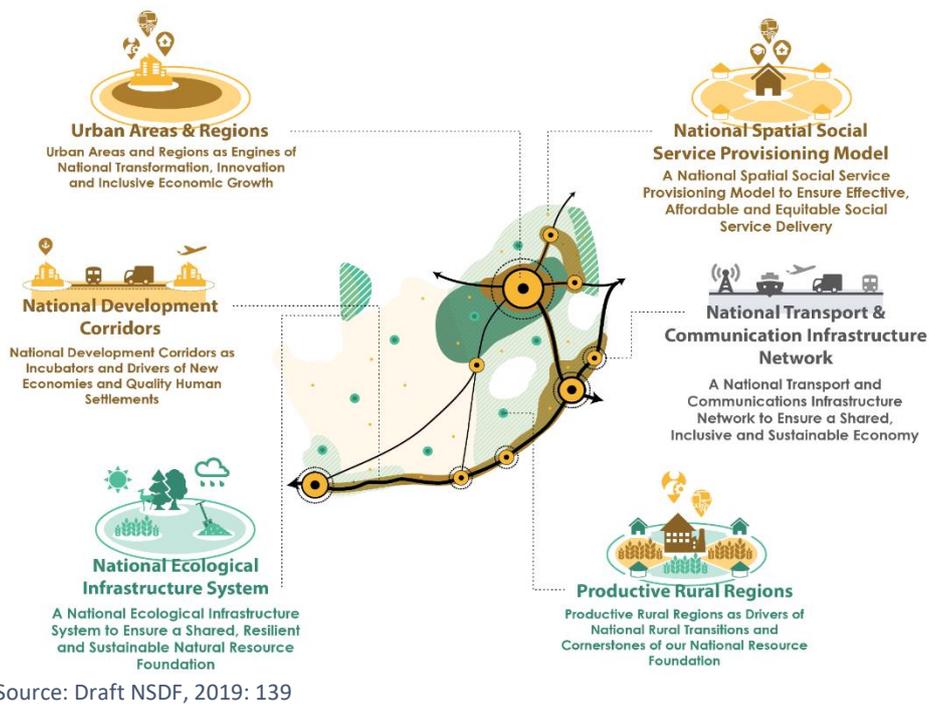


Figure 2: National Urban Frame and the Social Service Wheel

The *Social Service Provisioning Model* and Service Wheel can facilitate spatial targeting that not only identifies the optimal location and range of facilities but – when used in conjunction with other criteria – also indicates where the developmental impact of multi-role player investment can be leveraged. The intention is not to base decision-making on the isolated application of sufficiency norms, but to consider a range of critical developmental needs and levers. (See Figure 2 for the National Spatial Development Levers used in association with the *National Spatial Social Service Provisioning Model*, as outlined in the draft NSDF, 2019).



Source: Draft NSDF, 2019: 139

Figure 3: National Spatial Development Levers

Reflecting on a decade of standards development and application

Considerations in using access and threshold norms and standards

In general, standards can range from mandatory provisions to guiding principles that require discretion in how they are applied. The *CSIR Guidelines for Social Facility Provision* and the Service Wheel definitely fall into the latter category.

Normative provision standards in the guidelines can serve to:

- Determine land requirements and threshold populations for facilities. How much land is needed to provide facilities for how many people?
- Provide a starting point for negotiations on land provision between developers and local authorities.
- Assist in developing a spatial distribution network for a facility type, after other local inputs on location and scale have been considered.

In planning and motivating for facilities to be provided in any settlement it is essential that the planner or line department representative is cognisant of the specific service roles of relevant towns or villages that may have been identified in national, provincial and municipal spatial frameworks. In undertaking the detailed planning of neighbourhoods, urban planners should follow the CSIR or other provision guidelines and use neighbourhood design guidelines as laid out in the updated Redbook. In addition, it is critical that planners and other service providers:

- Consult any other available provincial and municipal norms, standards or guidelines, as well as policies and documents of line departments.
- Take account of the demand profiles of local populations and contextual factors that might impact on the quality, location and scale of facilities.

It is essential that standards be applied over a broad area and that each individual development, however small, should contribute proportionally to the demand for larger facilities located at a central location.

Efforts should also be made to consider cross-sectoral integration, the mobility of residents and socio-economic factors impacting on the need for services and how they are accessed.

Considerations in using standards for spatial equity in facility provision

In Cape Town, eThekweni, Johannesburg and Tshwane, facility provision norms and standards have been used in combination with GIS-based tools to produce spatially accurate assessments of facility backlogs and enable planning of new facility provision based on defensible empirical evidence. These processes have supported capital budgeting processes and the development of IDPs, and through this have impacted on social facility planning for more than 14 million residents.

The social facility provision norms that have been compiled and refined can, when used to support spatially relevant social facility investment plans, contribute significantly to eradicating social facility backlogs in an equitable manner and to improving the planning of future cities. These provision norms and standards can serve as benchmarks to evaluate service backlogs and to facilitate and support defensible, transparent and equitable facility investment plans. When used together with GIS-based accessibility analysis tools, they can ensure that facilities are located where they could have the greatest impact in redressing the unequal legacy of past spatial policies.

They can be used to support more efficient land use allocation and improved social facility investment decisions that can be included in built environment performance plans (BEPPs) or similar plans. When based on agreed access and provision norms, accessibility analysis assessments can

support improved coordination of city development and can be used to make fair decisions in response to requests for facilities by communities and councillors.

The application of access and provision norms to analyse and spatially match supply and demand of facilities, produce service reach maps and pinpoint areas with backlog is invaluable for purposes of community interaction and consultation. The resulting graphic outputs and maps enable more strategic engagement with communities and ward committees when identifying projects for inclusion in IDPs. The visual representation of comparative need across a city can clearly demonstrate any inequity of provision and thereby assist communities to make more informed and objective input to the debate on facility location and allocation.

It is evident that minimum provision standards will assist in limiting the construction of under-utilised “white elephant” facilities for which there is insufficient demand in the surrounding area and which cannot be financially sustained.

Facility location and access planning guidelines, when correctly applied and accompanied by spatially mapped analysis, can also be used to:

- Support spatial development objectives in local authorities’ integrated development plans (IDPs) and provincial spatial development frameworks (SDFs).
- Justify capital investment in social facilities in terms of location-specific need.
- Enable intergovernmental alignment by assisting stakeholders to understand facility location options and implications.

Reflecting on evidence, collaboration, principles and practice realities

Facility location planning is typically regarded as a science focussed on three key questions: *what* facility is needed; *where* to locate it; and *who* it must service. Supplementary inputs include demand targeting and estimation which involve a more detailed assessment of the number and distribution of people requiring the service. In developing the facility provision norms two of the most critical and interrelated considerations are access distance or service range, and population threshold values for different facility types. The latter is the minimum number of people (living within the access distance) required to justify a service and enable it to operate efficiently. The threshold standard is often reflected as a ratio of population to service facility – however, it must always be qualified by distance and population demand within the area in order to determine the size or type of facility.

Generating location-specific evidence to support this endeavour has proven to be challenging. In a developing country like South Africa the process requires constant innovation to develop relevant methods, approaches, technologies and evidence sets capable of accommodating fine-grained spatial information and taking account of rapidly changing, complex development dynamics in urban and rural landscapes.

The development of standards and generation of evidence for decisions on social facility provision and location cannot be described merely as a normative or technical desktop exercise. The facility provision access norms and standards that have been developed, refined and documented by the CSIR Accessibility Team over the last decade have been informed by user needs and expectations, as well as unique operational requirements of service providers in terms of size, capacity and location.

Experience has demonstrated that for such standards and evidence to be relevant and – more importantly – contribute to development impact within a resource-scarce context, they must be principle-led, pragmatic, collaborative, highly adaptive and practice orientated. The development of provision access standards within the socio-political context of South Africa had to consider

principles related to (i) social justice and equity, (ii) sustainability, (iii) administrative efficiency, and (iv) economic location impact.

More than 15 years in this field have taught that the development of social facility provisioning standards is not a once-off endeavour, nor is it powered by significant research investment. It has not been driven by a single institution or even by planning legislation. It was a process that unfolded due to collaboration within a dedicated community of practitioners, through science and innovation aimed at impact, through the leadership of committed officials in cities and national government, and through the perseverance of a team of researchers committed to learning, adaptation and improving impact. This has been fostered through a combination of project and research innovation (facilitated by the CSIR's Built Environment Accessibility Planning Team) and in-practice development and assessment of facility sufficiency, designed to support decision-makers.

Conclusion

This article highlights the value of the social facility access and threshold standards and their evolution and application in South Africa over the last 10 to 15 years. It also provides a glimpse into the value and contribution of a practice-embedded research programme, and the role of dedicated collaborators.

The consistent application of social facility provision norms can, in the long run, achieve greater equity and support the timeous identification and allocation of suitably zoned land for the future development of facilities. However, to ensure impact, this process needs to be supplemented with effective formulation of capital and maintenance budgets, less parochial decision making at local development level, and a greater sense of urgency about implementing plans.

Given the constraints on resources, a rational approach to locating facilities so that they may be shared among communities is possible and desirable, provided this is (i) based on agreed standards for access and capacity of services, and (ii) undertaken in conjunction with other relevant considerations for the dynamics, role players, investments and development objectives that shape spaces.

Facility provision and location norms are an important starting point for developing well-served communities. The allocation of the physical infrastructure provides the potential for effective delivery of services to improve the quality of life for all. Whether this potential is fulfilled, depends on the attributes of the services themselves.

While the provision guidelines present a substantive base for quantitative and equitable spatial decision making, these standards should not be considered as static and must evolve in years to come to address the changing needs of society and technological innovation.

ⁱ The level of service per settlement typed indicated in the "Service Wheel" is based on the following previous work that is documented in:

- Green, Cheri; Mans, Gerbrand; Ngidi, Mawande; Sogoni, Zukisa; & Maritz, Johan. Using Catchment Areas Analysis and GIS based Spatial Analysis for Prioritising Spatial Investment in Non-Metro South Africa- 2016. ISOCARP Durban, 12-16 September 2016. (Short title 'Prioritisation of Towns for Social Investment').
- Green, CA & Argue, TC. 2012 CSIR Guidelines for the Provisions of Social Facilities in South African Settlements. August 2012: ISBN 978-0-7988-5603-4. (Short Title CSIR Social Facility Standards).

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- Green, C. & Argue, T. 2016. Guidelines for the Differentiated Provision of Social Services in Rural Areas. Commissioned by the Department of Rural Development and Land Reform (Short Title Differentiated Social Facility Standards).
 - Maritz, Johan and van Huyssteen, Elsona. 2014. Functional economic regions in South Africa. See Regional economic networks role of towns as gateways and anchors. Accessed on 3 July 2020 on http://www.stepsa.org/pdf/projects/edd_tools/EDD%20tool%20%20Network.pdf
 - van Huyssteen, E. Green, C. Sogoni, Z., Maritz, J. and McKelly, D. South African Functional Town Typology (CSIR 2018 v2). Available at http://stepsa.org/socio_econ.html#Indicator