

Van die gas redakteur

## NWU: STADS-EN STREEKSBEPLANNING

Die verlede is bekend as 'n tydperk van oorvloedige en genoegsame hulpbronne. Die huidige realiteit voorspel dat die volgende Wêreldoorlog waarskynlik geveg sal word weens waterskaarste. Dit geld ook vir Suid-Afrika, wat die wêreld se 30ste droogste land is en waar waterbewaring en doeltreffendheid van watergebruik 'n belangrike nasionale prioriteit is ten einde waterskaarste aan te spreek.

Water skaarsheid, in hierdie sin, verwys na beide kwaliteit en kwantiteit van beskikbare waterhulpbronne. Die kwantiteit van waterhulpbronne is onder geweldige druk as gevolg van groeiende bevolkings, verhoogde behoeftes van landbou en nywerheidssektore en die impak van klimaatsverandering. Die kwaliteit van waterhulpbronne word daarenteen bedreig deur toenemende stedelike voetafdrukke, wat deur verstedeliking gedryf word - 'n sigbare verskynsel van ons era, wat die natuurlike verspreiding van water verander het en 'n verskeidenheid van verswarende probleme tot gevolg gehad het, insluitend nuwe eise aan natuurlike hulpbronne, verhoogde besoedeling en die afname van natuurlike ruimtes in stedelike gebiede. Stedelike infrastruktuur het versuim om tred te hou met die aansienlike stedelike groei, en as gevolg daarvan is burgers; veral dié in informele nedersettings, sonder voldoende waterdienste gelaat. Hierdie sameloop van omstandighede dra by tot die dreigende waterkrisis.

Aangesien stede die meerderheid van die wêreldbevolking huisves, word stede in elke diskoers steeds belangriker. Die kwaliteit en kwantiteit van waterhulpbronne is noodsaaklike voorvereistes wanneer volhoubare stede oorweeg word. Waterhulpbronbeplanning en -bestuur was tradisioneel nie as komponente van die stadsbeplanningsproses beskou nie. Die beplanning en bestuur van waterhulpbronne was hoofsaaklik geassosieer met fisiese wetenskappe of ingenieurswese, terwyl stadsbeplanning, as toegepaste wetenskap, sterk

From the guest editor

## NWU: URBAN AND REGIONAL PLANNING

The past is known for an epoch of overflowing and abundant resources. The present reality predicts the next World War to most likely be fought due to water scarcity. This is also true for South Africa, being the world's 30th driest country and where water conservation, and water-use efficiency is a key national priority to address water scarcity.

Water scarcity, in this sense, referring to both quantity and quality of available water resources. The quantity of water resources is under extreme pressure resulting from growing populations, increased demands from agriculture and industry, and the impact of climate change. The quality of water resources on the other hand is threatened by increased urban footprints, driven by urbanisation – an unmistakable phenomena of our era, which altered the natural distribution of water and brought along a host of aggravated problems including new demands on natural resources, increased pollution and the decrease of natural spaces in urban areas. City infrastructure has failed to keep up with the substantial urban growth, and as a consequence citizens; especially those in informal settlements are left without adequate water services. These coincidences of circumstances contribute to the imminent water crises.

As cities are hosting the majority of the world population, they are becoming progressively important in every discourse. The quality and quantity of water resources are essential prerequisites when considering sustainable cities. Water resource planning and management have traditionally not been considered as components of the urban planning process. The planning and management of water resources were mainly associated with domains of physical sciences or engineering, whereas urban planning as applied science had strong linkages with social sciences and the building environment. The divergent backgrounds of these disciplines are still evident in practice, where water resource planning

Ho tswa ho Mohlophisi oa baeti

## NWU: URBAN AND REGIONAL PLANNING

Motlha o o fetileng o itsiwe e ne e le wa letlepu le motlele wa ditsompelo. Mme motlha wa ga jaanong ke ponelopele ya Ntwa ya Lefatshe e e latelang e go bonalang thata gore e tla lowa ka ntlha ya tlhalelo ya metsi. Go ntse jalo le ka Aforika Borwa, e leng naga ya bo 30 e e nang le komelelo go di feta tsothle e mo go yone tshomarelo ya metsi, le go dirisa metsi sentle e leng selo se se etelediwang kwa pele thata mo nageng gore go rarabololwe bothata jwa tlhalelo ya metsi.

Tlhalelo ya metsi, sentlentle, e raya tlhalelo ya ka bobedi bontsi le boleng jwa metswedi ya metsi. Bontsi jwa metswedi ya metsi bo ka fa tlase ga kgatelelo e kgolo ka ntlha ya kgolo ya baagi, go tlhokwa thata ga one mo ditirong tsa temothuo le tsa intaseteri, le ka ntlha ya diphelelo tse di sa siamang tsa go fetoga ga tlelaemete. Ka fa letlhakoreng le lengwe, boleng jwa metswedi ya metsi bo tshosediswa ke go oketsega ga metsesetoropo, go go bakwang ke tlhabololo ya metseselegae gore e nne metsesetoropo - e leng selo se se diregang thata mo motlheng wa rona, se se fetotseng tsela ya tlhago e metsi a abiwang ka yone le go tla ka mathata a a seng kana ka sepe a a masisi go akaretsa le go batlwa ga ditsompelo tse dingwe gape tsa tlhago, go oketsega ga kgotihelo le go fokotsega ga mafelo a tlhago a a bulegileng mo metsesetoropong. Ditirelo tsa mo metsesetoropong di paletswe ke go lepalepana le kgolo e e boitshegang ya metsesetoropo, ka ntlha ya baagi; segolobogolo ba ba leng mo metseng ya baipei ba tlogelwa ba sena ditirelo tse di lekaneng tsa metsi. Kwelano ya maemo a a tshwanang le ano e baka mathata a a masisi a re tlogang re nna le one a metsi.

E re ka metsesetoropo e le yone e nang le bontsi jwa baagi ba lefatshe, e tswelela pele go nna e e bothokwa mo motlotlong mongwe le mongwe. Bontsi le boleng jwa metswedi ya metsi ke dilo tse di etelediwang kwa pele fa go akanyediwa metse e e kgonang go tlamela beng ba yone ka one. Thulaganyo ya botsamaisi jwa metswedi e ntse gantsi e sa lejwe e le karolo ya tsamaisano ya go rulaganya metsesetoropo. Thulaganyo le botsamaisi jwa metswedi ya metsi di

verbande met die sosiale wetenskappe en die bou-omgewing getoon het. Die uiteenlopende agtergronde van hierdie dissiplines is steeds sigbaar in die praktyk waar waterhulpbronbeplanning nie ten volle bely is met ruimtelike beplanning en grondgebruikvoorstelle nie. Grondgebruiksbeplanning het onlangs meer omgewings- en hulpbron-georiënteerd geword en volhoubare waterhulpbronbeplanning is nou 'n belangrike uitdaging wat die meeste stede en dorpe regoor die wêreld in die gesig staar. Water volhoubaarheid gaan egter verder as fisiese ingenieurswese en manipulasie van watervloei, dit impliseer stedelike waterbestuur wat breër stedelike oplossings bied.

Eerstens, water moet erken word as 'n belangrike hulpbron en 'n kragtige omgewingsagent. Bewusmaking van die belangrikheid en skaarsheid van water moet op alle terreine aangespreek word, van plaaslike en tradisionele gemeenskappe tot nasionale owerhede. Gevolglik moet die risiko's van voortsetting op die huidige trajek duidelik aan alle rolspelers oorgedra word, in 'n poging om 'n sterker argument vir watersensitiewe beplanning daar te stel.

Tweedens, transdissiplinêre beplanning moet water sensitiewe benaderings toelig. Volgens die Waternavorsingskommissie in Suid-Afrika impliseer watersensitiewe die bestuur van die land se stedelike waterhulpbronne deur die integrasie van die onderskeie dissiplines van ingenieurs-, sosiale en omgewingswetenskappe, die aanwending van 'n deelnemende benadering en erkenning van water as 'n ekonomiese entiteit en uitputbare, kwesbare hulpbron, wat alle vorme van lewe onderhou. Aangesien water as 'n basiese mensereg beskou word, sluit dit 'n breër politieke agenda in waar besluitneming, oor grense heen, in ag geneem moet word.

Derdens, praktiese oplossings moet op plaaslike vlak geïdentifiseer en aangemoedig word en aan relevante belanghebbendes gekommunikeer word, ten einde die gebrek aan kennis en kundigheid met betrekking tot beplanningsinisiatiewe en

is not fully aligned with spatial planning and land-use proposals. Land-use planning has recently become more environmentally and resource oriented and sustainable water resource planning is now a significant challenge facing most cities and towns across the globe. However, water sustainability goes beyond physical engineering and manipulation of water flows, it implies urban water management that addresses a larger proportion of urban solutions.

Firstly, water should be recognised as a vital resource and a powerful environmental agent. Awareness of the importance and scarcity of water should be raised across all spheres, ranging from local and traditional communities, to national authorities. Accordingly the risks of continuing on the current trajectory should be clearly communicated to all role-players in an attempt to build a stronger argument for water sensitive planning.

Secondly, trans-disciplinary planning should inform water sensitive approaches. According to the Water Research Commission in South Africa water sensitivity implies the management of the country's urban water resources through the integration of the various disciplines of engineering, social and environmental sciences, employing a participatory approach and acknowledging water as economic good and finite, vulnerable resource, sustaining all life. As water is considered a basic human right, it entails a far broader political agenda where cross-border decision-making will come into play.

Thirdly, practical solutions should be identified and encouraged on local level and be communicated to relevant stakeholders, addressing the lack of knowledge and know-how relating to planning initiatives and nature-based solutions. Planners ought to comprehend the planning for, and management of current available water resources in a sustainable manner.

This special edition of the *Town and Regional Planning* journal aims to capture the scope, importance and complexities regarding water sensitive urban planning and identify

ne di amana thata le saense ya fisika kgotsa le boenjenerere, fa thulaganyo ya metsetoropo e e leng saense e e tsenngwang tirisong yone e golagana thata le tikologo le kago. Go sa tshwaneng ga ditiro tseno go sa ntse go bonala sentle fa di dirwa, ka gonne thulaganyo ya metswedi ya metsi ga e a lolamisiwa sentle le go rulagangwa ga ditsha tse di bulegileng le ditshitshinyo tsa gore ditsha tseo di dirisiwe jang. Bošeng jaana go rulagangwa ga ditsha go ne go dirwa go lebilwe thata tikologo le ditsompelo mme jaanong thulaganyo ya motswedi wa metsi e e kgonang go ntsha metsi lobaka lo lo leele jaanong ke kgwetlho e kgolo e bontsi jwa metse le ditoropo di lebaneng le yone mo lefatsheng lotlhe. Le fa go ntse jalo, go kgona go tlamela ka metsi lobaka lo lo leele ga go bakwe fela ke tiro ya boenjenerere le ya go laola kelelo ya metsi, go bakwa ke botsamaisi jwa metsi mo metsetoropong jo bo rarabololang bothata jwa metsi mo dikarolong tse dikgolo tsa metsetoropo.

Sa ntlha, metsi a tshwanetse go lejwa e le tsompelo e e botlhokwa le seedi se se botlhokwa thata mo tikologong. Batho mo dikarolong tsoitlhe tsa botshelo ba tshwanetse go lemotshiwa ka fa metsi a leng botlhokwa ka gone le ka fa a tlhangelang ka gone, go simolola ka maloko a setšhaba a selegae le setso, go fitlha ka balaodi ba bosetšhaba. Baamegi botlho ba tshwanetse ga tlhalosediswa sentle dikotsi tsa go tswelela pele ka boemo jo re leng mo go jone ka boikaelelo jwa go tlhagisa mabaka a a nonofileng a go nna le thulaganyo e e dirilweng ka kelotlhoko ka metsi.

Sa bobedi, thulaganyo e e tshwaraganetsweng ke mafapha a a farologaneng e tshwanetse go tlhotlhelediwa ke ditsela tsa go somarela metsi ka kelotlhoko. Go ya ka Khomišene ya Dipatlisiso ka Metsi mo RSA, go somarela metsi ka kelotlhoko go raya botsamaisi jwa metswedi ya metsi ya metsetoropo ya naga ya rona ka go kopanya mafapha a a farologaneng a boenjenerere, a disaense tsa loago le tikologo, go a somarela ka go tsaya karolo mo go seno le go lemoga gore metsi ke tsompelo e e molemo e e botlhokwa e e sa kgoneng go nnela ruri, e e mo kotsing ya go nyelela, e e tshwanetseng go tshegetsa botshelo jotlhe. E re ka metsi a tsewa e le tshwanelo ya motheo ya batho, ga se kgang fela ya ajenda

natuurgebaseerde oplossings aan te spreek. Beplanners behoort te begryp hoe om op 'n volhoubare wyse te beplan vir huidige beskikbare waterhulpbronne en dit daarvolgens te bestuur.

Hierdie spesiale uitgawe van die Stads- en Streekbeplanningjoernaal beoog om die omvang, belangrikheid en kompleksiteit van watersensitiewe stedelike beplanning vas te lê en praktyke te identifiseer om waterbeplanning en -bestuur in te sluit en te belyn met stads- en streekbeplanning. Die artikels ingesluit in hierdie uitgawe plaas Water Sensitiewe Stede en Water Sensitiewe Stedelike Ontwerp in konteks van breër beplanning benaderings, bied 'n paar voorbeelde van modelleringsinstrumente en benaderings wat aangewend kan word om Water Sensitiewe Beplanning te verbeter. Uit die versameling van hierdie artikels is dit duidelik dat beplanners grondgebruiksbeplanning en -bestuur nie meer in isolasie van waterhulpbronne kan oorweeg nie, maar moet proaktief die kapasiteit van natuurlike hulpbronne identifiseer en die voorsiening van grondgebruike dienooreenkomstig oorweeg. Watersensitiewe beplanning moet dus belyn en geïntegreer word in hoofstroom ruimtelike beplanning in die lig van breër volhoubaarheid en veerkrachtigheidsdenke.

Prof. Juaneé Cilliers  
Voorsitter: Stads-en  
Streeksbeplanning

practices to include and align water planning and management with urban and regional planning approaches. The included papers places Water Sensitive Cities and Water Sensitive Urban Design in context of broader planning approaches, provides some examples of modelling tools and approaches that could be employed to enhance Water Sensitive Planning. From the collection of these papers it is evident that Planners should no longer consider land-use planning and management in isolation of water resources, but ought to, pre-emptively, identify the capacity of the natural resources and consider the provision of land-uses accordingly. Water sensitive planning therefore has to be aligned and integrated into mainstream spatial planning in view of broader sustainability and resilience thinking.

Prof. Juaneé Cilliers  
Chairperson: Urban and Regional  
Planning

ya sepolotiki, ditshwetso ka one di tlhoka go dirwa le e leng go tswa kwa dinageng di sele.

Sa boraro, go tshwanetse ga tlhamiwa ditharabololo tse di mosola mme botlhe mo tikologong mmogo le baamegi ba rotloediwe go di dirisa, ba newe kitso e ba e tlhokang le mekgwa ya go rulaganya matsholotemoso le go ba bolelela ka mekgwa ya tlhago ya go rarabolola bothata jono. Barulaganyi ba tshwanetse go nna le tsela e e tshwanetseng ya go tlhaloganya thulaganyo le botsamaisi jwa ga jaanong jaana jwa metswedi ya metsi e e leng teng gore e kgone go tshola metsi lobaka lo lo leele.

Boikaelelo jwa tokololo e e kgethegileng eno ya lekwalo-paka la *Town and Regional Planning* ke go bontsha ka fa thulaganyo e e dirwang ka kelotlhoko eno ya metsi mo metsesetoropong e leng kgolo ka gone, e leng bothokwa le ka fa e raraaneng ka gone le go bontsha dikgato tse di tshwanetseng go tsewa tse di akaretsang dikgato tsa thulaganyo ya metsi le botsamaisi jwa one tse di dirwang mo metsesetoropong le mo kgaolong. Dipampiri tse di tseentsweng fano di bontsha dikgato tsa thulaganyo e kgolo thata ya Thulaganyo e e Dirilweng ka Kelotlhoko ya Metsi mo Ditoropong le Thulaganyo e e Dirilweng ka Kelotlhoko mo Metsesetoropong, e na le dikai dingwe tsa didirisiwa tse di tla dirisiwang le dikgato tse di ka dirisiwang go tokafatsa Thulaganyo ya ka Kelotlhoko ya Metsi. Go a bonala morago ga go kokoanya dipampiri tseno gore Barulaganyi ga ba a tshwanela go tlhola ba akanya ka thulaganyo ya go dirisiwa ga ditsha le botsamaisi jwa tsone fela mme ba sa akanye ka metswedi ya metsi, mme ba tshwanetse gore ba bone pele gore go na le ditsompelo tse di kana kang tsa tlhago mme ba akanyetse tiriso ya ditsha ka tshwanelo. Ka jalo, thulaganyo e e Dirilweng ka kelotlhoko ya metsi e tshwanetse go lepalepanngwa le go kopanngwa le tiro e kgolo ya go rulaganya ditsha tse di bulegileng gore di kgone go tlamela bontsi ka metsi e bile go tshwanetse ga akanngwa ka tsela e e tla tlhagisang matswela a a molemo.

Prof. Juaneé Cilliers  
Chairperson: Urban and Regional  
Planning