From the guest editors:

James Chakwizira,[1] Martin Lewis[2] & Khetha Zulu[3] 2022

Cities are engines of socio-economic growth and development. In facilitating this growth, cities have been notorious for delivering inequality and spatial imbalances, spatially accentuating the socio-economic population groups' differences across income groups, social class, gender, minorities, and vulnerable groups, and thereby impacting on spaces, places, cultures, inclusion, and diversity. Perhaps, more challenging, and subtle but starkly disappointing has been that cities have been efficient machines in ejecting approximately 70% of greenhouse gas emissions on this planet (Xue, 2022: 102699). This is a great concern in a context in which over half of humanity (this figure is projected to reach 68% by 2050) lives in urban areas (Wheeler, 2021: 10). The onslaught of climate change is meeting our biggest urbanisation and settlement dynamics wave and drive in human civilization, as millions of people continue to migrate into cities in the hope of a better life. This phenomenon and momentum do not seem to show any signals of slowing down soon and is occurring despite the reality that many of our cities are already showing cracks and gaps in respect of their ability to act on climate change and impacts. The need to achieve net zero CO_2 emissions in future makes the call for climate action an urgent priority for all.

While cities and regions models, based on densities, offer agglomeration of scale benefits, in the event when climate change catastrophes hit dressed as water shortages, floods, heatwaves, cold-waves, pandemics / epidemics,

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Van die gasredakteurs:

James Chakwizira,[1] Martin Lewis[2] & Khetha Zulu[3] 2022

Stede is die masjiene van sosio-ekonomiese groei en ontwikkeling. Deur hierdie groei te fasiliteer, is stede berug daarvoor dat hulle ongelykheid en ruimtelike wanbalanse lewer, die verskille in sosio-ekonomiese bevolkingsgroepe oor inkomstegroepe, sosiale klas, geslag, minderhede en kwesbare groepe ruimtelik beklemtoon, en sodoende 'n impak op ruimtes, plekke, kulture, insluiting, en diversiteit het. Miskien, meer uitdagend en subtiel maar teleurstellend was dat stede doeltreffende masjiene was om ongeveer 70% van kweekhuisgasvrystellings op hierdie planeet vry te stel (Xue, 2022: 102699).

Dit is baie kommerwekkend in 'n konteks waarin meer as die helfte van die mensdom (wat geprojekteer word om 68% teen 2050 te bereik) in stedelike gebiede woon (Wheeler, 2021: 10).

Die aanslag van klimaatsverandering bereik ons grootste verstedelikings- en nedersettingsdinamikagolf en dryfkrag in die menslike beskawing, aangesien miljoene mense steeds na stede migreer in die hoop op 'n beter lewe. Hierdie verskynsel en momentum blyk geensins om binnekort te verminder nie en vind plaas ten spyte van die realiteit dat baie van ons stede reeds krake en gapings toon ten opsigte van hul vermoë om teen klimaatsverandering en impakte op te tree. Die behoefte om in die toekoms netto nul CO_2-vrystellings te bereik, maak die beroep op klimaatsaksie 'n dringende prioriteit vir almal.

Terwyl stede en streke-modelle wat op digthede gebaseer is,

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Ho tsoa ho bahlophisi:

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Litoropo li susumetsa kholo le nts'etsopele ea moruo oa sechaba. Tsamaisong ea kholo ena, litoropo li tumme hampe ka ho khannela ho se leka-lekane ha mahaeng, le ho nyolla phapang pakeng tsa sechaba le moruo, 'moho le bathong ba futsanehileng le ba tlokotsing. Sena se ama mahaeng, setso le meetlo, kenyelletso ea lits'ebeletso ka ho fapana. Mohlomong, ho thata le ho feta, le hoja ho hlakile leha ho nyahamisa haholo, ke hore litoropo li sebelitse hantle ho ntša bonyane 70% ea likhase tse futhumatsang lefatše (Xue, 2022: 102699). Sena ke taba e tšoenyang haholo maemong ao batho ba fetang halofo (palo ena e lebelletsoeng ho fihla ho 68% ka 2050) ba lulang libakeng tsa litoropo (Wheeler, 2021: 10). Tlhaselo ea phetoho ea maemo a leholimo e kopana le ts'ebetso ea rona e kholo ka ho fetisisa ea tšubuhlellano ea litoropo le bolulo le tsoelopele ea batho, ha batho ba limilione ba ntse ba tsoela pele ho fallela litoropong ka tšepo ea bophelo bo betere. Ketsahalo ena, le sefutho sa eona ha li bonahale li bontša matšoao a ho fokotseha haufinyane 'me li ntse li etsahala ho sa tsotellehe 'nete ea hore boholo ba metse ea rona e se e ntse e bontša likhaello le likheo mabapi le bokhoni ba ho nka likhato mabapi le phetoho ea maemo a leholimo. Tlhokahalo ea ho fihlela thlahiso e tlase ea khase ea CO2 kamoso e etsa hore boipiletso ba methati ea moemo a leholimo e be ntho e ka sehlohong.

Le ha meralo ea litoropo le mahaeng e fana ka melemo e mengata, ketsahalong eo likoluoa tsa phetoho ea maemo a leholimo tse akhang khaello ea metsi, likhohola, maqhubu a mocheso, maqhubu a batang,

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fires and droughts, most of the cities reveal signs and signatures of lack of readiness in preparedness and action for climate change, hazards and disasters response and action. This calls into question reimagining (or reimaging) climate change, resilient cities, and regions in respect of the following: the relevance and competitiveness of space, human settlements and built environment strategic, operational, and tactical designs, models, plans, policies, and frameworks adequacy, comprehensiveness, inclusiveness, and completeness in solving such challenges and problems.

While, it has become common knowledge that climate change is posing a serious threat to cities and regions, it is also sobering to realise that opportunities to innovate in a complex and changing world of climate, planning and related disciplines, technology and society also exist. It is, therefore, encouraging to realise that opportunities for widespread and transformational adaptation and climate-resilient development exist, although these opportunities and innovation moments have not yet been fully harnessed. Exploring climate change and cities from both sides (including multiple and differentiated perspectives) may suggest that cities and regions are seated on the podium of climate threats and hotspots as well as climate solutions. The need to adapt, adjust, and innovate in respect of climate change, building and retrofitting resilient cities and regions may suggest that we need to adapt, innovate, re-imagine, re-envision, co-create, and re-create how our cities and regions were designed, built, grow, and develop for better sustainability and resilience. In this regard, climate change, resilient cities and communities seems to be a befitting title to focus on what can contribute towards our shared future through better understanding and action in addressing our common challenges. The need to prepare, (re) develop and (re-orient) practitioners and academics, who are better prepared, enabled and incentivised to act on climate change and resilient cities and communities, becomes

agglomerasie van skaalvoordele bied, in die geval wanneer klimaatsverandering-katastrofes in die vorm van watertekorte, vloede, hittegolwe, kouegolwe, pandemies/epidemies, brande en droogtes tref, openbaar die meeste stede tekens van gebrek aan gereedheid in paraatheid en optrede vir klimaatsverandering, gevare en rampe-reaksie en optrede. Dit bevraagteken die herverbeelding (of herbeelding) van klimaatsverandering, veerkragtige stede en streke ten opsigte van die volgende: die relevansie en mededingendheid van ruimte, menslike nedersettings en geboude omgewing, strategiese, operasionele en taktiese ontwerpe, modelle, planne, beleide en raamwerke toereikendheid, omvattendheid, inklusiwiteit en volledigheid in die oplossing van sulke uitdagings en probleme.

Alhoewel dit algemene kennis is dat klimaatsverandering ‘n ernstige bedreiging vir stede en streke inhou, is dit ook ontnugterend om te besef dat geleenthede om te innoveer in ‘n komplekse en veranderende wêreld van klimaat, beplanning en verwante dissiplines, tegnologie en die samelewing ook bestaan. Dit is dus bemoedigend om te besef dat geleenthede vir wydverspreide en transformasionele aanpassing en klimaatvaste ontwikkeling bestaan, alhoewel hierdie geleenthede en innovasiemomente nog nie ten volle benut is nie. Verkenning van klimaatsverandering en stede van beide kante (insluitend veelvuldige en gedifferensieerde perspektiewe) kan daarop dui dat stede en streke op die podium van klimaatbedreigings en -brandpunte sowel as klimaatoplossings gesetel is. Die behoefte om aan te pas en te vernuwe ten opsigte van klimaatsverandering, die bou en heraanpassing van veerkragtige stede en streke kan daarop dui dat ons moet aanpas, innoveer, herbedink, hervoorsien, saamskep en herskep hoe ons stede en streke ontwerp, bou, laat groei en ontwikkel vir beter volhoubaarheid en veerkragtigheid. In hierdie verband blyk klimaatsverandering, veerkragtige stede en gemeenskappe

mafu a seoa, mollo le komello, boholo ba litoropo bo a senola matšoao le lipontšo tsa ho hloka boitokisetso le ho nka khato bakeng sa phetoho ea boemo ba leholimo, likotsi le likoluoa karabelo le liketso. Sena se etsa hore ho belaelloe (kapa ho nahanoa bocha) phetoho ea maemo a leholimo, metseng e tsitsitseng, le mahaeng mabapi le tse latelang: bohlokoa le tlholisano ea sebaka, bolulo ba batho le tikoloho e hahiloeng, meralo ea ts’ebetso le maqheka, mehlala, merero ea tsoelopelo, maano, le meralo ea tekatekano, kenyeletso, le tharollo ea liqholotso le mathata a joalo.

Leha ho le joalo, e se e le tsebo e tloaelehileng ea hore phetoho ea boemo ba leholimo e baka tšokelo e kholo litoropong le mahaeng, ho boetse ho etsa hore motho a nahane ka ho teba ho hlokomela hore menyetla ea ho qapa lintho tse ncha lefatšeng le rarahaneng le le fetohang la boemo ba leholimo, meralo le lithuto tse amanang le tsona, theknoloji le sechaba le tsona li teng. Ka hona, hoa khothatsa ho elelloa hore menyetla ea ho ikamahanya le maemo a leholimo e atileng le ea phetoho le nts’etsopele e mamellang boemo ba leholimo e teng, leha menyetla ena le linako tsa boiqapelo li so ka li sebelisoa ka botlalo. Ho hlahloba phetoho ea maemo a leholimo le metse e tsoang mahlakoreng ka bobeli (ho kenyeletsoa maikutlo a mangata le a fapaneng) ho ka ‘na ha fana ka maikutlo a hore metse e lutse sethaleng sa litšokelo tsa boemo ba leholimo le libaka tse chesang hammoho le tharollo ea boemo ba leholimo. Tlhokahalo ea ho ikamahanya le maemo, ho lokisa, le boqapi mabapi le phetoho ea maemo a leholimo, ho aha le ho nchafatsa litoropo le mahaeng, ‘me ho li thusa ho tšoarella ho ka fana ka maikutlo a hore re hloka ho ikamahanya le maemo, ho qapa bocha, ho inahanela bocha, ho bopa hammoho, le ho bopa bocha mekhoa ea rona. Litoropo le mahae li ile tsa raloa, tsa hahuoa, tsa holisoa le ho ntlafatsoa molemong oa ts’ebetso le botsitso bo betere. Tabeng ena, phetoho ea boemo ba leholimo, metse e meholo e tsitsitseng le metse e bonahala e le sehlooho se loketseng ho

a compelling call for the planning profession, built environment, disciplines interested and working in cities and regions of our times.

Town and Regional Planning journal, together with SACPLAN, is dedicating a special issue of the Journal in 2022 that contributes towards further debates and policy action in respect of climate change, resilient cities and regions, environmental justice, and resource availability for planning in the twentieth century. In this issue, climate change justice, the quest for firmly appropriating sustainable cities and regions, 'fit-for-purpose' policy, strategic guides and frameworks, enhancing inclusive and integrated human settlements, good climate change law and institutional governance at all geographic scales are matters that are confronted and discussed. There are attempts at painting a portrait that isolates the climate change 'pain and action points'. The intention is not to present 'ready-made' solutions, as we are all too aware that context informs the need for context-driven and -adapted solutions as opposed to the exportation, importation, and imposition of 'foreign' solutions. Central to the discussion is the knowledge, capabilities and inadequacies that require collaborative action and planning from enlisting the intelligence of disciplines beyond the traditional built environment disciplines (*e.g.*, engineering, surveying, architecture, construction, town and regional planning, etc.), including tapping into the value add that indigenous knowledge and practice can contribute. The value adds and dividend that inter-, cross-, multi- and transdisciplinary collaboration and action do bring to the cities and regions cannot be over-emphasised.

Quintin van Heerden and **Jan van Vuuren**, making use of a simulation-optimisation approach, evaluated the theoretical scope and empirical contribution that evidence-based decision-making plays in supporting integrated local-level urban and climate change adaptation planning. In this article, the authors highlight the policy and implementation failure gaps in achieving the sustainable development goals (SDGs) and the

'n gepaste titel te wees om te fokus op dit wat kan bydra tot ons gedeelde toekoms deur beter begrip en optrede om ons gemeenskaplike uitdagings aan te spreek. Die behoefte om praktisyns en akademici voor te berei, (her) te ontwikkel en (heroriënteer) wat beter voorbereid, in staat gestel en aangespoor is om op te tree teen klimaatsverandering en veerkragtige stede en gemeenskappe, word 'n dwingende oproep vir die beplanningsberoep, en geboude omgewingdissiplines wat belangstel en werk in stede en streke van ons tyd.

Stads- en Streekbeplanningsjoernaal saam met SACPLAN dra 'n spesiale uitgawe van die Tydskrif in 2022 op wat bydra tot verdere debatte en beleidsoptrede ten opsigte van klimaatsverandering, veerkragtige stede en streke, omgewingsgeregtigheid en hulpbronbeskikbaarheid vir beplanning in die twintigste eeu. In hierdie uitgawe is klimaatsveranderinggeregtigheid, die soeke na die stewige toeëiening van volhoubare stede en streke, 'geskik vir doel'-beleid, strategiese gidse en raamwerke, die bevordering van inklusiewe en geïntegreerde menslike nedersettings, goeie klimaatsveranderingwetgewing en institusionele bestuur op alle geografiese skale bespreek. Pogings om 'n prent te skilder wat die 'pyn en aksiepunte' van klimaatsverandering isoleer, word oorgedra. Die bedoeling is nie om 'klaargemaakte' oplossings aan te bied nie, aangesien ons bewus is dat konteks die behoefte aan konteksgedrewe en aangepaste oplossings toelig, in teenstelling met die uitvoer, invoer en afdwing van 'vreemde' oplossings. Sentraal tot die bespreking is die kennis, vermoëns en ontoereikendheid wat samewerkende aksie en beplanning vereis vanaf die aanwending van die intelligensie van dissiplines buite die tradisionele bou-omgewingsdissiplines (bv. ingenieurswese, opmeting, argitektuur, konstruksie, stads- en streekbeplanning, ens.) in die waardetoevoeging wat inheemse kennis en praktyk kan bydra. Die waardetoevoeging en dividend wat inter-, kruis-, multi- en

tsepamisa maikutlo ho se ka kenyang letsoho bokamosong ba rona bo arolelanoang ka kutloisiso e molemo le ho nka khato ho rarolla mathata a rona a tšoanang. Tlhokahalo ea ho lokisa, (bocha) ho nts'etsapele le (ho khutlisetsa morao) litsebi le barutehi, ba itokisitseng ho molemo. Hape khothaletso ea ho nka khato mabapi le phetoho ea maemo a leholimo le litoropo le sechaba se tsitsitseng, e fetoha pitso e matla bakeng sa basebeletsi ba thero ea libaka, tlhokomelo ea tikoloho le meaho, 'moho le ba thahasellang ho sebetsa litoropong le metseng mehleng ea kajeno.

Leselinyana la Town and Regional Planning, mmoho le SACPLAN, li fana ka lenaneo le khethehileng ka 2022, e kenyang letsoho mabapi le lipuisano le ts'ebetso ea maano mabapi le phetoho ea maemo a leholimo, litoropo le mahae a tsitsitseng, toka ea tikoloho, le ho fumaneha ha lisebelisoa bakeng sa meralo nakong ea lilemo tse makholo mashome a mabeli. Tabeng ena, ho tobanoa le ho buisanoa ka toka ea phetoho ea maemo a leholimo, tjantjello ea moshoelella ea ho arola ka tieo litoropo le mahae, leano le 'loketseng morero', litataiso tsa maano le meralo, ntlafatso ea bolulo ba batho bo kenyelelitsoeng le bo kopanetsoeng, molao o motle oa phetoho ea maemo a leholimo le puso e ntle maemong ohle a tikoloho. Ho na le liteko tsa ho penta setšoantšo se khethollang 'litla-morao le litharollo' tsa phetoho ea boemo ba leholimo. Sepheo ha se ho fana ka litharollo tse 'lokisitsoeng' Kahona, ho hlokahala lipuisano tse kenyelelitseng tsebo, bokhoni le bofokoli bo hlokang ts'ebetso e kopanetsoeng le moralo ho tloha ho ngolisa bohlale ba lithupelo ho feta mekhoa e tloaelehileng ea tikoloho e hahiloeng (mohlala, boenjiniere, lipatlisiso, boqapi, kaho, moralo oa toropo le mahaeng, joalo-joalo). Hona ho kenyelletsa boleng ho eketsa hore tsebo ea matsoalloa le litloaelo li ka kenya letsoho. Boleng bo eketsa le ho arola hore tšebelisano-'moho ea libakeng tse fapaneng le liketso tse tlisang litoropo le mahaeng li ke ke tsa totobatsoa ho feta tekano.

new urban agenda (NUA) goals. However, these policy achievements' gaps and failures are not due to the absence of complementary national and local legislative and policy frameworks (which are incidentally over abundant according to the article's findings), but rather due to the absence of a testing mechanism / tool to refine and guide enhanced implementation and operationalization of key policy documents and prescripts. An enhanced simulation-optimisation framework that incorporates an Integrated Land Use and Transport (ILUT) model to test policy interventions is proposed as a mechanism to assist planners in determining the best means to achieve specific targets, climate change targets included. The authors, therefore, argue that plans (at all geographic scales) should be tested in terms of long-term effects, using urban growth simulation models that incorporate climate change variables and scenarios, before being adopted as policy or guidance documents is proposed.

Akeem Ola examines the effects of climate change on the livelihood activities of the urban poor in Ibadan, Nigeria. The study findings revealed that communities use multiple and differentiated context-based climate change solutions such as engaging in diverse livelihood activities beyond agriculture (*e.g.*, supplementing family income through trading to combining farming with employment as a civil service official. Furthermore, **Ola** highlights that climate change has affected communities' livelihoods in terms of reduced outputs and lower productivity, thereby forcing changes in terms of adoption of income diversification patterns and strategies as a fighting mechanism. **Ola** recommends strengthening the physical (*i.e.*, spatial) planning systems to build the city's resilience and adaptive capacity to climate-related hazards and natural disasters.

Mareli Hugo and **Johannes Bhanye** examine classical "green" theories and eco-industrialisation in the age of climate change. An eco-industrial parks (EIPs) spatial growth and development approach has innate potential as a steering tool to

transdissiplinêre samewerking en aksie wel vir die stede en streke bring, kan nie oorbeklemtoon word nie.

Quintin van Heerden en **Jan van Vuuren**, wat van 'n simulasie-optimaliseringsbenadering gebruik maak, het die teoretiese omvang en empiriese bydrae wat bewysgebaseerde besluitneming speel om geïntegreerde plaaslike-vlak stedelike en klimaatsverandering aanpassingsbeplanning te ondersteun, geëvalueer. In hierdie artikel beklemtoon die skrywers die beleid- en implementeringsmislukkings in die bereiking van die doelwitte vir volhoubare ontwikkeling (SDG's) en die nuwe stedelike agenda (NUA). Hierdie beleidsprestasies leemtes en mislukkings is egter nie as gevolg van die afwesigheid van komplementêre nasionale en plaaslike wetgewende en beleidsraamwerke (wat terloops oorvloedig is volgens die artikel se bevindinge), maar eerder as gevolg van die afwesigheid van 'n toetsmeganisme/-instrument om verbeterde implementering en operasionalisering van sleutelbeleidsdokumente en voorskrifte te verfyn en te lei. 'n Verbeterde simulasie-optimeringsraamwerk wat 'n Geïntegreerde Grondgebruik en Vervoer (ILUT)-model insluit om beleidsingrypings te toets, word voorgestel as 'n meganisme om beplanners te help om die beste manier te bepaal om spesifieke teikens te bereik, klimaatsveranderingteikens ingesluit. Die skrywers redeneer dus dat planne (op alle geografiese skale) getoets moet word in terme van langtermyn-effekte, deur gebruik te maak van stedelike groei-simulasiemodelle wat klimaatsveranderingveranderlikes en -scenario's insluit, voordat dit as beleids- of leidingdokumente aangeneem word.

Akeem Ola ondersoek die uitwerking van klimaatsverandering op die lewensbestaanaktiwiteite van die stedelike armes in Ibadan, Nigerië. Die studiebevindinge het aan die lig gebring dat gemeenskappe veelvuldige en gedifferensieerde konteksgebaseerde oplossings

Quintin van Heerden le **Jan van Vuuren**, ka ts'ebeliso mokhoa oa ho etsisa, ba lekola boholo ba khopolo-taba le tlatsetso e matla eo ho etsa liqeto ho ipapisitsoe le bopaki ho ts'ehetsa moralo o kopaneng oa boemo ba lehae le phetoho ea maemo a leholimo. Sehloohong sena, bangoli ba totobatsa likheo tsa leano le ts'ebetsong, le hlōlehang ho finyeletsa manane a nts'etsopele e tsitsitseng (SDGs) le merero e mecha ea litoropo (NUA). Leha ho le joalo, likheo le ho hloleha ha leano lena ha li bakoe ke ho se be teng ha melao le maano a tlatsetso a naha le a lehae (ao ka tšohanyetso a leng mangata ho latela liphuputso tsa sengoloa). Empa a bakoa ke thlokahalo ea mokhoa / sesebelisoa sa tlhahlobo, ntlafatso le tataiso ts'ebetsong e matlafalitsoeng ea litokomane tsa bohlokoa tsa leano. Moralo oa papiso ea ntlafatso o kenyelletsang mohlala o Kopanetsoeng oa Tšebeliso ea Mobu le Lipalangoang (ILUT) bakeng sa mehato ea leano la liteko e hlahisoa e le mokhoa oa ho thusa baetsi ba meralo ho fumana mekhoa e metle ea ho finyella merero e itseng, ho kenyelelitse le ea phetoho ea boemo ba leholimo. Ka hona, bangoli ba pheha khang ea hore pele merero (ka litekanyo tsohle tsa libaka) e amoheloa e le litokomane tsa leano kapa tataiso, e lokela ho lekoa ho latela liphello tsa nako e telele, ho sebelisa mekhoa ea ho etsisa ho hōla ha litoropo e kenyelletsang mefuta-futa ea maemo a leholimo.

Akeem Ola o hlahloba liphello tsa phetoho ea boemo ba leholimo mesebetsing ea boipheliso ea mafutsana a litoropong Ibadan, Nigeria. Liphuputso tsa hae li senotse hore sechaba se sebelisa litharollo tse fapaneng tsa phetoho ea maemo a leholimo tse kang ho etsa mesebetsi e fapaneng ea boipheliso ka ntle ho temo (mohlala, ho tlatselletsa chelate ea lelapa ka khoebo le ho kopanya temo le mosebetsi oa bofisiri ba litšebeletso tsa sechaba. Ho feta moo, **Ola** o totobatsa hore phethoho ea boemo ba leholimo e amme mekhoa ea boipheliso ea sechaba mabapi le liphello tse fokotsehileng le tlhahiso e tlaase, kahoo e qobella liphetoho tabeng ea ho amohela mekhoa le

overcome environmental challenges associated with unsustainable industrial practices. Classical green theories such as the garden city theory, industrial location and regenerative theories have strong links and influence the planning of EIPs. EIPs implementation and legacy is intertwined with a growing evidence base, demonstrating the significant potential of such precincts, mega land uses and projects in unleashing inclusive and sustainable industrial development, as exemplified in developed countries such as Denmark, France, Japan, and the Republic of Korea. The study illustrates that classical green theories remain relevant in inspiring sustainable spatial planning and development approaches to industrialisation (*e.g.*, in terms of implementing smart and EIPs as a spatial design and planning, environmental and industrial operating greenhouse gases emission reduction approach). The authors conclude that understanding the link between the classical green theories and EIPs can assist urban planners and industrialists in designing and implementing functional EIPs that ensure both industrial park management, environmental, social, and economic performance.

Bethuel Ngcamu examines climate change and disaster preparedness issues. The study explores the impact of climate change in KwaZulu-Natal and Eastern Cape provinces of South Africa via the disaster preparedness lens of analysis. The findings corroborate the complex and inter-related combination of causes of disaster in the study areas, which included unplanned urbanisation; ineffective warning systems; inadequate infrastructure, and houses being built on floodplains, wetlands, and coastal areas. Inadequate climate knowledge and communication constraints, involving the stakeholder value chain from the central government to local communities, worsened climate-induced disasters action in vulnerable areas and regions, thereby leaving a trail of severe livelihood, infrastructure and services devastation and disruptions.

vir klimaatsverandering gebruik, soos om betrokke te raak by diverse bestaansaktiwiteite buite landbou, bv. die aanvulling van gesinsinkomste deur handel te dryf om boerdery met indiensneming as ‘n staatsdiensbeampte te kombineer. Verder beklemtoon **Ola** dat klimaatsverandering gemeenskappe se lewensbestaan beïnvloed het in terme van verminderde uitsette en laer produktiwiteit en daardeur veranderinge afgedwing het in terme van die aanvaarding van inkomste-diversifikasiepatrone en -strategieë as ‘n vegmeganisme. **Ola** beveel aan dat die fisiese (d.w.s. ruimtelike) beplanningstelsels versterk word om die stad se veerkragtigheid en aanpassingskapasiteit by klimaatverwante gevare en natuurrampe te bou.

Mareli Hugo en **Johannes Bhanye** ondersoek klassieke “groen” teorieë en eko-industrialisering in die era van klimaatsverandering. ‘n Eko-industriële park (EIP) se ruimtelike groei- en ontwikkelingsbenadering het ingebore potensiaal as ‘n stuurinstrument om omgewingsuitdagings wat verband hou met onvolhoubare nywerheidspraktyke te oorkom. Klassieke groenteorieë, soos die tuinstadteorie, industriële ligging en regeneratiewe teorieë het sterk skakels en beïnvloed die beplanning van eko-industriële parke. Implementering en nalatenskap van EIP’s is verweef met ‘n groeiende bewysebasis wat die beduidende potensiaal van sulke gebiede, megagrondgebruike en projekte demonstreer om inklusiewe en volhoubare industriële ontwikkeling te ontketen, soos geïllustreer in ontwikkelde lande soos Denemarke, Frankryk, Japan en die Republiek van Korea. Die studie illustreer dat klassieke groenteorieë relevant bly in die inspirasie van volhoubare ruimtelike beplanning en ontwikkelingsbenaderings tot industrialisasie, bv. in terme van die implementering van slim en EIP’s as ‘n ruimtelike ontwerp en beplanning, omgewings- en industriële bedryfsbenadering tot vermindering van kweekhuisgasse-vrystelling. Die skrywers kom tot die gevolgtrekking dat die begrip van die verband tussen

maano a ho fapanyetsana chelete. **Ola** o khothalletsa ho matlafatsa tsamaiso ea thero ea libaka molemong oa ho haha matla a metse le ho ikamahanya le tlokotsi tse amanang le phetoho ea maemo a leholimo le likoluoa.

Mareli Hugo le **Johannes Bhanye** ba hlahloba likhopolo tsa khale tsa “botala ba tikoloho” le eco-industrialization mehleng ea phetoho ea boemo ba leholimo. Mokhoa oa ho holisa mahaeng le nts’etsopele ea eco-industrial parks (EIPs) o na le bokhoni ba ho hlola mathata a tikoloho a amanang le mekhoa e sa tsitsang ea indasteri. Likhopolo tsa khale tsa botala ba tikoloho tse kang khopolo ea toropo ea serapa, sebaka sa indasteri le likhopolo tsa tsosoloso li na le maqhama a matla ‘me li susumetsa moralo oa EIPs. Ts’ebetso ea EIPs le bojalefa li hokahane le bopaki bo ntseng bo hola, bo bonts’ang bokhoni bo boholo ba mahaeng, ts’ebeliso ea mobu le merero ea ho hlahisa nts’etsopele ea indasteri e kenyeletsang, joalo ka ha ho bontšitsoe linaheng tse tsoetseng pele joalo ka Denmark, France, Japan le Republic of Korea. Boithuto bona bo bontša hore likhopolo tsa khale tsa botala li lula li le bohlokoa molemong oa ho khothaletsa moralo o tsitsitseng oa sebaka le mekhoa ea nts’etsopele ea indasteri (mohlala, mabapi le ho kenya ts’ebetsong bohlale le li-EIP e le moralo oa sebaka, mokhoa oa ho fokotsa likhase tse futhumatsang mocheso oa tikoloho le indasteri). Bangoli ba etsa qeto ea hore ho utloisisa kamano pakeng tsa likhopolo tsa khale tsa botala ba tikoloho le EIPs ho ka thusa baetsi ba litoropo le bo-raliindasteri ho rala le ho kenya ts’ebetsong li-EIP tse sebetsang ‘me tse netefatsang tsamaiso ea lirapa tsa indasteri, tikoloho, sechaba le moruo.

Bethuel Ngcamu o hlahloba phetoho ea maemo a leholimo le litaba tsa boitokisetso ba likoluoa. Boithuto bona bo lekola phello ea phetoho ea maemo a leholimo liprofinseng tsa KwaZulu-Natal le Kapa Bochabela tsa Afrika Boroa ka mokhoa oa tlhahlobo ea boitokisetso ba likoluoa. Liphuputso li tiisa motsoako o rarahaneng le o amanang le lisosa tsa likoluoa libakeng tsa boithuto, tse

Ngcamu suggests that indigenous knowledge and practices in respect of coping mechanism and reversing impacts of climate change must be worked back into mainstream policy, planning documents and frameworks as a way of building better resilient cities and regions in South Africa and, by extension, in developing countries generally.

Similarly, **Emmanuel Kemwita, Wilbard Kombe, Huba Nguluma, Said Nuhu** and **Iddi Mwanyoka** pose a rhetorical land governance question in respect of land acquisition processes in informal flood risk settlements in Dar es Salaam, Tanzania. The article poses a rhetoric question to land governance by exploring the processes in place that building land seekers undergo to acquire building land in the informal flood risk settlements in Dar es Salaam, despite land-use legislations, frameworks and plans prohibiting such development excesses. The subject addressed by the authors is not unique to Tanzania but prevalent in many developing countries owing to a combination of factors such as rapid urbanisation, spatial and urban design planning deficiencies that fail to cater for housing needs for all urban dwellers in the formal sector. Findings revolve around how urban governance policy, strategic, structured, and tactical planning measures at all geographic scales and from various spheres or levels of government towards informal settlements in flood risk areas are often reactive instead of proactive. The authors recommend that land governance and administration efforts should rethink the land-use planning, implementation, and management model for informal settlements in flood/disaster risk-prone areas from a resilient governance and adaptive solutions framework perspective aimed at curbing and proofing such areas from climate change problems such as flooding, heatwaves, and cold waves as examples.

On the other hand, seeking to connect the Global South knowledge, practices, and experiences to the Global North world views on climate change, resilient cities, and regions, **Sean O'Donoghue, Derek Morgan, Hayley Leck** and **Kathryn Haydvogl** die klassieke groen teorieë en EIP's stadsbeplanners en nyweraars kan help om funksionele eko-industriële parke te ontwerp en te implementeer wat beide nywerheidsparkbestuur, omgewings-, sosiale en ekonomiese prestasie verseker.

Bethuel Ngcamu ondersoek klimaatsverandering en rampgereedheidskwessies. Die studie ondersoek die impak van klimaatsverandering in KwaZulu-Natal en Oos-Kaap provinsies van Suid-Afrika via die rampgereedheidslens van analise. Die bevindinge staaf die komplekse en interverwante kombinasie van oorsake van rampe in die studiegebiede, wat onbeplande verstedeliking ingesluit het; ondoeltreffende waarskuwingstelsels; onvoldoende infrastruktuur; en huise wat op vloedvlaktes, vleilande en kusgebiede gebou word. Onvoldoende klimaatkennis en -kommunikasiebeperkings wat die waardeketting van belanghebbendes van die sentrale regering tot plaaslike gemeenskappe betrek, het klimaatgeïnduseerde rampe-aksie in kwesbare gebiede en streke vererger en daardeur 'n spoor van ernstige lewensbestaan, infrastruktuur- en dienstevernietiging en ontwrigtings agtergelaat. **Ngcamu** stel voor dat inheemse kennis en praktyke ten opsigte van hanteringsmeganisme en omkeer van die impak van klimaatsverandering teruggewerk moet word in hoofstroombeleid, beplanningsdokumente en raamwerke as 'n manier om beter veerkragtige stede en streke in Suid-Afrika te bou en by uitbreiding in ontwikkelende lande in die algemeen.

Eweneens stel **Emmanuel Kemwita, Wilbard Kombe, Huba Nguluma, Said Nuhu** en **Iddi Mwanyoka** 'n retoriese grondbestuursvraag ten opsigte van grondverkrygingsprosesse in informele vloedrisiko-nedersettings in Dar es Salaam, Tanzanië. Die artikel stel 'n retoriese vraag aan grondbestuur deur die prosesse in plek te ondersoek wat bougrondsoekers ondergaan om grond in die informele vloedrisiko-nedersettings in Dar es Salaam te bekom, ten spyte van grondgebruikwetgewing, kenyeletsang ho fallela litoropong ho sa reroang; mekhoa ea temoso e sa sebetseng; meaho e sa lekaneng, le matlo a ntseng a hahuoa libakeng tsa likhohola, mekhoabong le libakeng tse lebōpong la leoatle. Tsebo e sa lekaneng ea boemo ba leholimo le litšitiso tsa likhokahano, tse kenyelletsang ketane ea boleng ba ba amehang ho tloha ho 'muso o moholo ho ea ho sechaba sa lehae, ketso ea likoluoa tse bakiloeng ke boemo ba leholimo e mpefalitse libaka tse tlokotsing, tsa senya mekhoa ea boipheliso 'moho le litšebeletso tsa sechaba. **Ngcamu** o fana ka maikutlo a hore tsebo le litloaelo tsa matsoalloa mabapi le mokhoa oa ho sebetsana le maemo le litlamorao tsa phetoho ea maemo a leholimo li tlameha ho sebelisoa hape ho etsa maano a mantlha, litokomane tsa meralo le merero e le mokhoa oa ho aha litoropo le mahaeng a ntlafetseng naheng Afrika Boroa, le ho ntlafatsa linaha tse futsanehileng ka kakaretso.

Ka mokhoa o ts'oanang, **Emmanuel Kemwita, Wilbard Kombe, Huba Nguluma, Said Nuhu** le **Iddi Mwanyoka** ba botsa potso mabapi le taolo ea mobu le lits'ebetso tsa ho nkuoa ha mobu metseng e sa reroang ebile e le kotsing ea likhohola Dar es Salaam, Tanzania. Sengoliloeng sena se hlahisa potso e hlakileng mabapi le puso ea mobu ka ho hlahloba lits'ebetso tse teng tseo batho ba batlang ho haha litša ba kenang ho tsona ho fumana mobu oa moaho libakeng tse kotsing ea likhohola tse sa reroang Dar es Salaam, leha ho na le melao ea ts'ebeliso ea mobu, meralo le merero e thibelang tsoelo-pele e joalo. Taba eo bangoli ba buang ka eona ha e felle Tanzania feela empa e atile linaheng tse ngata tse ntseng li tsoela pele ka lebaka la lintho tse ngata tse kang ho ata ha litoropo ka potlako, bofokoli ba moralo oa meralo ea mahaeng le litoropo tse hlolehang ho fana ka litlhoko tsa bolulo bakeng sa batho bohle ba lulang litoropong lefapheng la semmuso. Liphuputso li mabapi le hore na leano la puso ea litoropo, maano, tlhophiso, le mekhoa ea moralo ea mahlale maemong ohle a mahaeng le ho tloha mafapheng a fapaneng kapa methating e fapaneng ea mmuso ho ea metseng

critically reflect on lessons from the Global South on the process of developing the Durban climate change strategy and implementation plan. The article acknowledges that urban and rural local municipalities and/or governments throughout the world are continuously and increasingly developing climate change adaptation plans. However, the authors highlight that inadequate data and information on experiences and practices for African cities in respect of climate change adaptation still exist especially with reference to making the practical transition from strategy development to implementation of climate change action. This article, therefore, assists in contributing towards expanding the critical insights and perspectives into the challenges experienced, and the solutions found in the process of developing and implementing the Durban Climate Change Strategy (DCCS) in the City of Durban, South Africa.

Michael Odunsi and **Margaret Onanuga** examines the relationship between households' flood resilience and predictors of their resilience in Nigeria with a view to improving their flood risk management capacities. Issues regarding how households bounce back or recover after being negatively impacted by flood disaster were examined in this study. This study provides a model that is useful in predicting households' resilience in future occurrences of flood disaster. The study showed that the highest predictor of households' resilience to flood disaster is the socioeconomic factor (issues such as education, occupation, and income). The implication is that low socioeconomic status indicates high level of poverty that worsen households' flood resilience. This suggests that the poor do not have the needed economic resources and social nets to prevent, adapt to and/or transform from the impact of flood disaster. Hence, the need to formulate policies that would address social and economic welfare of households.

Lastly, **Samson Olanrewaju, Martin Gasu, Gideon Gasu** and **Samuel Yakubu** explore the international and national policy responses to combating global warming

raamwerke en planne wat sulke ontwikkelingsoorskots verbied. Die onderwerp wat deur die skrywers aangespreek word, is nie uniek aan Tanzanië nie, maar algemeen in baie ontwikkelende lande as gevolg van 'n kombinasie van faktore soos vinnige verstedeliking, tekortkominge in ruimtelike en stedelike ontwerpbeplanning wat nie in behuisingsbehoeftes vir alle stedelike inwoners in die formele sektor voorsien nie. Bevindinge wentel om hoe stedelike bestuursbeleid, strategiese, gestruktureerde en taktiese beplanningsmaatreëls op alle geografiese skale en vanaf verskeie sfere of regeringsvlakke na informele nedersettings in vloedrisikogebiede dikwels reaktief is in plaas daarvan om proaktief te wees. Die skrywers beveel aan dat grondbestuur- en administrasiepogings die grondgebruikbeplanning, -implementering en -bestuursmodel vir informele nedersettings in vloed-/ramprisiko-gevoelige gebiede moet heroorweeg vanuit 'n veerkragtige bestuur en aanpasbare oplossingsraamwerkperspektief wat daarop gemik is om sulke gebiede te beperk van klimaatsveranderingsprobleme soos oorstromings, hittegolwe en koue.

Aan die ander kant, in 'n poging om die globale suidekennis, praktyke en ervarings te verbind met die globale noorde se wêreldbeskouings oor klimaatsverandering, veerkragtige stede en streke, besin **Sean O'Donoghue**, **Derek Morgan**, **Hayley Leck** en **Kathryn Haydvogl** krities oor lesse van die globale suide oor die proses om die Durbanse klimaatsveranderingstrategie en implementeringsplan te ontwikkel. Die artikel erken dat stedelike en landelike plaaslike munisipaliteite en/of regerings regoor die wêreld voortdurend en toenemend klimaatsverandering-aanpassingsplanne ontwikkel. Die skrywers beklemtoon egter dat onvoldoende data en inligting oor ervarings en praktyke vir Afrika-stede ten opsigte van klimaatsveranderingaanpassing steeds bestaan, veral met verwysing na die praktiese oorgang van strategie-ontwikkeling na implementering van

e sa reroang, e kotsing ea likhohola hangata li ts'oarella ho fapana le ho nka bohato. Bangoli ba khothaletsa hore boiteko ba puso le tsamaiso ea mobu bo lokela ho nahana bocha moralo oa ts'ebeliso ea mobu, le mokhoa oa tsamaiso bakeng sa metse e sa reroang e libakeng tse kotsing ea likhohola / likoluoa ho latela taolo e tsitsitseng le moralo oa tharollo e ikemiselitseng ho thibela mathata a phetoho ea maemo a leholimo a kang likhohola, maqhubu a mocheso, le maqhubu a batang e le mehlala.

Ka lehlakoreng le leng, ho batla ho hokahanya tsebo ea Global South, litloaelo, le liphihlelo le maikutlo a lefats'e la Global North mabapi le phetoho ea maemo a leholimo, litoropo tse tsitsitseng, le mahaeng, **Sean O'Donoghue, Derek Morgan, Hayley Leck** le **Kathryn Haydvogl** ba nahanisisa ka lithuto. ho tsoa ho Global South mabapi le ts'ebetso ea nts'etsapele ea leano la phetoho ea maemo a leholimo ea Durban le moralo o ts'ebetsong. Sengoliloeng se lumela hore bomasepala ba litoropo le mahaeng le/kapa mebuso lefats'eng ka bophara e ntsents'etsapele merero ea ho ikamahanya le maemo a leholimo. Leha ho le joalo, bangoli ba totobatsa hore boitsebiso bo sa lekaneng le liphihlelo le mekhoa ea metse ea Afrika mabapi le phetoho ea maemo a leholimo e ntse e le teng haholo-holo mabapi le ho etsa phetoho e sebetsang ho tloha ho nts'etsopele ea leano ho ea ts'ebetsong ea ketso ea phetoho ea boemo ba leholimo. Ka hona, sengoloa sena se thusa ka ho kenya letsoho ho atoloseng maikutlo a bohlokoa mabapi le liqholotso tse fihletsoeng, le litharollo tse fumanoang tšebetsong ea ho theha le ho kenya tšebetsong Leano la Phetoho ea Maemo a Leholimo la Durban (DCCS) Toropong ea Durban, Afrika Boroa.

Michael Odunsi le **Margaret Onanuga** ba hlahloba kamano e teng lipakeng tsa malapa a mamellang likhohola Nigeria ka sepheo sa ho ntlafatsa bokhoni ba bona ba taolo ea likotsi tsa likhohola. Thuto ena e hlahlobile mathata a mabapi le hore na malapa a khutlela morao kapa a hlaphoheloa joang ka mor'a ho angoa hampe ke likoluoa tsa

and climate change, making use of Nigeria as a unit of analysis. Achieving a zero-carbon environment and sustainable societies in Nigeria and, by extension, Africa and the world at large, requires that policies directed at attaining zero carbon growth and development interventions and innovations be optimized. The debates on carbon emission reduction targets and specific reduction plans are discussed in the context of various international greenhouse gas emissions agreements and specific commitments. The authors suggest that a green movement approach, in which carbon sinks, oil gas flaring and global abatement measures, green transport and energy innovations, smart agriculture, biodiversity conservation programmes and alternative development including community awareness on climate change, need to be ramped up as ways of fighting climate change and impacts.

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klimaatveranderingsaksie. Hierdie artikel help dus om by te dra tot die uitbreiding van die kritiese insigte en perspektiewe in die uitdagings wat ervaar word, en die oplossings wat gevind word in die proses van ontwikkeling en implementering van die Durbanse klimaatsveranderingstrategie (DCCS) in die stad Durban, Suid-Afrika.

Michael Odunsi en **Margaret Onanuga** ondersoek die verband tussen huishoudings se vloedweerbaarheid en voorspellers van hul veerkragtigheid in Nigerië met die oog daarop om hul vloedrisikobestuurvermoëns te verbeter. Kwessies oor hoe huishoudings terugbons of herstel nadat hulle negatief deur vloedramp geraak is, is in hierdie studie ondersoek. Hierdie studie verskaf ‘n model wat nuttig is om huishoudings se veerkragtigheid in toekomstige voorvalle van vloedrampe te voorspel. Die studie het getoon dat die hoogste voorspeller van huishoudings se veerkragtigheid teen vloedrampe die sosio-ekonomiese faktor is (kwessies soos onderwys, beroep en inkomste). Die implikasie is dat lae sosio-ekonomiese status ‘n hoë vlak van armoede aandui wat huishoudings se vloedbestandheid vererger. Dit dui daarop dat die armes nie die nodige ekonomiese hulpbronne en sosiale netwerke het om die impak van vloedrampe te voorkom, aan te pas by en/of te transformeer nie. Daarom is dit nodig om beleid te formuleer wat sosiale en ekonomiese welsyn van huishoudings sal aanspreek.

Laastens ondersoek **Samson Olanrewaju**, **Martin Gasu**, **Gideon Gasu** en **Samuel Yakubu** die internasionale en nasionale beleidsreaksies vir die bekamping van aardverwarming en klimaatsverandering deur Nigerië as ‘n ontledingseenheid te gebruik. Om ‘n nulkoolstofomgewing en volhoubare samelewings in Nigerië en by uitbreiding Afrika en die wêreld in die algemeen te bereik, vereis dat beleide wat gerig is op die bereiking van geen koolstofgroei en ontwikkelingsintervensies en -innovasies, geoptimaliseer word. Die debatte oor teikens vir die vermindering van

likhohola. Patlisiso ena e fana ka mohlala o ka thusang ho bolela esale pele hore na malapa a tla khona ho mamella mathata a likhohola nakong e tlang. Boithuto bo bontšitse hore selelekela se phahameng ka ho fetisisa sa ho mamella ha malapa likoluoeng tsa likhohola ke moruo (litaba tse kang thuto, mosebetsi le chelete). Se boleloang ke hore maemo a tlase a moruo oa kahisano a bontša boemo bo phahameng ba bofuma bo mpefatsang matla a ho mamella likhohola. Sena se fana ka maikutlo a hore mafutsana ha a na lisebelisoa tse hlokahalang tsa moruo le marang-rang a sechaba ho thibela, ho ikamahanya kapa ho fetola phello ea koluoa ea likhohola. Kahoo, hon a le tlhokahalo ea ho theha maano a tla sebetsana le boiketlo ba malapa le moruo.

Qetellong, **Samson Olanrewaju, Martin Gasu, Gideon Gasu** le **Samuel Yakubu** ba hlahloba likarabo tsa maano a machaba le a naha ho loants’a ho futhumala ha lefatše le phetoho ea maemo a leholimo, ho sebelisa Nigeria e le karolo ea tlhahlobo. Molemong oa ho fihlela tikoloho ea khabone ea zero, mekhatlo ea moshoelella naheng ea Nigeria, kontinente ea Afrika le lefats’e ka kakaretso li hloka ntlafatso ea maano a lebisitsoeng ho fokotsa kholo ea khabone, mehato ea nts’etsopele le mekhoa e mecha ea tsoelopele. Lipuisano tse mabapi le lipehelo tsa phokotso ea khabone le meralo e khethehileng ea phokotso li tšohloa maemong a litumellano tse fapaneng tsa machaba tsa tlhahiso ea khase e futhumatsang lefatše le boitlamo bo khethehileng. Bangoli ba fana ka maikutlo a hore mokhoa oa motsamao o hlokomelang tikoloho, oo ho oona ts’ebeliso ea k’habone, ho chesa khase ea oli le mehato ea ho fokotsa lefats’e, lipalangoang le mekhoa e mecha ea ho fehla motlakase, temo, mananeo a paballo ea mefuta-futa le nts’etsopele e ‘ngoe ho kenyelletsa tlhokomeliso ea sechaba ka phetoho ea maemo a leholimo, e hloka ho phahamisoa joalo ka mekhoa ea ho loants’a phetoho ea maemo a leholimo le litlamorao.

koolstofvrystellings en spesifieke verminderingsplanne word bespreek in die konteks van verskeie internasionale ooreenkomste oor kweekhuisgasvrystellings en spesifieke verbintenisse. Die skrywers stel voor dat ‘n groenbewegingsbenadering waarin koolstofsinks, oliegas-opvlam en globale verlagingsmaatreëls, groen vervoer en energie-innovasies, slim landbou, biodiversiteitbewaringsprogramme en alternatiewe ontwikkeling, insluitend gemeenskapsbewustheid oor klimaatsverandering, opgeskerp moet word as maniere om bekamping van klimaatsverandering en impak.

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