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Title	Peri-urban water, sanitation, hygiene and waste management in Lusaka, Zambia : Participatory action research for assessment and intervention [an abstract of dissertation and a summary of dissertation review]
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Degree Grantor	北海道大学
Degree Name	博士(保健科学)
Dissertation Number	甲第14224号
Issue Date	2020-09-25
Doc URL	https://hdl.handle.net/2115/79412
Rights(URL)	https://creativecommons.org/licenses/by/4.0/
Type	doctoral thesis
File Information	NYAMBE_SIKOPO_PAULINE_abstract.pdf, 論文内容の要旨



学位論文内容の要旨

博士の専攻分野の名称：博士（保健科学）

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学位論文題名

Peri-urban water, sanitation, hygiene and waste management in Lusaka, Zambia: Participatory action research for assessment and intervention

(ザンビア共和国ルサカにおける飲用水、サニテーション、衛生、廃棄物処理：参加型アクションリサーチによる評価と介入)

The link between diarrheal disease and water, sanitation and hygiene (WASH) has placed access to improved WASH on the global priority list for decades. Whilst a problem categorized most prominently in the rural areas of low and middle income economies, rapid city migration and population growth have increased disease burden in the peri-urban where high density, inadequate structures and poor development hinder intervention. As diarrheal diseases are easily spread through common contamination points (higher risk in high density areas), effective intervention must run through from the individual to the broader community.

As a case in point, WASH factors are responsible for 11.4% of all deaths in Zambia, and yet despite annual waterborne disease outbreaks in the nation's peri-urban, few studies have been conducted to analyze and conceptualize peri-urban WASH for the creation of approaches suitable for the peri-urban. Through participatory action research, our study thus, worked with resident children and youth through the Dziko Langa Club, towards community-based assessment and intervention in peri-urban WASH, and subsequently, waste management.

Primary research sites were 2 peri-urban settlements in Lusaka City, Zambia (home to participating children and youth). A mixed method approach was used to (a) assess and conceptualize peri-urban WASH via ecological theory (photovoice and thematic analysis of 24 photographs and narratives from Dziko Langa youth); (b) identify specific factors influencing peri-urban WASH and diarrhea prevalence (logistical regression analysis of 205

household sociodemographic and WASH assessments); and (c) identify enablers and barriers to community intervention (thematic analysis of 11 community-based WASH&W management interventions conducted by the Dziko Langa Club).

Via ecological theory, thematic analysis defined peri-urban WASH as: (i) Poor practice (Intrapersonal, Interpersonal level); (ii) A health hazard (Community level); (iii) Substandard and unregulated (Public Policy, Organizational); and (iv) Offering hope for change (Intrapersonal, Interpersonal). Linked to these themes, recommendations were aimed at policy development for capacity building, health promotion with increased weight towards community engagement and participation; infrastructure development and maintenance; and the implementation and activation of standards and regulations.

In line with these findings, multivariate stepwise logistic regression analysis of specific factors impacting peri-urban WASH highlighted the need for a holistic, simultaneous approach to WASH, and a separate WASH ladder for peri-urban (high-density) areas, bearing in mind their unique nature (e.g., limited space, communal facilities). Prioritizing the peri-urban label promotes plans towards inclusive WASH (i.e., communal finance, WASH education to help with choice and proper facility use to maximize benefit).

Finally, Dziko Langa Club interventions revealed a need for more collaborative, equal participation of local residents in WASH&W interventions; linking of policy makers (government) and peri-urban residents (intra/interpersonal) through community engagement (community). Additionally, systems supporting resident participation must be created and/or strengthened to reduce government burden and inversely, increase residents' participation in local WASH through empowerment, intervention and ownership of peri-urban WASH systems (development of socially acceptable value chains and services). Linked to the Community Health Model, key findings from overall results and discussion were utilized to create a new approach suitable for community-based peri-urban WASH&W management intervention running throughout the peri-urban ecological model.