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CONFERENCE**



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**When metadata management
meets UN SDGs : highlighting
the role of the University of
Pretoria libraries**



SUSTAINABLE DEVELOPMENT GOALS



Outline

- **Introduction**
- **SDGs and Universities**
- **The role of libraries in contributing to the SDGs**
- **Metadata**
- **Case study**
- **Benefits**
- **Conclusion**



INTRODUCTION



What is metadata management?

Metadata refers to the structured data that provides information about other data, helping to organise, describe, and facilitate the discovery of information resources (Liu, Fu and Liu, 2023).

Metadata management is the discipline of managing the metadata about data. It gives meaning to and describes the information assets in your institution. Metadata unlocks the value of your data by improving that data's usability and findability. Metadata provides the context required to understand and govern your systems, your data, and your institution. By using metadata management, it is easier to find and use data and provide the critical data context your institution requires (Kusumasari and Fauzi, 2021)



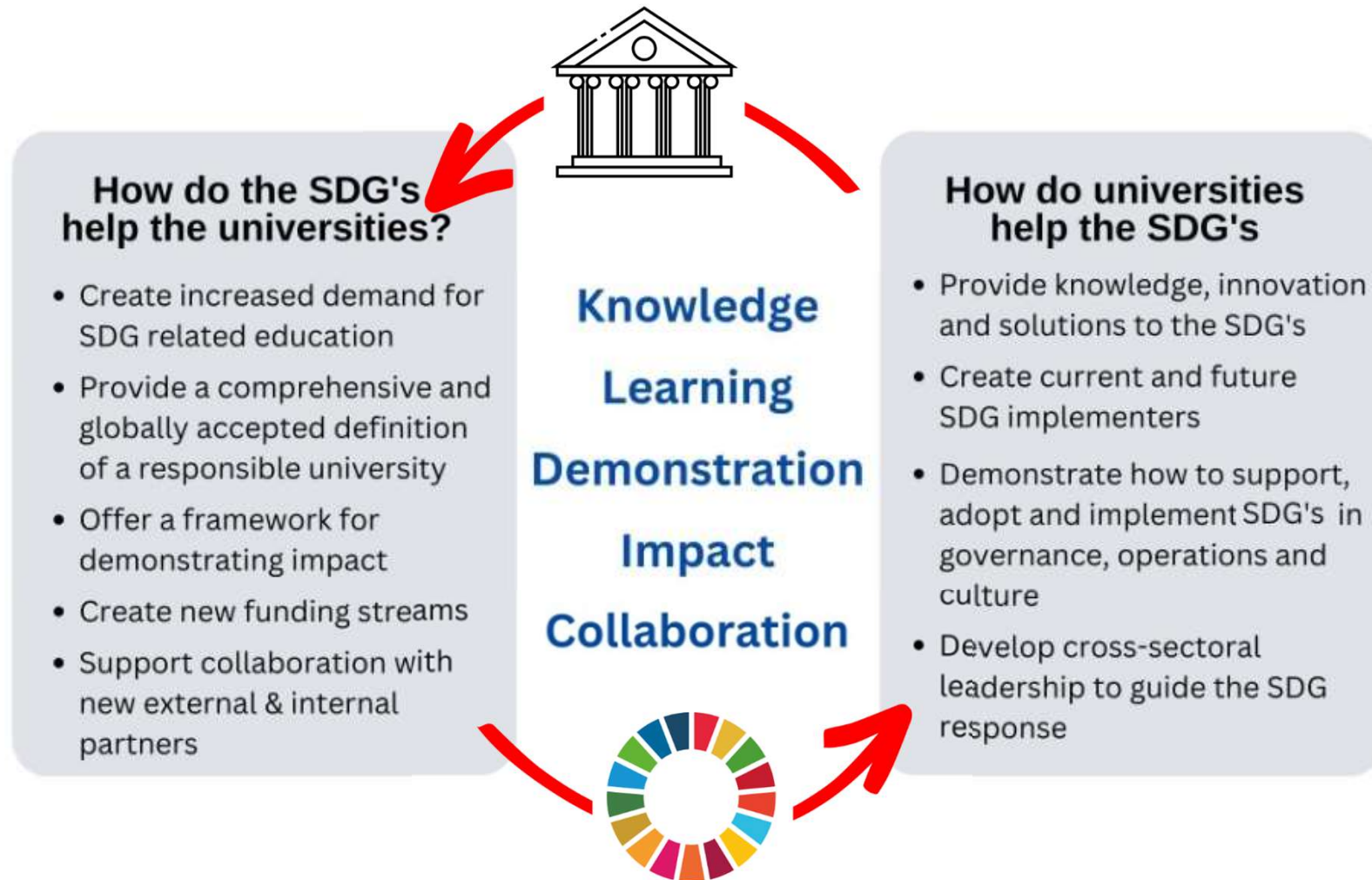
Importance of Metadata

What is the relevance of metadata management in the context of the UN Sustainable Development Goals (SDGs)?

- Enhance discoverability and visibility
- Improved data consistency
- Improve measurement of SDG contributions
- Facilitate reporting and accountability
- Support the identification of gaps and research opportunities
- Quicker access to insights

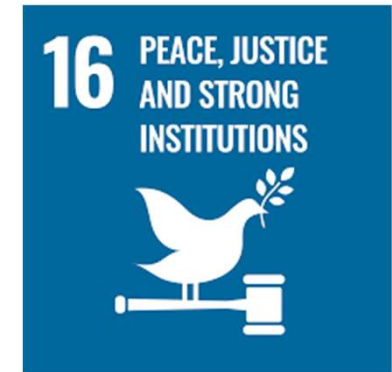


SDGs and universities



The role of libraries in contributing to the SDGs

- Information Provision
- Research Support
- Education and Awareness
- Open Access and Knowledge Sharing
- Monitoring and Evaluation
- Collaboration and Partnerships
- Local Engagement



Case Study: University of Pretoria Libraries

Project Phases

➤ Phase 1: Pilot Study

- Faculty of Veterinary Science
- Jotello F Soga Library
 - ❖ Methodology
- Cataloguer initiated a project to develop metadata elements
- Research outputs (theses and dissertations, and research articles, faculty activities) in the institutional repository (UPSpace).
- Subject guide developed



Case Study: University of Pretoria Libraries

Project Phases (Cont.)

- **Phase 2: Expansion to all UP faculties**
 - Collaboration between:
 - Cataloguers
 - Open Scholarship
 - IT support
 - Additional metadata to tag all UP research to specific SDGs



Case Study: University of Pretoria Libraries

Project Phases (Cont.)

➤ Phase 3: Subject guides

- Information specialist
- Adapt and expand the Subject guide:
 - Overview of UP's total research output
 - All faculties included
- Build-in drop-down menus to guide self- submission of articles and documents (UPSpace)



Motivation for the project

- Sustainability-related reporting in higher education is an emerging space –
 - rankings and funding
- Current and future societal challenges
- Information resources and databases – link to SDGs
 - Examples:
 - Elsevier (Scopus)
 - Sustainable Development Goals Online collection from Taylor & Francis
 - OCLC Report ("Libraries Model Sustainability": The Results of an OCLC Survey on Library Contributions to the Sustainable Development Goals)
- University of Pretoria initiatives:
 - 2020 SDG Progress Report, Prof Kupe
 - South African SDG Hub
 - machine-learning-based classification tool



Motivation for the project (cont.)

- Resources:
 - Skills and knowledge (metadata)
 - Access to information and resources (e.g., catalogue and collections)
 - Institutional repositories (UPSpace)
 - Subject guides



Overview of the project

Update metadata on the institutional repository (UPSpace)

- Tagging of items according to SDGs – Overall (e.g., SDG-05: Gender equality) and on faculty level (e.g., Law theses SDG-05)
 - Articles
 - Theses
 - Activities
- Update keywords to strengthen alignment to SDGs
 - Scopus keywords
 - Other lists for SDG mapping (Australian universities)
- Work retrospectively from 2015+

Publish the links to the items on a central platform

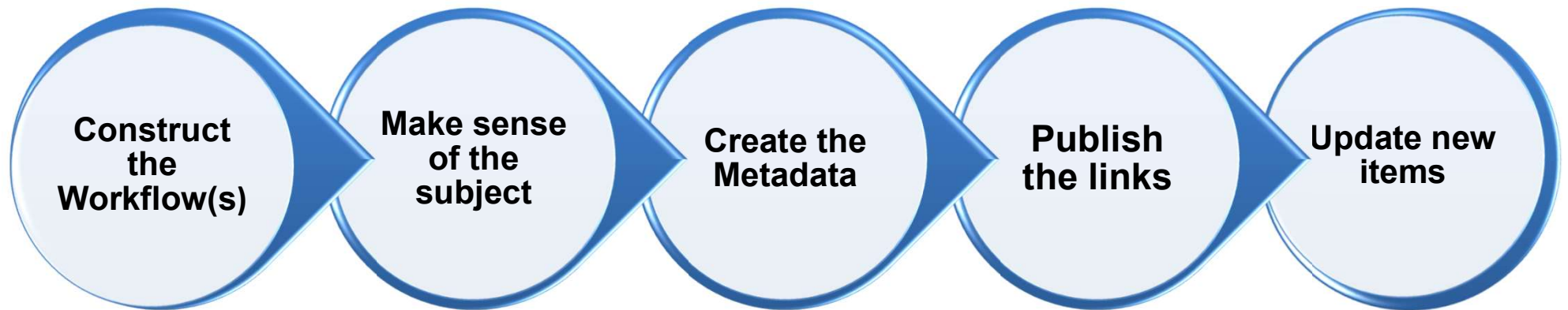
- Subject guide (website) for SDGs:
 1. Homepage: Introduction to SDGs; general information; links to resources (e.g., UN SDG pages, eBooks, other)
 2. Page focusing on UP research: indicating how research output aligns and contributes to each SDG
 3. Faculty pages (separate page for each faculty), with faculty's articles, theses and activities linked to each SDG; as well as faculty specific SDG information

Publish the link to the SDG website on a prominent place

- Ensure easy retrieval, access and use, to:
 - Educate and inform
 - Monitor and indicate impact
 - Identify gaps and opportunities for new projects



Process followed





UPSpace Institutional Repository

Department of Library Services



- UPSpace Home
- Self-Submissions
- Policies
- Contact Us
- UPSpace Workspace

Welcome to the Institutional Repository of the University of Pretoria, an open access electronic archive collecting, preserving and distributing digital materials created, owned and hosted by the University of Pretoria.

Faculty Research Collections



UP Research Output Collections

- ETDs
- Research Articles

Education 2762	Engineering, Built Environment & IT 14155
Economic & Management Sciences 4262	Gordon Institute of Business Science 2513
Health Sciences 6239	Humanities 5854
Law 3324	Natural & Agricultural Sciences 11881
Theology 4488	Veterinary Science 4480

Archival & Special Collections



Search UPSpace

Browse

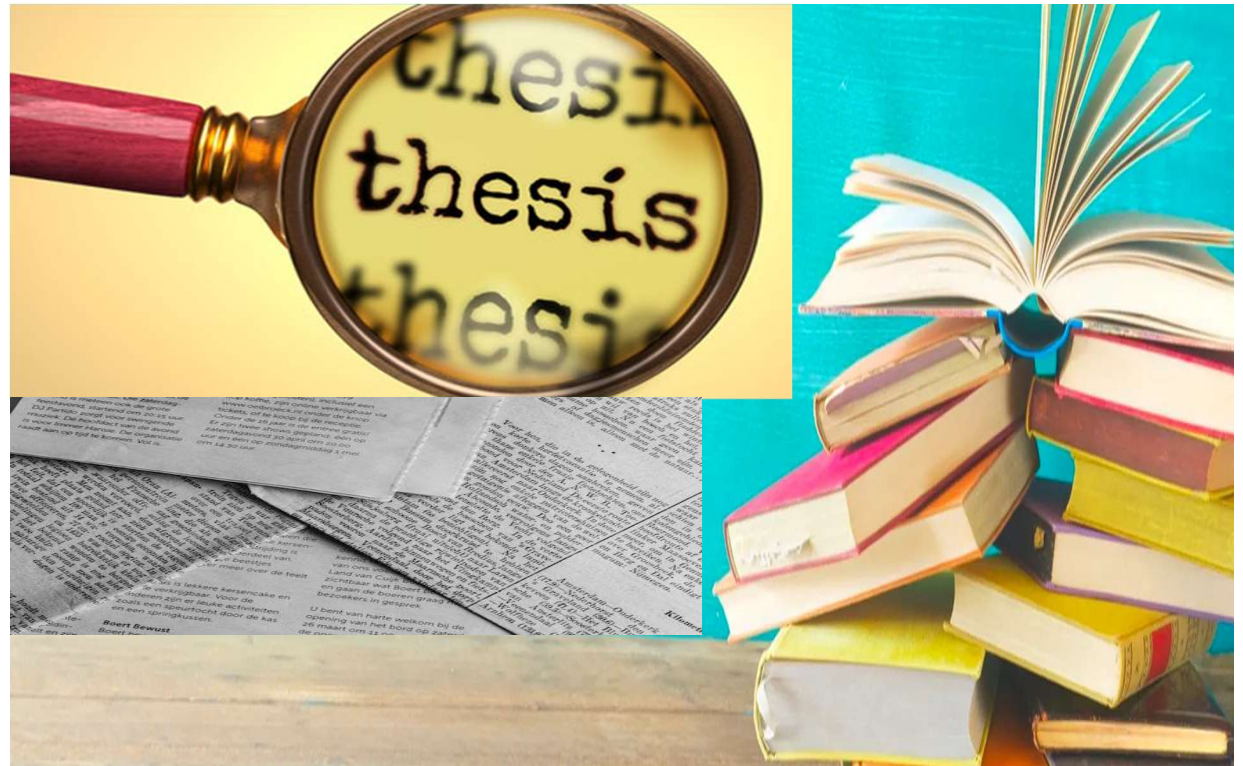
All of UPSpace

- Communities & Collections
- Issue Date
- Authors
- Titles
- Subjects



Construct workflows

- Identify content (collections)
 - Collections:
 - Articles
 - Theses
 - Activities
- Excel lists
 - To manage the workflow



Faculty research collections

Veterinary Science

Browse by

Issue Date Authors Titles Subjects Supervisor UP Author UP Postgraduate Type

Search within this community and its collections: **Go**

Sub-communities within this community

- African Veterinary Information Portal **403**
- Anatomy and Physiology **311**
- Biomedical Research Centre **4**
- Centre for Veterinary Wildlife Studies **58**
- Companion Animal Clinical Studies **463**
- Department of Library Services Collections **164**
- Equine Research Centre **51**
- Events (Faculty of Veterinary Science) **1**
- Hans Hoheisen Wildlife Research Station **6**
- History of the Faculty of Veterinary Science **565**
- Onderstepoort Skills Laboratory **26**
- Paraclinical Sciences **843**
- Production Animal Studies **639**
- Researchers (Veterinary Science) **0**
- Veterinary Grey Literature **1**
- Veterinary Tropical Diseases **1174**
- Veterinary Wildlife Unit **1**

Search UPSpace

Go

- Search UPSpace
 This Community

Browse

All of UPSpace

Communities & Collections
Issue Date
Authors
Titles
Subjects
Supervisor
UP Author
UP Postgraduate
Type

This Community

Issue Date
Authors
Titles
Subjects
Supervisor
UP Author
UP Postgraduate
Type

Making sense of the content and subject area

General and subject specific

- Review relevant information
 - Wikipedia
 - United Nations Department of Economic and Social Affairs
 - Literature related to University's role in SDGs
 - Animal health – related to SDGs (e.g., FAO)
 - Other
- Develop keywords

 **Subject guide**

Veterinary Science SDG Subject guide Home (1)

Veterinary Science: Sustainable Development Goals: Home

This Library guide is to provide a knowledge portal for veterinary science researchers and students when doing research on SDGs by providing links to appropriate SDG information resources.

[Home](#)[Learn More About the SDG's](#)[SDG-related Veterinary Science Research at UP](#)

About the UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs), also known as the Global Goals, are a collection of 17 goals designed to provide a shared blueprint for peace and prosperity for people and the planet, now and into the future.

The SDGs were set up in 2015 by the United Nations General Assembly and are intended to be achieved by the year 2030. The 17 SDGs are an urgent call for action by developed and developing countries. Countries in Africa such as Ethiopia, Angola and South Africa worked with UN Country Teams and the United Nations Development Programme to provide support to create awareness about SDGs among many sectors like government officers, private sector workers, MPs and the civil society.

Everyone can contribute and the veterinary profession can also make sure the Global Goals are met. The veterinary profession should identify areas for which it has responsibility and where animals play an important role in the context of sustainable development. For example in SDG 3, owning a pet was mentioned as being associated with improved physical and psychological health of the owner. A better future is possible if we acknowledge that animals matter and that animal welfare is an important element of sustainable development. Adherence to animal welfare principles will lead to positive impacts for poverty eradication, food security, public health, climate change and biodiversity.

With this Libguide you can read more about the goals, find organizations to support and information to share. Our main aim with the Libguide is to highlight the Faculty of Veterinary Science contributions to the 17 Sustainable Development Goals through their research and activities.

(Sources: [Wikipedia](#) and [United Nations Department of Economic and Social Affairs](#))



University of Pretoria SDG News

- [UP releases first SDG progress report](#)
UP's SDG report focuses on the period 1 January 2020 to 31 December 2020, and looks at how the University's operational activities and core functions of research, education and engagement are working towards achieving the UN SDG goals.
- [South African SDG Hub](#)

Animal Health and the SDGs

- [Veterinarians' Contribution to the UN Sustainable Development Goals \(SDG\) "Reflection paper"](#)
- [Animal Welfare and the United Nations Sustainable Development Goals](#)
- [The Veterinary Sustainability Goals](#)
- [Sustainable Development Goals and livestock systems](#)

Veterinary Science SDG Subject guide: Learn More about the SDGs (2)

Veterinary Science: Sustainable Development Goals: Learn More About the SDG's

This Library guide is to provide a knowledge portal for veterinary science researchers and students when doing research on SDGs by providing links to appropriate SDG information resources.

[Home](#)
[Learn More About the SDG's](#)
[SDG-related Veterinary Science Research at UP](#)

Resources About the SDGs

Below are selected courses, tools and resources related to the SDGs.



Online SDG Courses

- [The SDG Academy](#)
The SDG Academy is the Sustainable Development Solutions Network's flagship education initiative. The Network brings together the world's experts to create and deliver educational content on critical issues for the future of people and planet.
- [Massachusetts Institute of](#)

Print Books in the Catalogue



[Contested Ecologies](#) by Lesley Green
(Editor) ⓘ
ISBN: 9780708924285
Publication Date: 2013-09-15

Electronic Books in the Catalogue

Click [here](#) for a list of electronic books in the catalogue about the Sustainable Development Goals. (For UP Library staff and students only)

Open Education Resources and SDG's

- [Sustainable Development Goals OER's \(OpenEd\)](#)

Keywords

1. No Poverty	2. Zero Hunger
Economic reliance: <ul style="list-style-type: none"> Animals for income Working animals Wildlife crimes <ul style="list-style-type: none"> Poaching 	Chronic hunger <ul style="list-style-type: none"> Food security Animal resources inefficient Food forests
3. Good Health and Well-Being	4. Quality Education
One Health Anti-microbial resistance (AMR) Factory farms disease breeding grounds Animal experimentation Pet assisted therapy	Humane education <ul style="list-style-type: none"> Compassion, respect, proper care for animals Animal cruelty Veterinary professionals welfare training
5. Gender Equality	6. Clean Water and Sanitation
Women reliant on animals for livelihood <ul style="list-style-type: none"> Livestock keepers Women as veterinarians Domestic violence/animal abuse linked Women as animal protectors	Water footprint of animals <ul style="list-style-type: none"> Beef requires more water to produce than vegetables Livestock waste pollution Pollution of waterways <ul style="list-style-type: none"> Pharmaceuticals and illegal drugs in rivers
7. Affordable and Clean Energy	8. Decent Work and Economic Growth
Energy production methods <ul style="list-style-type: none"> Harmful to local ecosystems Wildlife casualties Use of working animals <ul style="list-style-type: none"> High standards of animal welfare Reduce mortality and increase work output 	Reliant on animals for livelihoods Wildlife tourism <ul style="list-style-type: none"> Major industry Wildlife watching tours Consumptive tourism <ul style="list-style-type: none"> Hunting and fishing
9. Industry, Innovation and Infrastructure	10. Reduced Inequalities
Replacing animal research Alternative protein industry (Plant-based)	Wildlife crime is driven by economic inequalities High-risk jobs in the meat industry

Keywords

<p>Reduce the impact of infrastructure on wildlife, animals and habitat</p> <ul style="list-style-type: none"> • Avoid wilderness areas • Over- and underpasses for animals reduces roadkill 	<p>Harm of animals linked to histories of oppression</p> <ul style="list-style-type: none"> • Veldfires • Extermination of animals due to traditional beliefs
11. Sustainable Cities and Communities	12. Responsible Consumption and Production
<p>Spay/Neuter and vaccination programs</p> <ul style="list-style-type: none"> • Control populations • Control the spread of zoonotic diseases <p>Reducing violence toward animals</p> <ul style="list-style-type: none"> • Safer communities • Animal cruelty linked to abuse of humans 	<p>Increase in global food production</p> <p>Alternatives to animal agriculture</p> <p>Plant agriculture negative impact on animals</p> <p>Land to support livestock must be returned to nature</p>
13. Climate Action	14. Life Below Water
<p>Animal production emissions</p> <p>Biodiversity impact</p> <ul style="list-style-type: none"> • Species extinction • Animal migration – the risk of spread of zoonotic diseases • Ocean acidification destroying sea life <p>Domestic and wild animals at risk from increased climate-related disasters</p> <ul style="list-style-type: none"> • Droughts • Severe rain storms 	<p>Overfishing</p> <p>Aquaculture</p>
15. Life On Land	16. Peace, Justice and Strong Institutions
<p>Ecosystems not human dominated</p> <p>Species extinction</p>	<p>Wildlife crime largest global trade</p>
17. Partnerships for the Goals	
<p>Animal welfare and conservation recognized in international policy</p> <p>NGO's</p> <p>Private industry behind ecotourism and animal-friendly advances</p>	

Example:

- Keywords identified to assist with the tagging of SDG-3:
 - Animal health
 - Pets
 - Human-animal relationship
 - One Health
 - Zoonoses
 - Antimicrobial resistance
 - Animal welfare

SDG Goal 3: Good Health and Well-Being



Ensure healthy lives and promote well-being for all at all ages. Healthier animals mean healthier people. Food sourced from animals are important to nutrition and health but can also be a threat to human health. Some animal diseases are zoonotic which can infect humans. The livestock sector is also a major contributor to global Antimicrobial Resistance (AMR) – a rapidly emerging threat to human health. The One Health approach should be made a priority to attain optimal health for people, animals and the environment. Animal welfare also helps support long-term human health, which is integral to the physical and psychological health of communities



Metadata creation and tagging

- Tagging of open access **articles, theses and news articles** (where available) – from 2015 (when SDG initiative started)
- Each item is tagged according to the SDG description and keywords extract from the description (Scopus list as well as other relevant lists)
- Consistency in terminology is important
- Dublin Core field: dc.subject.other for SDG alignment (general as well as on faculty basis)
- Add Scopus SDG keyword(s)

	matched vaccine candidate within a short space of time and holds enormous potential for the poultry industry.	
dc.description.availability	Unrestricted	
dc.description.degree	PhD	
dc.description.department	Production Animal Studies	
dc.identifier.citation	Smith, T 2020, Development and efficacy testing of plant-produced virus-like particle vaccines against H6 avian influenza virus in chickens, PhD Thesis, University of Pretoria, Pretoria, viewed yymmdd < http://hdl.handle.net/2263/76794 >	
dc.identifier.other	A2020	
dc.identifier.uri	http://hdl.handle.net/2263/76794	
dc.language.iso	en	
dc.publisher	University of Pretoria	
dc.rights	© 2020 University of Pretoria. All rights reserved. The copyright in this work vests in the University of Pretoria. No part of this work may be reproduced or transmitted in any form or by any means, without the prior written permission of the University of Pretoria.	
dc.subject	UCTD	
dc.subject.other	Veterinary science theses SDG-01	en_ZA
dc.subject.other	SDG-01: No poverty	en_ZA
dc.title	Development and efficacy testing of plant-produced virus-like particle vaccines against H6 avian influenza virus in chickens	
dc.type	Thesis	

Examples of the Tags in UPSpace

Tags for the different links in the Subject guide

Subject

Veterinary science articles SDG-01 [84]
Veterinary science articles SDG-02 [47]
Veterinary science articles SDG-03 [100]
Veterinary science articles SDG-04 [3]
Veterinary science articles SDG-06 [5]
Veterinary science articles SDG-08 [5]
Veterinary science articles SDG-09 [5]
Veterinary science articles SDG-10 [2]
Veterinary science articles SDG-11 [10]
Veterinary science articles SDG-12 [4]
Veterinary science articles SDG-14 [4]
Veterinary science articles SDG-15 [66]
Veterinary science articles SDG-17 [2]

Veterinary Science
Articles

Subject

Veterinary science theses SDG-01 [55]
Veterinary science theses SDG-02 [20]
Veterinary science theses SDG-03 [28]
Veterinary science theses SDG-06 [3]
Veterinary science theses SDG-08 [3]
Veterinary science theses SDG-09 [1]
Veterinary science theses SDG-10 [2]
Veterinary science theses SDG-11 [8]
Veterinary science theses SDG-12 [2]
Veterinary science theses SDG-14 [3]
Veterinary science theses SDG-15 [13]
Veterinary science theses SDG-16 [3]

Veterinary Science
Theses

Subject

Veterinary science activities SDG-01 [15]
Veterinary science activities SDG-02 [11]
Veterinary science activities SDG-03 [31]
Veterinary science activities SDG-04 [24]
Veterinary science activities SDG-05 [11]
Veterinary science activities SDG-08 [2]
Veterinary science activities SDG-09 [1]
Veterinary science activities SDG-10 [4]
Veterinary science activities SDG-11 [5]
Veterinary science activities SDG-12 [1]
Veterinary science activities SDG-13 [2]
Veterinary science activities SDG-14 [2]
Veterinary science activities SDG-15 [24]
Veterinary science activities SDG-16 [1]
Veterinary science activities SDG-17 [16]

Veterinary Science
Activities



Publish the links

energy in a wide range of production systems.

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

health. Through tourism, agriculture and other industries, animals naturally form the backbone of economic growth and livelihoods in many communities.

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

small producers should have access to markets.

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

SDG Goal 10: Reduced Inequalities



Reduce inequality within and among countries. Livestock are a source of income to poor rural households and give them a chance to participate in markets. Significant inequalities can be seen due to disparities in access to land and water. Ownership and development of small-scale livestock rearing can contribute to reducing these inequalities

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

SDG Goal 11: Sustainable Cities and Communities



Make cities and human settlements inclusive, safe, resilient and sustainable. More people are now living in cities than in rural areas. Urban agriculture and livestock provide many benefits but also present significant risks. Zoonoses can develop in the absence of proper sanitation and infrastructure particularly in developing countries. Instead of banning urban livestock the producers and sellers should be supported to practice good hygiene and upgrade their facilities and activities.

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

SDG Goal 12: Responsible Consumption and Production



Ensure sustainable consumption and production patterns. Healthier animals have a smaller environmental footprint. Diets of the population feature more livestock products and will increase with time. Reducing animal-source food in diets could bring large environmental and health benefits. Almost one third of all food produced is lost or wasted between field and fork. By limiting wastes and losses along the supply chain we can contribute to improved efficiency and sustainability.

[UP Faculty of Veterinary Science articles \(Open access\)](#)

[UP Faculty of Veterinary Science theses \(Open access\)](#)

[UP Faculty of Veterinary Science activities](#)

Update new items

- Created alerts
- Became part of the daily workflow (routine)



Benefits

- Enhanced discoverability and visibility of research outputs
- Accurate measurement of SDG contributions
- Improved accessibility for students, researchers, and the broader academic community
- Facilitated reporting and accountability
- Facilitation of interdisciplinary research and collaboration
- Increased citations and academic recognition for UP researchers
- Support the identification of gaps and research opportunities





Conclusion



References

- Kusumasari, T.F. and Fauzi, R. 2021. Design Guidelines and Process of Metadata Management Based on Data Management Body of Knowledge. 7th International Conference on Information Management (ICIM) (pp. 87-91). IEEE. doi: 10.1109/ICIM52229.2021.9417156.
- Liu, W., Fu, Y. and Liu, Q., 2023. Metadata as a Methodological Commons: From Aboutness Description to Cognitive Modeling. Data Intelligence, 5(1), pp.289-302. doi: doi.org/10.1162/dint_a_00189

