

A background image showing a gloved hand holding a pipette tip over a microscope slide. The scene is illuminated with a green laser light. The background is dark with various white chemical structures and mathematical symbols like pi and sigma.

*Science Diplomacy in the  
fight against Covid-19:  
South African response:*

*Harnessing networks and  
information*

Conference Call  
3 April 2020

Making sure it's possible



science & innovation

Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



# Agenda

- Purpose of call: networks and information, role of South African science diplomacy
- South African science, technology and innovation response to Covid-19
- Contributions from international partners



# Science Diplomacy

- Definition of (Courtesy of AAAS & Royal Society):
  - **Science in Diplomacy**
    - Global issues with science basis (e.g. Covid-19)
  - **Diplomacy for Science**
    - Developing international relations for scientific community (e.g. Covid-19)
  - **Science for Diplomacy**
    - Science as tool for foreign policy (e.g. Covid-19)
      - ***Reinforce global solidarity and multilateralism***

# Science knows no borders

- South Africa's objectives for international cooperation in science and innovation – all directly relevant for fight Covid-19:
  - **Share and learn**: experience, expertise, capacities research data, research infrastructures (reciprocity)
  - **Leverage investment**: joint investment with international partners, attract foreign funding R&D in South Africa
  - **Global solidarity**: Advance African agenda (African Union / SADC), multilateralism (Sustainable Development Goals)



# Principles of Cooperation

- Three principles should guide partnerships:
  - Focused on global good, ... and global good is aligned with national agendas
  - All partnerships must add value (existing capacities are stretched)
  - No duplication – no time to reinvent the wheel, for perfect design – build upon and improve what we have
- Open Science: Open Access, Open Data, ***Open to Society***

# National System of Innovation

- DSI and several sister government departments
- Diverse portfolio of now mature public funded research and technology organisations; 26 Universities
- Industry, entrepreneurs, grassroots innovators, civil society
- Pan-African institutions e.g. ISC Regional Office of Africa
- We consider our cooperation with international partners integral part of our National System of Innovation



# SA science response Covid-19

- Minister of Higher Education, Science and Innovation part of National Command Council
  - DSI officials represented various response structures (operational and advisory, research and innovation)
  - Close cooperation National Department of Health, Medical Research Council, SA Health Products Regulatory Authority, and others
- First priorities:
  - Science advice for policy-, decision-making
  - Mobilize funding
  - Reconfigure research priorities
  - Create conducive ethical and regulatory frameworks for Covid-19 related research
  - Repurpose facilities and labs (public-private partnerships)

## SA response Covid-19 (2)

- DSI through CSIR established core situational awareness platform for Covid-19: (data is key)
  - Holistic decision support to National Command Centre
    - Data warehouses: geographic spread of the disease, current cases, health vulnerabilities, local health and other relevant facilities
  - University of Pretoria working on pan-African databases
  - Crucial role of South African Centre for Epidemiological Modelling and Analysis (SACEMA)
  - Data scientists / modelling experts across spectrum mobilised (astronomy, theoretical physics, etc.)

## SA response Covid-19 (3)

- Initial DSI investment R42 (30+12) million:
  - Diagnostic tools, manufacturing reagents for testing kits
    - Supply strategy with MRC
  - Re-purposing and testing efficacy of existing drugs for treatment for Covid-19
  - Preliminary work on the development of vaccines: University of Cape Town, the CSIR and Biovac
- Human Sciences Research Council (HSRC) conducting survey aimed better understanding of current behaviour and perceptions related to Covid-19 (rural population, social media)
- South African Population Research Infrastructure Network analyse information on health, socio-economic well-being South Africans

## SA response Covid-19 (4)

- Mobilizing advanced manufacturing capability including additive manufacturing: ventilators, protective equipment, etc.
- Important to open up and expedite supply chains to enable the local production of ventilators and associated equipment, e.g. medical valves, sensors, etc.
  - Materials: there is a need for medical grade silicon material for clinical/isolation gowns
- ***Need improved access & supply chain for PPE equipment (masks, isolation clothing; etc.)***

## SA response Covid-19 (5)

- MRC priorities:
  - Surveillance of the disease
    - Track and measure the impact of the pandemic
  - Genomic sequencing (National Institute of Communicable Diseases)
    - Study epidemiology of disease to track the mutation of the disease and then leapfrog technologies
  - Community engagement study and epidemiology
  - Drug treatment trials (working with WHO)

# International cooperation

- Sharing information, experience multilateral platforms:
  - UNESCO, OECD
- Activate and strengthen African networks: African Union, Southern African Development Community, African Academy of Sciences
- Will provide additional South African funding to European Developing Countries Clinical Trials Partnership calls for proposals
- Extensive collaboration with Ministry of Science and Technology in China including on Traditional Chinese Medicine / South African Indigenous Knowledge

## Activities related to profiling of COVID-19 pandemic:

1. Published a Statement on the “Implications of the Novel Coronavirus (SARS-CoV-2; COVID-19) in South Africa”, 3 March 2020, <https://www.assaf.org.za/files/2020/ASSAf%20Statement%20Corona%20Virus%202%20M%20arch%202020%20web.pdf>. This has been shared with NASAC, IAP, ISC, BRICS Academies, and other relevant stakeholders.
2. Created a special icon on the ASSAf website, entitled “Coronavirus updates” <https://www.assaf.org.za/index.php>, to profile publications of Members on COVID-19 and its consequences to society; dissemination of happenings/events/statements/national directives, *etc.*, around the pandemic.
3. Planning a special report (call for papers/contributions) from ASSAf Members and other invited academics to unpack the complex outcomes of the COVID-19 pandemic as it intersects with society. A committee will be established to identify key contributions from a multidisciplinary base – e.g. health, ethics, biosafety and biosecurity, economics, food security, social dimensions, *etc.*, to communicate factual science the public to help alleviate hype and to support national initiatives by the DSI, NDoH, *etc.*, in fighting the pandemic.
4. To use the *South African Journal of Science* and *Quest Magazine* as well as the various ASSAf networks to maximise our outreach to communicate to a wide stakeholder audience.

*Applying scientific thinking  
in the service of society*

# NRF COVID 19 Efforts and Responses

## DSI/NRF CENTRES OF EXCELLENCE AND RESEARCH CHAIRS

CoEs in health professions related to clinical sciences: Biomedical Tuberculosis Research (CBTBR), Epidemiological Modelling and Analysis (SACEMA), HIV Prevention (COE-HIV)

49 researchers within these CoEs and 6 Research Chairs, work in the health professions related to clinical sciences

- CoE in Human Development published a request for proposals on COVID-19
- CoE on HIV Prevention
  - grant redirection to study the epidemiology of COVID-19
  - CoE Director, Prof Salim Abdool Karim has been regularly featured in the media providing scientific facts and advice on COVID-19
- CoE in Food Security to divert part of its grant to study the impact of COVID-19 on food security using secondary data and forecasting methods

## SUPPORT TO GOVERNMENT TECHNICAL ADVISORY CENTRE (GTAC)

- The NRF coordinates expert networks (CoEs, Research Chairs, ISC, SGCI) to support GTAC
- Through a database and platform, the NRF-GTAC initiative will support Government Departments with rapid information, data and analysis through expert groups in: Health, Immunology, Microbiological and related fields, Sociology, Psychology, Data and Information, Economics, Systems Analysis and Food and Nutrition Science

# NRF COVID 19 Efforts and Responses

## NATIONAL RESEARCH FACILITIES

- South African Environmental Observation Network (SAEON), uLwazi Node:
  - Use of comprehensive lists of indicator datasets from the Department of Health (DoH) through SAEON's *OPen Data Platform* relevant to COVID-19
  - Leveraging the South African Risk and Vulnerability Atlas (SARVA) to map areas of healthcare and individual vulnerability
- SKA: Supercomputing facility (part of the SKA) is [making available resources for COVID-19 research](#), and the CHPC has connected the [NICID laboratory](#) for other data analysis

## INTERNATIONAL RESPONSES (LEVERAGING STRATEGIC PARTNERSHIPS FOR RAPID RESEARCH FUND)

- A Rapid Research Fund, administered by the NRF, will shortly be established in collaboration with the DSI, **United Kingdom Research and Innovation (UKRI), the Canadian International Development Research Centre (IDRC), and the the Science Granting Councils Initiative in Sub-Saharan Africa (SGCI)**
- Focus: Participating councils in 15 countries and the Africa Research Universities Alliance (ARUA)
- The Rapid Research Fund will support: science journalists and communicators, the African science advisory ecosystem, and research and research activities

## STATEMENTS & PUBLICATIONS

- Signatory to [GRC statement](#) and [SGCI statement](#) calling on councils to collaborate in the fight against the virus
- SACEMA public pieces on the epidemiological model and predicted incidences and prevalence of coronavirus infection in South Africa

# Co-ordinated Response

To contribute to the creation of an evidence base to the national communication strategy, and understanding of society's behaviour during the lock down, and post lock down. To create a context around the decisions that are based on biological mathematical modelling of the epidemic

## Quantitative research:

- Rolling online public surveys to assess awareness, knowledge, attitudes and practices related to Covid-19 among all South Africans
- Rolling online survey targeting doctors, nurses and allied health care workers
- Online survey targeting youth to assess the perceptions of the spread of the virus
- Randomised sample of people in high density economically challenged areas

## Qualitative

- In-depth telephonic interviews with people from vulnerable high risk groups or who are key informants, such as taxi drivers and commuters, religious leaders, shebeen owners, out of school youth, travelers, and people with underlying conditions such as HIV and TB.

**Methods:** Cannot use traditional science methods. We had to be innovative in order to improve the reach

## Outreach

Developed and scripted health education messages and used almost 20 public influencers such as celebrities, comedians, musicians and sportsmen and women e.g. Siya Kholisi

Leveraging strategic partnerships with the business and corporate community to create and promote the outreach

Leveraging strategic partnerships to distribute the survey link and gain public support for the survey with the aim to increase participation

Extensive communication and engagement through multi-channel distribution of information to the media - Twitter, Facebook, WhatsApp used to amplify the reach of the HSRC during lock down

## Partnerships and collaboration

Strategic partnerships supported by the Department of Science and Innovation

Collaborative partnerships with private sector to support rapid response data collection





# SANSA COVID-19 RELATED INITIATIVES

- **Assisting the National Disaster Management Centre with:**
  - Monitoring of traffic on major routes
  - Currently scaling up this tool to cover the country
- **Human settlement layers:**
  - Urban versus Rural density maps
  - This will assist with the deployment of appropriate resources to residential areas
  - This has already been done for Gauteng, but currently being extended to a national level
- **Carbon monoxide:**
  - To look at pollution levels before and after the lockdown
- **Mapping of shopping centres:**
  - Specifically looking at parking lots (open)
  - Monitoring of vehicle traffic on the roads
- **Building count:**
  - Building footprint over the country
  - This will assist with the deployment of health care workers for testing purposes, if required
- **Synthetic Aperture Radar imagery**
- **Support tools:**
  - Space Industry to develop

# WRC COVID-19 ACTIONS AND COMMUNICATION



## Internal Support and Communication

- Regular information sharing and engagements
- Support to staff to enable them to work from home and cope
- New ways of working – now fully virtual even for internal processes

## Operation Centre

- A team of the WRC experts provides scientific support to the Operation Centre (Station at Rand Water) which aims to improve water supply, access to sanitation and sanitizing of public spaces to the identified vulnerable communities.

## COVID-19 material

- The WRC develops factsheets (FS) and infographic on a weekly basis shared through social media, website and mailing lists of the WRC and its partners. The first 3 factsheets are on:
- FS1 – Generic factsheet on Water Quality, Sanitation and Hygiene Management in the light of the Corona disease (COVID-19)". *Completed, see attached*
- FS2 – Maintaining good hand hygiene for communities without piped water (*to be share this week*)
- FS3 – Maintaining hand and contact surface hygiene during COVID-19 outbreak (*on progress*)

## COVID-19 awareness video dissemination

- Developed a video (see attached)
- Will be disseminated through Social Media Influencer campaign and partnership with GCIS, DWS and DHS, WRC WhatsApp | Youtube, WRC Website

## African and International Partnerships

- WRC experts are contributing to global webinar discussions hosted by key stakeholders in the water sector
- Dissemination of WRC COVID-19 material through our partners platforms and their networks
- Will be partnering with African stakeholders to share COVID-19 related knowledge and innovation to inform, equip and enable the African stakeholders to respond efficiently to the COVID-19 pandemic



# World United for / through science

Strong existing collaboration in multiple forums



Centre for Science and Technology  
of the Non-Aligned and Other Developing Countries (NAM S&T Centre)

# Thank you

- [We are ready and eager to collaborate #StrongerTogether](#)

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*In honour of Prof Gita Ramjee, South African HIV research pioneer*

