PROGRAM DATE: 2019-04-25

PROGRAM NAME: WOMANITY – WOMEN IN UNITY

GUEST NAME: MS KUBAYI NGUBANE – SOUTH AFRICA'S MINISTER OF SCIENCE AND TECHNOLOGY

SPEAKER	TRANSCRIPTION
DR. MALKA	Hello, I'm Dr. Amaleya Goneos-Malka, welcome to 'Womanity – Women in Unity'. The show that celebrates prominent and ordinary African Women's milestone achievements in their struggles for liberation, self-emancipation, human rights, democracy, racism, socio-economic class division and gender based violence.
DR. MALKA	Joining us in studio today is a familiar face; we have South Africa's Minister of Science and Technology Mmamloko Kubayi-Ngubane who is also a member of the National Executive Committee of the African National Congress. Prior to this portfolio she served as Minister of Energy and thereafter Minister of Communications. Welcome to the show!
MINISTER NGUBANE	Thank you and thank you very much for inviting me.
DR. MALKA	It's a pleasure to have you here and as I said earlier in the introduction, when we initially met, you were Chairperson of the Portfolio Committee on Telecommunications and Postal Services
MINISTER NGUBANE	yes
DR. MALKA	and in the past three years your career has absolutely been on the fast track, you received three ministerial appointments; Minister of Energy, Minister of Communications and now Minister of Science and Technology, which arguably, is one of the most important portfolios when we think about development in the knowledge economy. You then also joined the NEC of the ANC, so, congratulations!
MINISTER NGUBANE	Thank you very much, ja, it does feel like some time, though it's just a few years; its two years now. I was saying that I have two years now as a
	member of cabinet.
DR. MALKA	Fantastic achievements. So, we're here today to talk more about science and technology; can you tell us a little bit more about some of the plans that you're focusing on?
MINISTER NGUBANE	Definitely. This is, as you say, it's one of the most critical portfolios, exciting and I can arguably say one of thethat's where the future is lying. In terms of our work, early this year, precisely around February we got approval of our Science and Technology White Paper. So it's a policy paper-remember the department never existed prior to 1994 - so in 1996 it existed but it still had Arts and Culture merged with it. So the first White Paper or first policy in the country on science and technology was 1996, so compared to other portfolios where you have legislation and policies that existed prior to 1994; this one nothing existed. So work that was being done was done in some elements in terms of training and education you'd find elements of both science and technology and space in the military side, though HSRC existed, CSIR existed, but there wasn't much of co-ordinated so with the new government democracy, then they established the portfolio. Then it was almostwe see it as laying the foundation with the newthe 1996 White Paper. It carries us through because that's what we use to establish institutions, establish the department, various strategies and different responsibilities. Thennow, last of last year, we started a process of reviewing the policy. Out of looking at institutional landscape, reviewing

the policy, we realised that as government we needed to change the policy. We embarked on that process of changing the policy and last year we held...even hosted a summit. As part of consultation we had a panel of experts, a global panel of experts that came to look at our policy, give us advice, we had different panels that came through to look at our institutions, do a review of our institutions that culminated to all that input into the final paper that we took to cabinet and it has been approved. So we have a policy; we call it 2018 White Paper Policy because we finalised it last year where the approval was in February. So that's where it is; it lays a foundation now to say how to move forward, that's where we are starting to look at how much have we achieved what we wanted to achieve with the What we're finding first challenge around 1996 White Paper. transformational issues currently is still not inclusive, the...we call it National System of Innovation, so we're talking about institutions, we're talking about the education side, we're talking about postgraduate, we're talking about just the areas that we need to do, for example in space, in astronomy, in funding in industrial research we found that we still have quite a number of things that are still outstanding and that's where the White Paper now speaks to. But again, one of the things that we looked at is to say we've done well in other areas; the Square Kilometre Array SKA for example, the partnership that we've been able to build, but as a country to be able to build those SKAs – the Meerkat 64 - which we are now in the process of finalising; we have finalised the design of the SKA's phase one, we're now going to start building because the design is done; procurement will be done by global organisation. We signed last month the establishment, we agreed on the foundation of an SK organisation, South Africa is a founding member so we've been able to achieve that in the astronomy field but when we look at SK we don't see it as pure academic and astronomy research, but it's building, because it involves engineering, it involves just issues around frequencies. So it's quite an...it involves issues around high performance computing, so elemental fourth industrial revolution there because high performance computing talks to big data....

DR. MALKA

...and quantum...

MINISTER NGUBANE

...and quantum computing, so it goes to that element. Then we also as well recently launched our second nanosatellite; the first one was called...., meaning 'show the way' it's a Venda language. The current one we've not renamed because we've asked the schools to participate to renaming the satellite ZACube-2, we're still calling it ZACube-2. We launched it, built in South Africa as a nanosatellite, we can safely say we have, as a country, capacity to build nanosatellites in the space area. It has launched, we're starting to see...that particularly was for monitoring the ocean's economic traffic, where we're looking at our oceans the traffic; how many ships are coming through, whether they are damaging the environment and all that. So we've done that, but again, the capability of the satellite that they are currently synchronising to be able to help us with the veld fires so that we can pick them up when they start, as a small smoke, so that we can be able to have a quick response time from disaster management. The other area that we've been able to do in space; last year November, we announced in December we've got finally approved as original centre for space weather for aviation authority; international aviation authority. This is precisely to say when flights and even commercial flights, any flight that leaves the continent or arrives on the continent will have to request our space agency weather....space weather centre for a space weather prediction. That they now will be required to submit as part their route plan; when they submit the normal weather they will have to submit the space weather because this

DR. MALKA	was determined by the aviation authority that currently we have sometimes activities around the sun and in the space where sometimes the sun explodes. When it explodes it tampers with the signal, that's where you're finding some of the aeroplane missing and all of those things. So as part of safety measures, then the space weather comes in. So we've been awarded that centre; we have the centre so we competed in terms of the bidding process to be regarded as the original centre and we've been recognised as South Africa so we'll be doing that for any other airline coming or leaving the continent. There's a tremendous amount of activity that seems to be happening in the space environment and whether that is coming through from a state perspective or from individuals; we've got Elon Musk, we've got Jeff Bezos just recently
	over a week or two we had thethere was a private fund in Israel launching to go to the moon, there's the Mars One Initiative, so there's a lot of excitement generated within the space environment.
MINISTER	Definitely there's a lot of excitement and with us as well, we see it as an
NGUBANE	opportunity because on the continentthat's why I speak about our role
	and how we are playing, on the continent we're currently the advisory; we play an advisory role, even for the African Union work on science and technology in space. So we were the leading country in assisting the AU to develop a strategy on space so that the continent is not left behind while all other countries are doingyou'd know that currently we do not have a
	launching site as the continent, so part of what we want to see over time is to have South Africa launching. We tried to launch one of the satellites; we didn't succeed; the team was saying they're going to try again, but we want to launch even for people to be able to go to space whether so we're looking
	at the continent sites and all that as part of the strategy to say are we able to identify the good sites that other countries have in order for us to be able to take such activities. So South Africa is playing a quite critical role around the space area, so there's quite a lot of work that we still have to do
	but we are really gearing. One of the things that we have taken a decision was around earth observations as a country, unfortunately the project delayed, but we're willing to come back because we were not yet experienced in earth observation, we've never had a satellite on earth
	observations, we're hoping that in the coming year or two we would have
DR. MALKA	one of our own that is currently being built. We were speaking about the role of big data, quantum computing and the era of the Fourth Industrial Revolution because that's where we are now and it's going to have a huge impact on the way that we work. We're currently in a period of discontinuity which requires direction setting, as you've just mentioned; looking at the integration on the continent, where do you put a launch site, how can we work together, but in addition to the work that you're doing on a national level, you're also a member on the Global Artificial Intelligence Council which is organised by the World Economic Forum Centre for the Fourth Industrial Revolution; can you tell us a little bit more about the Council, what it does, what activities you're busy with?
MINISTER NGUBANE	Yes, the Council will be inaugurated in May, the 28 th /29 th I need to be in San Francisco; I'm crossing my fingers. I was saying to the colleague yesterday, because we were launching our affiliate centre, I said I think the most people who are at risk of not being at the Council of any of the meeting of the Council is myself and Madam Theresa May because we have our elections and it will be the establishment of a new government and she's got BREXIT that she's worried about and the elections at the EU because she's also a member, but the exciting thing about

DR. MALKA	so in an ideal world
MINISTER	yesja, so the exciting thing about the Council; being a member of
NGUBANE	council, I was approached by the World Economic Forum and later learnt
	that quite a number of countries were bidding to be a part of it; it's a
	membership based on the work that you've been doingchampioning, so
	they look at what part you have played in the Fourth Industrial Revolution,
	whether you've delivered papers, you've been able to speak in public about
	it, what has been your perspectives and the work that you've done. So
	that's how they start looking at as elections; do you have value to add at the
	global council. Though the Council will have members who have technical
	expertise who are going to help because the chairperson of the Council is a
	person who's been leadingwho was Microsoft's CEO in China, so a
	person who's written books on artificial intelligence and all that. Now at the Council the work we are doing is to look across in terms of regulations,
	in terms of policy frameworks; are they hindering development or
	innovation? Development in technologies or innovation? Are we able to
	utilise the new technologies, for example elements of Fourth Industrial
	Revolution but in the manner that is responsive, that does not violate for
	example privacy, all those issues? Again the other areas that we're looking
	at is to say how do we enhance the capacity, make sure that what we do in
	terms of the Fourth Industrial Revolution becomes inclusive globally, but
	to the benefit of a human beingof humanity, so that it doesn't become
	technology that destroys lives, it doesn't have technology that destroys
	environment and all those things. So the Council will be looking at quite a
	number of things but more around how do we shape the conversations
	around the Fourth Industrial Revolution; how do we shape policy
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	framework and guide countries to say this is what would beobviously
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	that is conducive for these developments to happen. Obviously we will have to bring in the funders who must be willing to fund things that did not exist because the current funding models in banks, foreign direct investments, they want something that is tested, risk avert and all of thosewith innovation you don't have it
DR. MALKA	that's why it's called innovation
MINISTER	exactly, so you can never say somebody has done this, it has worked, you
NGUBANE	are the first person who is doing it and we had a conversation with even for
	example the banking sector during our White Paper Policy support,
	because we were asking them, including institutions such as PIC, what
	makes it difficult for you to find innovators, entrepreneurs who are
	innovators, you know, what makes it difficult and what will it take for you
	to fund them? So we were having that conversation to say and they were
	saying but it's an environment that we don't know, so the tools that have
	been used to assess are the old tools, now, you will have to bring us on
	board as well so that you can show us so that we can develop new tools to
	be able to assess. So it's a whole new opportunity and once we do that then
	you will be able to say yes, we will not create industries like previously
	where you had a factory that could employ 1,000 people; today's factories are going to employ 20 people.
DR. MALKA	So you're saying scale, it's using the algorithms, taking on that blend and in fact
DR. WITERI	just this weekend I was reading a case study on Kabbage as a FinTech start-up
	on lending and how they applied a completely different approach to lending in
	terms of their access to credit as opposed to being a banking institution and
	utilising the monies that come in from people who bank with the institution, but
	also, how they were looking at entrepreneurs and SMEs specifically, looking at
	their social media profiles and understanding, not from a case of what is this
	person posting, but that you've got someone who's engaged, someone who is
	connected to his or her market and taking an alternative approach instead of
	filling in these mountains of forms and business plans and how you can project
	with a new business that hasn't been proven
MINISTER	exactly
NGUBANE DR. MALKA	through any big a group has
MINISTER	thumb-sucking numbers
NGUBANE	now in companies and in business for example, you no longer need a person, you need data scientists. So now that's one new area that for example, young people would not know that, okay data scientists because you need somebody who is going to analyse data, as you are saying, in a bank, you no longer have to be reading the files, you must be able to go into that social media platform and see and analyse how this personbut again you must be able to have – if you are to use artificial intelligence for example, you need somebody who's going to do the algorithm to say these are the elements you must look for. They say for example the other time they were sayingit came outI can't remember where I read it, I read something now which was saying the self-driving cars have a difficulty of identifying dark skin people. Now, the issue there then is the algorithms. You need data of people with dark skin
DR. MALKA	contextualised
MINISTER	therefore contextualise it; it's almost like localisation
NGUBANE	
DR. MALKA	exactly
MINISTER	so it's a discussion of localisation, in a different context, because
NGUBANE	previously we'd talk about no, we must localise this. Now, localisation of
	data is critical.

DR. MALKA	These are all really exciting, fascinating topics of future industries that are yet to come and technology absolutely demands new skills to function and participate in our digital economy; it's transformed our working world as it is and opened
	new career possibilities, more especially I'd say, to women because you are behind a screen, you are not necessarily on a face-to-face, you can be creating all of these ideas and we had the Black Hole last week where I think it was Dr. Katie Bouman who was one of the primary people involved with the algorithms and you're seeing women come into the fore here
MINISTER NGUBANE	yes
DR. MALKA	so how can we ensure that women don't left get behind in this tech-economic revolution?
MINISTER	
MINISTER NGUBANE	For me it starts lower, at schools. So we need to encourage more young girls to be in this field, take maths and science for example, as subjects. Then secondly as well, in terms ofbecause one of the things we are looking at is that you'll find quite a number of them of young girls passing matric, there are more than boys actually, with maths and science, but as you go then you can find them on junior degree because we do funding in the Portfolio, under NRF, so we fund postgraduate studies; honours, masters
	and PhD, that's where you start. So last year during the next Einstein Forum, we had a panel thatit was in Kigali; we had a panel that focused on what is it that we need to do to support women to stay in the STEM field and part of the issues was support, more than anything. If you are doing research for example and you go into the research side and you want somebody to remain as a postdoctoral fellow; meaning that the part of it, the requirement is that you must be present at an international conference, you must write international research papers. Now if I am a mother, like I am now a mother of a two-year-old child and I need to go to a conference and I have no support system from my own family, I am not able to, because when I go to a conference there's no facility for children. Now they tend now to pull back and say okay, let me start family, let me raise children, I'll say later come back and most of the time later they don't come back. So that's one of the areas which is a bit difficult for us to have to resolve and one of the things that I had to do in the Portfolio was to ask, because we looked at the number fellowpostdoctoral femalewomen, the number is shocking, it's below 10% females across the board; black, white, coloured, Indianjust below 10%. Now we said what is the problem and
	how can we respond? So we agreed with the NRF that they are going to review their funding mechanism to be able to look at how best to support so that if indeed we want to support black academics for example, or female academics to go and enhance their work; have international published articles but present in international conferences, therefore how do we support them? Should we say it's part of the package we allow them? Maybe flexibility of the 10% in their funding to be able to decide how they use it? Maybe it could be that they take somebody with with the child to say when I present at that two hours then you look after my child or they are able toso that they can be able to doSo the issue of funding for me it's quite critical; the issue of support. There are areas where you find that it's not only just support and funding but its lack of information, especially for those previously disadvantaged communities. So you find people don't know, I always say make an example with myself. I passed matric with maths and science; I didn't know space and engineering existed as a career. Now, how do we make sure that the same thing doesn't happen so the children who are going up choose careers they have actually exposure to

these careers so that they can choose them. Now they will not choose them because they don't know about them so we're doing outreach quite a lot as the Department of Science and Technology. We have what we call Science Week, it's a programme that runs for the whole week where we get...we appoint service providers like NGO's that are involved in some subject awareness to go into communities, in the most remote communities as well; townships, go to the schools; ensure that the children are able to have exposure so they start knowing about the careers, they start knowing about even experiment because we're finding that some of these children are doing maths and science in high school; they don't have science labs. So they start being exposed to those because of the inequality in the education system, the legacy that we still have to correct, so most of the schools don't have science labs so they end up reading about science, not practically seeing science. So that's one of the ways we are trying to do it but another thing that we said as the Department is to look at in the new administration, we propose that we look at creating community science centres. Because we are not able to fund with a limited money, we can't go into high schools and put science labs, so we said let's do a science lab in a community where schools can utilise, where we have somebody managing it, we hand it over to the provincial government, they get somebody to manage it and then schools can alternative to visit the science labs in a week so that the children have access; we believe that is going to be sustainable. We've been running it in a model of mobile labs but they are limited, they are costly because we've got to pour petrol, as they move around they get damaged, the cars needs to be serviced and upgraded, so it's not a model that is working. So we're thinking that this model of science labs in communities will work. We've done, with the universities, but still as well you find in many of the communities and many of the areas where the high school exist, the universities suffer. So that's one of the things that we are looking at as part of increasing access to knowledge, to information, but exposure to more young women because you can't want to find them at a mature age, you've got to influence their interest, you've got to intrigue their interest at an early age and that's where we think we'll be able to have influence. We also fund the Grahamstown Sci-Fest Festival which exposes quite a number of children, I was there last year; this year I couldn't go. I went there, I found more young girls who were interested in dissecting mammals. So they were very excited about the sharks there, they were dissecting them because it's about oceans economy, we're supporting that work. So there's quite a lot of work that we're doing to try just to make sure that we enhance, beyond just funding, which I spoke to, but we have specific categories where we are funding. But again, in terms of just those who have completed school, who are already academics and in the centres, we've got what we call Centres of Excellence, we put aside a percentage to say we are allocating now women. We've got what we call SARChi Chairs in universities; last year alone we set and appointed 22 females for SARChi Chairs, just a part of consciously driving the women participation in the centre and just making sure that they are supported because with the SARChi Chair you have funding, so....

DR. MALKA	and you've got a long period of time
MINISTER	yesfive years
NGUBANE	
DR. MALKA	because often you end up with these short periods and when you're doing
	research two years, three years, is a drop in the ocean.

MINICTED	In Conside the CADChi Chains we launched and last year the OD Tombe
MINISTER NGUBANE	Ja. So with the SARChi Chairs, we launched one last year, the OR Tambo SARChi Chair for the continent as South Africa. So, we said the OR
NGUDANE	Tambo one we are making available support; financial support for African
	scholars and on that we've set aside 60% for female on SARChi Chairs.
DR. MALKA	So the Department has got a number of initiatives; looking at it from a finance
DK. WALKA	point of view, looking at it from a support option, trying to create experiential
	opportunities and digging down into the youth because, let's face it, they are our
	future and to create somestimulate their minds so that they can look for
	opportunities
MINISTER	yes
NGUBANE	ycs
DR. MALKA	with careers that they might not have heard of. Female role models in society
DIC. WITTERY	are important sources of influence in the way that women see themselves by
	being able to identify with these individuals, to emulate them, as well as the way
	that men perceive women. We've had, staying on the science theme, great
	scientists; Marie Curie, looking at discovering different radioactive isotopes and
	her work in cancer, you know, I don't know if you've seen the movie Hidden
	Figures
MINISTER	I have
NGUBANE	
DR. MALKA	with Catherine Johnson, again, mind blowing in terms of how women were
	relegated to the back benches but being a mathematician, NASAand I look at
	it across political leadership on the continent; Ellen Sirleaf Johnson, Joyce
	Banda, Ameenah Gurib-Fakim, Phumzile Mlambo-Ngcuka; all fantastic
	women. How do you see the role of female leadership, whether it's in the
	political space, business sector, education?
MINISTER	It's very critical especially with us in the context of South Africa, more
NGUBANE	important in the context of the continent. I think we're still lagging
	behind, I think, because if you are to look atyou quoted former presidents
	and deputy presidents, but you look now, currently, we do not have
DR. MALKA	scarce
MINISTER	Ja and that's a threat to our continent and our nation in terms of going
NGUBANE	forward because you need young girls to know thatlike that young girl
	who wrote to the president and asked can girls become presidents. They
	need to see them, not asking about it. They are asking because they don't
	see female presidents, that's why the children will end up asking, that for me was a telling story; it was something that said hey, look at how your
	children now are perceiving it. Do we have role models? I do believe we do
	have, we've got quite a number of them, the problem is that sometimes
	because I think it's how we socialised, we're not more aggressive about
	pursuing and marketing women. I will say marketing because it's broadly.
	Whether you go into the business sector, you look for women, they are
	there. I mean recently I was studying at Harvard, I was doing my
	leadership programme and then one of the case studies was about a leader
	in theat Nedbank, I mean a female, and I'm saying hell, I had to come
	into Harvard
DR. MALKA	to learn about her
MINISTER	to read about Johnson, she's Johnson as well, to read about Johnson, but
NGUBANE	how do we make sure that we are able to have platforms beyond
	justbecause we do it very well in August, we expose all these women, but
	after August we go back to the normal. How
DR. MALKA	there's another eleven months of the year
MINICORD	
MINISTER	yes, how do we make sure that annually we celebrate because if we don't

	entities, the boards, I tell them we have to be conscious about transformation, it doesn't happen automatically. Now, that's why on the
	boards for example, we were appointing boards, I went and looked for women who were below thirty to be on the boards; as a conscious decision
	to sayand I said to the chairpersons of the board that look, don't expect
	much from them because it's their first time sitting in a board, I'm building
	the next layer of leadership. In the next term when they are above thirty,
	then they will be matured to know what happens in the board, there will be
	now leaders of these boards but you can't expect them to come in and know how to be a chairperson of the board when they've never sat in a board, or
	you want them to grow and say they must have experience first, when are
	they going to get it if you don't give it to them? So that's one of the things
	that we have to do across the board. We're sitting with institutions in JSE
	listed companies; we're still below 10%. We hadMaria Ramos has
	resigned; we regressed, because of just one resignation. Now, does it say
	that there's no women who have capacity in this county? I don't think so; they are there, but they are put in the corner like previously, they're just
	not in the kitchen
DR. MALKA	they need the opportunity
MINISTER	but they are put somewhere in the corner of the boardroom. So one of
NGUBANE	the things that we have to do and drive consciously is to pull them out of
	those corners and take a conscious decision to say we are going to affirm you, we are going to celebrate you. Those who are doing well, we celebrate
	them, those who are sitting in the corner we say we are going to take you,
	those who need mentorship we need to support them.
DR. MALKA	Everything you're doing there is completely right, it's bringing people on, it's
	grooming, it's lifting up and it's helping them blossom. Which women have
MANAGEER	been role models for you?
MINISTER NGUBANE	I looked up to Mama Winnie a lot. I think she, ja, quite a lot of things I think. Her resilient character, fiercely, not easily intimidated, stands her
NGUDANE	ground, stands for the truth, doesn't matter who you are she will say what
	she feels. So that's the person I think I've looked up to for years; just her
	character and the last thing that I admire about her is despite everything
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	it's because there are people that have supported you. It might have been
	in other areas, your strength, but more than 60% is because there would
	have been people who helped for you to be where you are and that's what
	alwaysbut as well to say where you are, somebody else could have been
	there. So be humble enough to appreciate that it's an opportunity and grab
	it with both hands and make usage to the optimum. Respect anyone, it
	doesn't matter who they are, which position they are holding, give them
	respect and just beand treat them like human beings who they are
	because in life we need each other. It's not about positions, it's about just
	Ubuntu. Treat the next person the way you would want to be treated.
DR. MALKA	Those are good values that have clearly held you in stead. And finally, as we
	close the conversation, could you please use this platform to share a few words
	of wisdom, particularly as we are in freedom month, to young ladies who are
	listening to us on the continent?
MINISTER	The message I have for young women is to say believe in yourself because
NGUBANE	you can be the best that you want to be, but you can never do that out of
	ignorance. Reading and mastering the concept and mastering the content
	of what you do gives you authority in what you are doing in order for you
	to earn respect because you don't deserve respect; we earn respect. If you
	can remember that you will be the best that you can be.
DR. MALKA	Thank you for those practical words which I do hope people embrace and take
	on board. It's been a real pleasure having you on this show again.
MINISTER	Thank you for hosting me; always I enjoy being here and having a
NGUBANE	conversation.
DR. MALKA	And we look forward to our next conversation where you no doubt will have
	accelerated and developed even further.
MINISTER	Thank you, I'm hoping so too.
NGUBANE	
	PROGRAMME END