Episode 150: Upwardly mobile: How the cell phone is changing life in India

VOICEOVER
Welcome to Up Close, the research, opinion and analysis podcast from the University of Melbourne, Australia.

ELISABETH LOPEZ
I'm Elisabeth Lopez. Thanks for joining us. Over the past decade, India has undergone a cell phone revolution. Just 10 years ago, there was one telephone for every 40 people in India, and making a phone call was an experience as challenging and risky as bungee jumping or white water rafting according to our next guest. Today, there are 810 million mobile phones in India for a population of 1.2 billion. Mobile or cell phones and wireless technology have transformed just about every facet of Indian society, from politics to courtship and banking, fishermen check prices at sea, farmers can get crop information, and terrorists can plan attacks with deadly efficiency. Our guest on Up Close today is Robin Jeffrey, a visiting Research Professor at the Institute of South Asian Studies and the Asia Research Institute at the National University of Singapore. Robin has written extensively on India's newspaper industry and the politics of media, development and pluralism. He is co-author, with anthropologist Assa Doron, of Celling India: The Mobile Phone's Contribution to Capitalism, Democracy and Unsettling Society - quite an achievement for a small hand-held gadget. Thanks for joining us today, Robin.

ROBIN JEFFREY
Thank you for having me.

ELISABETH LOPEZ
In 1949, India's first Prime Minister, Jawaharlal Nehru, was afflicted by culture shock after a trip to the United States, and he famously pronounced, "One should never visit America for the first time." I wonder, Robin, if Nehru would say something similar about India now? Would he recognise his own society or has the cell phone changed it so much?

ROBIN JEFFREY
It's interesting the tradition of the phone in India. The phone, until 15, 20 years ago, was really regarded as an elite item. A nice example of this, Mahatma Gandhi, who
had one of his ashrams in a place called Wardha in Central India, had a specially
designed telephone box built to his specifications in which to put the telephone which
was regarded as an important item because it was another way of communicating
with India and the world. But it was also something that needed to be closely
controlled and monitored so that no time wasting went on using the phone. Gandhi's
phone box at Wardha is still part of the display at the ashram. The key feature for
me is, of course, is it has a lock on it and somebody had the key. You needed to get
the key to get to the phone to make a call. That situation would have prevailed in
India until about 10 years ago. Most people would only have encountered a phone if
their boss had unlocked a little box that often contained the big bakelite phone.
That's the way Nehru, for all of his time in India, experienced the phone. When India
became independent in 1947, there was something like one phone for every 3500
people. By the time Nehru died, that was down to one phone for every 800 people
so there had been a bit of progress, but it still meant that most villages had no
telephones at all. Even in smaller towns, there was no telephony. It's only since
about 2001/2002 that there's been this immense explosion of telephonic ability in
India.

ELISABETH LOPEZ
You said that the impact can be compared with the invention of the Colt revolver.
What does a mobile phone have in common with a gun?

ROBIN JEFFREY
Well, I mean, if you're a fan of old grade B westerns on TV, you'll know that the Colt,
or the revolver, was known as the great equaliser. The reason for calling it the great
equaliser was that it gave a child or a woman the capacity to have a lethal weapon
which had never been possible before. Any kind of firearm, until the invention of the
one hand?held Colt, involved two hands. It involved stuffing powder down the barrel
of a gun and a smaller person just found it very difficult to do that. The Colt changed
that. It became an equaliser. Mobile phones are a little bit like that. It gives people,
who previously had no capacity or very limited capacity to communicate, that
capacity. They can use that capacity, of course, for good things, bad things,
democratic things, dictatorial things but it does level things out at least in one facet of
life; certainly not in all facets but in one.

ELISABETH LOPEZ
You've written about the impediments to the phone being ubiquitous before, about 10
years ago, things like copper wire being stolen. What other sorts of things prevented
regular phones from being taken up?

ROBIN JEFFREY
As you say, one of the aspects was that copper wire is valuable. A metre of copper
wire was supposed to be worth hundreds of rupees, so it was a month's salary 25
years ago if you could get hold of a metre of copper wire, so there was a problem of
simply keeping the copper wire network intact. The other problem, of course, was
rolling out copper wire. India has 600,000 villages. If you roll copper wire to 600,000
villages, it's a lot of villages, and then you have to still get it - what they call in the
business - the last mile - to individual receivers in people's homes. There was a huge physical problem with this. The other side of it, of course, was the problem of the locked phone box. Until 20 years ago, the elite thought that the phone was a kind of frippery that should be used for government purposes, official purposes - maybe for high business and a little bit of commerce - but for ordinary people, this was a distraction. There's a document from 1977, a document submitted to the Indian Planning Commission, saying, we really must discourage this spread of telephony because it's leading to urbanisation. Villagers are crowding into the towns because they can now communicate with their villages and this is a bad thing. We don't want to encourage excessive urbanisation. This is a problem. We want to try to keep people down on the farm, so let's not make a big point of getting telephones all over the place because it's going to encourage urbanisation. Well, of course, that is precisely the flip side of the way things are now. Migrants move a lot more, and in that sense they're right, partly because they can communicate. They can learn about new opportunities and keep in touch with home once they're away.

ELISABETH LOPEZ
Can you tell me what sort of advances made the adoption of the phone a possibility on a mass basis?

ROBIN JEFFREY
The crucial things, I think, were the liberalisation of the Indian economy that began after 1991 which allowed private companies to begin to try to exploit the new technical capacity to use radio spectrum to communicate individual to individual, rather than just a broadcaster communicating to someone's radio set to allow the kind of two way communication. That was a technological thing which had been developed in Europe in the 1980s. By the early 1990s, it was clear in India that this would be very appropriate to Indian conditions because you didn't need miles of copper wire. Indian capitalists were being encouraged, from 1991, to expand to find foreign collaborations. One of the areas that cried out for this kind of foreign collaboration, of course, was telecom and also a change in the mind of the Indian elite that had come with Rajiv Gandhi - that is, the man who was assassinated in 1991, the husband of Sonia Gandhi, the current President of the Congress Party. Rajiv Gandhi was a big techie. He liked his laptop computer, he'd been an airline pilot, and he was sympathetic to trying to push telecom far, far wider and deeper into Indian society. He had been responsible in the '80s in his government, between 1984 and 1989, for expanding telecommunications considerably with the whole system of what were called public call offices; setting up little businesses with decent telephone communication for, particularly, international calls and trunk calls. For the first time, by about 1986/87, you could go to a little yellow booth that also sold soap powder and cigarettes and so on, and get onto a metered telephone and make a call that would actually be connected, an overseas call or a distance call. It was much more difficult to make a call within the town in which you were making the call but, nevertheless, it was great if you were calling somebody 50 miles away or 5000 miles away. Now, Rajiv Gandhi was responsible for that. That process had begun a change in the idea that telecom was a valuable thing, good for the people of India, and should be encouraged and promulgated, if you like.
ELISABETH LOPEZ
How on earth did banks go about their business in a globalising economy before the cell phone really took root?

ROBIN JEFFREY
Well, I think the banking story in India is just beginning. We don't yet have anything, as I understand it, the equivalent of PESA (M-PESA) in Kenya - the big mobile phone-based banking system that's been developed in East Africa. There are the beginnings of this in India. An organisation called EKO has about 200,000 banking customers and about 1200 outlets, but based in Delhi and in the eastern states of Jharkhand and Bihar. There are a lot of Biharis and Jharkhandi migrant workers in Delhi. What this nascent operation does is give them the opportunity in Delhi to deposit their 25 or 50 rupees that they've earned in the course of the day in an account that is actually operated through their local cigarette shop or grocery store and the mobile phone. The owner of the store, who's an agent of EKO, records the deposit. They immediately get a receipt for the deposit on their mobile phone while they stand with the shopkeeper, and then they can transmit that receipt to relatives in Jharkhand or Bihar, 700 or 800 miles away, who can then go to their shop, which is an EKO agent, and withdraw the money. It's a very handy way of getting a population that's largely unbanked into the banking system because the large majority of Indians don't have bank accounts. Really, until you have a bank account, it's hard to get official payments credibly, efficiently paid and recorded. This has the potential of giving millions of Indians a bank account but this is, I think, the cutting edge experiment in India with this kind of very simple mobile phone banking that doesn't require you to go into a bank. Often they have long forms that need to be filled out and it's a pretty off-putting experience for an ordinary person, particularly someone who may not be particularly literate either.

ELISABETH LOPEZ
Those sorts of banking innovations, using mobile phones to do your banking, are only really just starting to take hold in advanced economies but for different reasons. They're more, I suppose, targeted at the tech savvy and tech happy kind of demographic.

ROBIN JEFFREY
Yes.

ELISABETH LOPEZ
It's an interesting reflection on where different countries are in their stages of economic development.

ROBIN JEFFREY
Yeah. The huge virtue of mobile telephony in India, I think, has been its simplicity in the second generation mode. Even texting is probably less important in India than the use of the audio phone, just being able to talk into the phone or use the phone as a kind of message system so that if I give you two rings, you know to bring lunch and if I give you three rings, you know I'll be coming for lunch, and if I give you four rings,
you know that I don't want soup for lunch. The missed call is a great innovation in Indian society. Everybody talks about, just give me a missed call, and that means just give me a missed call and I'll know exactly it's you and what you want me to do. The people have a fairly elaborate code system so no one has to take responsibility for picking up a call. That, of course is an advantage, too, because it keeps price down.

ELISABETH LOPEZ
I'm sure the phone providers are working on a way to get around that.

ROBIN JEFFREY
Indeed. They'd like to be able to charge for every time a phone is used, but because the industry at the moment is pretty competitive, and because people are so price sensitive, you lose customers if you don't give them the services they're accustomed to. Poor people are terribly price sensitive and, of course, of these 810 million Indian phone subscribers today, the large majority of them are poor people - that is, very poor people living on three or four dollars a day perhaps. A phone needs to be cheap and the use of a phone has to be cheap.

ELISABETH LOPEZ
Using a cell phone, you don't necessarily need to be literate for it either.

ROBIN JEFFREY
Yes, it is the huge advantage that does, again, make this object - the cell phone - the equaliser because you don't have to be able to read and write. If you can memorise - and illiterate people often have very, very good memories - what 14 keys on a keypad do and what combinations you can use them to get particular results, then you can make this thing work. Of course, you can make audio calls where you're talking your own language, not having to write in somebody else's language or read in somebody else's language. You talk your own dialect to people you know.

ELISABETH LOPEZ
Can you tell me a bit about the impact of the cell phone on labourers working in remote areas of India, the farmers and the fisher folk? What do they use it for? How has it transformed their lives and their work?

ROBIN JEFFREY
I mean, Indian labour is terribly mobile at the moment. I was at a conference not long ago where it was speculated in any one day, there are 100 million people footloose - that is, moving between city and town, working in towns briefly before coming back to their villages, really having to divide their time between their native villages and the towns. Now, the phone mobile has, just as the 1977 report feared, made it a little bit easier to be mobile because you can keep in touch with home but you can also hear about opportunities. If somebody from your village says, look, they need labourers in this or that place, they'll ring you and tell you and you can get there, so that's one thing. It's made labour even more mobile than it might have been under other circumstances. The other side is that for small business, the
mobile has been pretty useful, I think. The classic case, and one that's been written about many times now, are fishermen off the southwest coast of India who, 10 years ago, got mobile phones and it made it safer. They had pretty good coverage even out to sea, out to 10 or 15 miles. These are small time fisherman who wouldn't go much beyond that. It meant that they could have weather warnings but more than that, once they had a catch, they could ring two or three possible destinations and find out where the prices were best. The whole pricing could be done more effectively, more economically. Now, traders, of course, can do that, too. They can set up their own little cartel and, say, ring three traders up and down the coast and say, we all give the same price today, don't we, and work it out that way. Again, it's a little more equal than it was before when the trader might have had an old Bakelite copper?lined phone in his office and the person outside, the fisherman, had no other way of communicating.

ELISABETH LOPEZ
You're listening to Up Close. I'm Elisabeth Lopez and I'm talking with Professor Robin Jeffrey about the impact of the cell phone on India. Robin, speaking of phoning home, what has been the impact on traditions like courtship and on the status of women?

ROBIN JEFFREY
That's one of the great questions that's being posed by the phone. My colleague, Assi Doron, is an anthropologist. In the book we're writing, he's working on these domestic questions and I'm working more on the politics and political economy. Just to give you one example that Assi has found a number of times with people he's acquainted with over his years of working in north India, the question now that's often posed in joint families is when a new daughter?in?law arrives in a family, does the mother?in?law take away the girl's mobile phone or does she allow her to keep her mobile phone? It's a question that gets answered differently from one family to another and, I guess, we're very curious to know whether there are any common patterns about generation or caste or region of India where the keeping of the mobile phone or the taking of the mobile phone is more prevalent than not. Certainly, it's a question that never had to be asked before. The daughter?in?law used to come in and was expected to be a good daughter?in?law, but now she's expected to be a good daughter?in?law but the question is with or without a mobile phone?

ELISABETH LOPEZ
Courtship, people meeting?
ROBIN JEFFREY
Well, both wonderful and terrible stories. It's pretty hard to read an Indian newspaper for a week or a fortnight without finding stories of young people being beaten up or killed by their relatives for having assignations that they shouldn't be having using the mobile phone. Of course, the mobile phone gets blamed for a lot of this. There was a story some of your listeners may have seen reported because it got international coverage where a village, not too far from Delhi, proposed to ban the mobile phone for anybody under a certain age, and particularly for young girls because they thought it was just bad stuff. This is worse than sex and drugs and rock and roll, this
mobile phone stuff, because you can get up to a lot of mischief on a mobile phone as we know; people can get up to a lot of mischief.

ELISABETH LOPEZ
You've written that the cell phone has allowed pornography to be disseminated on an unprecedented scale. How does that work?

ROBIN JEFFREY
Well, it's not hard, of course, to make pornography with a mobile phone. We've got plenty of examples from around the world. Indian pornography, long ago, used to require a terrific imagination because the printing was pretty awful. The whole technology of taking a photograph and then reproducing it and printing it was pretty ponderous, but it's not that way now. I mean, one fairly decent mobile phone will allow you to do photography of a very high quality and the pornography follows from that. Again, my colleague, Assi, has plenty of examples of working class people that he's dealt with where the pornography on their phone is part of it. You have your religious texts and messages on one part of your phone and then, in another file in the phone, you have your pornography so you keep them apart. You don't let religious things mix with the pornography but they're all sitting there in the memory of your particular mobile phone. Good and evil, good and bad, are all lurking in the mobile phone.

ELISABETH LOPEZ
This must make sexual politics quite complicated because are we still talking about a time in which Bollywood films still don't allow kissing?

ROBIN JEFFREY
I think you might get the odd peck occasionally. I mean, not allowing kissing never prevented starlets from standing under waterfalls in body-hugging saris. Bollywood has always found ways of getting around minor things like government censorship to get the idea across, if not the precise image.

ELISABETH LOPEZ
Robin, let's turn now to the impact of the cell phone on politics. When Barack Obama was elected US President, a large part of the success of that campaign was attributed to the Democrats' use of social media, in particular Facebook. You suggest something analogous may have happened with the mobile phone in the 2007 elections in Uttar Pradesh, India's largest state. In fact, the victory went to the underdog, the Bahujan Samaj Party, whose constituent base is largely made up of untouchables or dalits. What happened there?

ROBIN JEFFREY
What we think happened is that the Bahujan Samaj Party, as you say, was founded on a dalit base, an untouchable base - that was its main source of support - founded by a man called Kanshi Ram, who devoted his life to building a cadre of people like himself who were dalits without powerful ideological commitment to winning political power to try to overcome some of the oppression and prejudice that dalits faced.
Now, Kanshi Ram had built this network of highly motivated followers by riding around on a bicycle on Sunday afternoons and getting them to do it, too; to carry the message to villages and to people like themselves in remote corners of the country. He built a cadre of devoted workers. 2007 was the first time those devoted workers had mobile phones so instead of bicycles, the kind of organisation they had was able to communicate using cell phones. The organisation was such that there were booth captains for every polling booth in UP; the Bahujan Samaj was that effective - virtually every polling booth, 100,000 polling booths. This is a big operation. They were receiving and sending messages on what they were to do on particular days throughout the campaign, how they were to organise local meetings and the stories they were to be telling, and the actual tasks of getting people on the rolls, making sure that people on the rolls knew how they were to vote. This was done largely through text messages and through audio phone calls through a highly structured organisational system. The mobile phone, again it's the notion that you're giving a new weapon to people who already had a cause and a belief, and this new weapon was extremely effective. They had another element in that campaign that is credited with bringing the victory to the Bahujan Samaj Party was the fact that they were able to put together an alliance between dalits, untouchables at the bottom of the old social scale, and Brahmins at the top of the old social scale. That combination, in electoral terms, amounted to probably 30 per cent of the population of Uttar Pradesh. If most of those people voted for the same candidate, you were well on the way to winning an election with the first past the post system. Now, that was a difficult story to tell. How do you tell high status people, you should vote for the same candidate as those low status people and vice versa? That story was told through hundreds of meetings at village and small town level of Brahmins and dalits where leaders explained, look, we have things in common. If we unite on this, we can do both sides some good. We really don't have anything dividing us now. The Constitution of India says we're equal. There are other people who have interests that are far more adversarial to ours than we Brahmins and we dalits. We should unite. Now, that's a fairly sophisticated story. It had to be told repeatedly across a state that would, if it were an independent sovereign state, be bigger than Japan. It would be the fifth biggest country in the world if UP, Uttar Pradesh, were independent. This was a huge task to perform. Our line is that the mobile phone enabled the Bahujan Samaj cadre to tell this story, and get their people to the polls as they would never have been able to do in the old days when their founder, Kanshi Ram, was peddling his bicycle on Sundays. It's the difference between a bicycle and an electronic communications device.

ELISABETH LOPEZ
In the space of 10 years?

ROBIN JEFFREY
Yes.

ELISABETH LOPEZ
Extraordinary. Have the political opponents of Bahujan Samaj caught up, in terms of their use of the cell phone for their political campaigning?
ROBIN JEFFREY
Very much. Everybody loves the cell phone and others imitate it. People who were with the BSP in 2007 have since left them and taken the technique with them. Of course, it’s not the cell phone by itself; it’s the cadre, the dedicated true believers, plus the cell phone. A cell phone won’t do you any good if you’ve got nobody motivated enough to take the message, and go out and act on the message. You still need people who will act on the messages they’re getting. The Congress Party in May of 2011, there were state elections in four of the Indian states. The Congress Party, particularly in the southern state of Tamil Nadu, had all the technological wizardry it could possibly have hoped for and came up a very disappointing result. The technology alone was not enough. They didn’t have the true believers using the technology.

ELISABETH LOPEZ
I suppose it favours the nimble, doesn’t it, so a small party might do better out of using technology?

ROBIN JEFFREY
Yes. Again, if the belief is there and you’ve got the workers to transmit it, and if you’re telling a story, of course, that a particular electorate finds vaguely plausible, then you’ve got a pretty potent combination.

ELISABETH LOPEZ
You’re listening to Up Close. I’m Elisabeth Lopez and I’m talking with Professor Robin Jeffrey about the impact of the cell phone on India. Have you been able to observe impacts on how ordinary Indians use public services and, I guess, hold public servants or bureaucracies to account? Has there been a discernable effect on that?

ROBIN JEFFREY
I think so. Again, with the elections, the 2007 elections in Uttar Pradesh were said to be one of the fairest, straightest, best organised elections ever held, partly because the election officials and the police officials providing them with the security were all connected by mobile phones. It meant that anyone detecting misconduct could ring an Election Commission officer, and a flying squad of police would arrive or an Election Commission official would arrive. On polling day, it also meant that if there was any argy-bargy going on around polling booths, people had mobile phone numbers for officials who could be rung. It made for a much more tightly controlled, fairer election and that, of course, benefits an underdog party, too. The more powerful people find it more difficult to intimidate voters, keep hostile voters away from the polls and so on.

ELISABETH LOPEZ
You sound a note of caution about the democratising potential of the cell phone. What are your hesitations based on?

ROBIN JEFFREY
Well, I mean, it can be used as a monitor of where people are at particular times. You can, of course, trace people back to their mobile phone, so people with power can use the mobile phone as a way of tracking those who are opposed to them. It can be used for all those surveillance techniques that many people fear. Similarly, the powerful still enjoy huge advantages simply because they are wealthy or they have bigger cars and fancier mobile phones than the poor. It's not hard to imagine the mobile phone being used to maintain the power structures that already exist but, for the time being at least, it is a new kind of weapon. The other comparison we've used when we've been trying to think about just what this means is with shoes. Shoes were probably the earliest human communications device. Some people had them and some people didn't. The ultimate male chauvinist putdown begins with barefoot, and then goes on to pregnant and in the kitchen. Take away somebody's shoes and you disempower them. Take away their mobile phone and you disempower them. Give them shoes and they can do things they couldn't do before. Give them a mobile phone and they can do things they didn't do before. We don't wear our shoes in bed usually, but lots of people take their mobiles to bed.

ELISABETH LOPEZ
Revolutions are notorious for eating their own children and this one is no exception. In 2011, a former Communications Minister was arrested over allegations that he manipulated the allocation of spectrum from 2G services. The Indian government ended up getting a miniscule sum in licence fees from the big telcos, and the allocation process itself was bizarre, as you've written.

ROBIN JEFFREY
Yes. I mean, the two allocations of spectrum that we currently had have both ended up with the ministers involved being implicated in criminal proceedings. The minister in charge of 1G back in the 1990s has been convicted, though he's never served time in jail, but has been convicted and is still out on bail. The minister in charge of the 2G operation four years ago is currently charged and being held in a prison in Delhi. The stakes in this allocation of radio frequency are huge. India's largest capitalists are involved in bidding for and then using radio frequency spectrum because there are hundreds of millions of dollars at play in this. The allegations are that the 2G spectrum, when it was allotted in about 2007/2008, was done through a process that was highly inappropriate, with money changing hands to ensure that that inappropriate process benefited some companies and not others. The government of India is thought to have lost a lot of money as a result of this rather arbitrary process.

ELISABETH LOPEZ
We're talking, potentially, a few billion?

ROBIN JEFFREY
We're talking billions of dollars. According to one report, had the spectrum been auctioned instead of allocated, the fees coming to the government of India would have been much higher.
ELISABETH LOPEZ
Robin, you're not at all reticent in wanting your research to be the basis for better policy. What's missing right now from telecommunications policy in India?

ROBIN JEFFREY
That's a very good question. I think a much more empowered regulator. The TRAI, the Telecom Regulatory Authority of India, is kind of a toothless tiger. Although it often has good documents in front of it, it finds it very difficult to have those proposals implemented. There's still a bit of a struggle, too, between the government, which has a very strong hold through its Department of Transport - the government still owns two telecom companies. The Department of Transport and Telecommunications attempts to assert its control over radio spectrum, often constraining the rollout of services, looking to protect its own interest. The regulator is often beholden to the government department. A more powerful regulator, a regulator genuinely empowered, I think, would make a big difference in equalising some of the terms amongst the various providers of telecom and, thereby, probably improving the kinds of services that would become available, though the Indian consumer for basic services can't complain too much because calls are very cheap and the service now is covering, in a fairly reliable way, 80 to 90 per cent of the country.

ELISABETH LOPEZ
There must be some pretty unlikely places where mobile phone towers are located.

ROBIN JEFFREY
Well, there are said to be 350,000 towers in India in 2011 with 150,000 still needing to be built so there's a whole industry around putting up mobile phone towers. In a state like Himachal Pradesh, which is the Himalayan state north of Delhi, Himachal has very good mobile phone coverage in spite of the fact that it's terribly hilly and mountainous, but almost every little promontory has a mobile phone tower on it. Seven companies provide services in Himachal, and Himachal has one of the largest take?ups among its people of mobile phones of anywhere in India. You can understand why because in the past, you would have had to walk down valleys and around the side of hills to get from one place to another. It might have taken a day to travel a distance of four or five miles because of the nature of the terrain. Now you can make a call in seconds so the mobile phone's been a terrific transformer in places like that.

ELISABETH LOPEZ
Has the service gone digital?

ROBIN JEFFREY
Indeed, yes. 3G is now being introduced. It's been rolled out for the last eight or 10 months - that is, throughout 2011 - and that will spread but 3G, of course, is more expensive. The virtues of the service at the moment lie in the fact that it's cheap and it's audio. It's cheap and it's simple, and that's what makes it such a powerful medium in a country where most people are poor, and still 40 per cent of the
population are illiterate.

ELISABETH LOPEZ
Professor Robin Jeffrey, thanks so much for being our guest on Up Close today.

ROBIN JEFFREY
Thank you very much, Elisabeth, I've enjoyed it.

ELISABETH LOPEZ
That was historian and political analyst, Dr Robin Jeffrey. Relevant links, a full transcript and more info on this episode can be found at our website at upclose.unimelb.edu.au. Up Close is a production of the University of Melbourne, Australia. This episode was recorded on 16 June, 2011 and our producers were Eric van Bemmel and Kelvin Param. Audio engineering by Gavin Nebauer. Up Close is created by Kelvin Param and Eric van Bemmel. I'm Elisabeth Lopez, until next time, goodbye.

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