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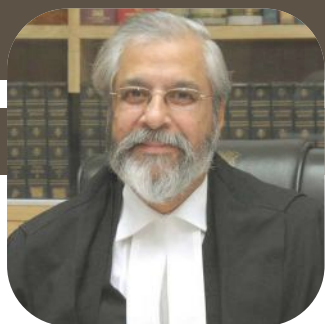
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Understanding the Nuances of Social Justice¹



Justice Madan Lokur

The Honourable Director of IIM Bangalore, Ladies and Gentlemen

Today, I would like to talk about social justice. It is a topic very close to my heart and given the situation in which we are living today, with the pandemic, huge migration, unemployment, financial crunch and so on and so forth, I thought it would be good to speak about social justice.

It's very difficult to define social justice. It is prominently mentioned in the preamble of our Constitution as justice – social, economic and political. Plenty of articles and books have been written on social justice, and yet it is difficult to define. As far as I am concerned, I believe that social justice means equal treatment of everybody in all walks of life and in all spheres of life, and throughout society.

For example, freedom of speech is available to everybody, regardless of caste, creed, race, sex, religion. It's not that there is a limit to the freedom of speech because a person belongs to a particular caste or a particular race. This fundamental right is available to everybody and equally. Similarly, freedom of movement, travelling from one part of the country to another part of the country. Freedom to assemble peaceably, without arms. So, you can have a *dharna*, you can have a protest as long as you are not carrying arms and, of course, it has to be a peaceful protest. Similarly, equal opportunity of employment. Just because a person belongs to a particular caste or religion, it should not be that that person is excluded from any type of employment. Freedom of profession is another instance. A person doesn't have to carry on the profession that his father and his grandfather were carrying on. He has a choice and can join a different profession. So really, equality in all spheres of activity and in all spheres of life is how I look at social justice.

The Constitution of India makes a few exceptions. Article 15 of the Constitution makes an exception with regard to women and children because of historical reasons. Women did not enjoy equal status with men for a long time and therefore, to give them the opportunity of equality in all respects, the Constitution says that special laws can be made for women. Children too were never in the equation, and I think even today, to some extent,

they are not in the equation. The Constitution says that the Legislature can make special laws for children so that they also get equal status as citizens of the country.

Similarly, for Scheduled Castes and Scheduled Tribes – historically, we know that they have been depressed and so the Constitution says that the Legislature can make special laws for them. Reservation is one such example. So, some exceptions have been made for women, children, Scheduled Castes and Scheduled Tribes with the intention to uplift them so that they have equality of status with all other persons in the country.

Unfortunately, we are still struggling with this equality syndrome. Recently, the Supreme Court delivered a judgement giving women the right to family property. It was an interpretation of an amendment to the Hindu Succession Act that came about in 2005. Grant of permanent commission to women in the armed forces is another very recent development. Even after 70 years, we are still in the process of considering some of these issues of equality.

Some inter-caste marriages do take place but the couple faces serious problems. Some have been killed for inter-caste marriages, for inter-religion marriages. These are social issues that we have to deal with. The practice of manual scavenging, which is outlawed and illegal, still persists. We are still struggling with these problems and that is why social justice is important, to achieve real equality for everybody.

Over the years, from 1950 onwards, we have come to recognise a larger number of groups or communities which are marginalised or disadvantaged in some way. This recognition existed earlier also, to some extent, but it came to the doors of the Courts and became an issue of public importance in the early 1980s, when a petition was filed in the Supreme Court on bonded labour. An NGO called Bandhua Mukti Morcha, at that time headed by Swami Agnivesh, wrote a letter to the Chief Justice of India stating that bonded labour is prohibited by the Constitution but continues to be practised in the country. Bonded labour is “*begar*”, where a person's grandfather has taken a loan and he is trying to pay off that loan. There is a huge amount of interest charged, so that person's father too is trying to pay off that loan and perhaps his children will also continue in the same vein. The problem runs through generations. There is a law which says that bonded labour is abolished and yet, right next to Delhi, there were mines where bonded

¹ Inaugural address delivered at the XV International Conference on Public Policy and Management at the Centre for Public Policy, Indian Institute of Management Bangalore on the 24th August 2020

labour was being practised. The Supreme Court took up the complaint as a social justice issue and gave directions to free an estimated 30,000 people from bonded labour in different parts of the country. This was in December 1983. In spite of that, to an extent, bonded labour still exists. It's a social problem, and we have to address it.

Another social problem which is yet to be addressed adequately is access to justice. These bonded labourers had no access to justice. Swami Agnivesh intervened on their behalf. Some person who is a bonded labourer in a remote part of the country, perhaps illiterate, paying off a debt which his grandfather had taken, how does he come to the Courts? It's not easy for anybody to come to the Supreme Court. We had an instance where some suspected criminals in Bhagalpur were blinded by the police. They were tortured by putting needles and acid in their eyes. They had no access to justice, but a socially active person approached the Supreme Court on their behalf. These people had not been convicted, so how could the police blind them on the ground that they were suspected to be criminals? Even otherwise, which law permitted the police to blind them, even if they were hardened criminals? So, the Supreme Court gave this right of access to justice, to come to the Court, where a person doesn't have to file a formal petition, but can just send a postcard - that's good enough. And if the issue requires consideration by the Supreme Court, it will certainly be taken up.

This gave an opening to large sections of society to approach the Courts in public interest and raise social justice issues. Initially, public interest litigation or PIL was confined only to those on the margins of society or depressed or disadvantaged sections of society. But as time went by, the scope was expanded. A couple of years later, there was a problem in the Mussoorie Hills due to indiscriminate limestone quarrying which led to air pollution. The limestone dust was creating a problem in Dehradun in the foothills of Mussoorie. So, an NGO went to the Supreme Court, again through a letter, saying we have a right to a clean environment. The Supreme Court appointed committees, looked into the issue, and eventually prohibited quarrying of limestone in the Mussoorie Hills.

The Bhopal gas disaster was another major event where the Supreme Court said it is the responsibility of the State to look after the people, and applied the *parens patriae* principle, which implies that the State is the 'parent' of the people who are depressed, disadvantaged, who have no access to justice, or who cannot assert their rights and who are unable to ask for the enforcement of their rights. It is the obligation of the State to look after their interests. This is the background of social justice in the Court.

Over the years, when I was presiding over the Social Justice Bench in the Supreme Court, we came across four categories of cases and I would like to deal with some cases.

The **first category** is where the laws exist, that is to say that Parliament has enacted a law, but it is not implemented either in letter or in spirit.

The **second category** is where there is a need for a law, but Parliament has not or is not enacting a law, so you have some gaps or a vacuum.

The **third category** is where there is no law at all. The second category is based on some events which have happened internationally. But the third category is where there is absolutely no law at all and we need legislation for some of these issues.

And the **fourth category** is where the Supreme Court has creatively interpreted the Constitution, creatively interpreted life and liberty as mentioned in Article 21 of the Constitution and has given meaning to certain aspects of social justice and has thereby benefitted some sections of society.

In the **first category**, there are many examples. Children, in my view, are the worst affected. The Juvenile Justice Act says that every shelter home should be registered. The Act first came in 1986, then in 2000. We dealt with it after the enactment of the 2000 Act. However, now there is a 2015 Act. But the registration of shelter homes across the country has not yet been completed. You still read in the newspapers at least once a week about something or the other happening in some shelter home. That is, the shelter home is not being run in accordance with the provisions of the law, and so on and so forth. But one really ghastly incident that took place, and which I think should have shaken up the administration, was the rape of 34 girls in Muzaffarpur. It was not that these helpless girls were raped once. It was a continuing rape of these 34 girls in a shelter home. When the case came up, there was evidence to show that the neighbours had said that they heard screams in the middle of the night, but they were too scared to inform the police, because the persons who were running the shelter home were politically well-connected. The wife of one of them was a minister in the State cabinet. The girls were drugged, abused sexually and otherwise. The perpetrators of the crimes have recently been convicted, but let's see what happens in appeal. There are several such instances, where children are completely forgotten because they are voiceless. What could these girls do? They couldn't do anything, nor could their adult neighbours.

There is a law for the prevention and prohibition of child sexual abuse. Yet, there are about 1.6 lakh cases of child sexual abuse pending in the Courts at the moment. Now, you can imagine eight-year-old girls or nine-year-old girls, perhaps younger, who have been raped - how are they going to grow up in society, with this trauma hounding them for the rest of their life? Isn't this a social justice problem? Can we not do something about it, apart from just enacting a law and saying, well, we have enacted a law, so that's it, our job is over.

Then, there are concerns and issues of migrant workers about which we felt quite acutely during the pandemic when millions of people who had migrated to the cities went back home. Many of them - I will not be surprised if most of them - were construction workers. They were not registered, in spite of a law enacted in 1996. The law says that a cess will be charged on constructions, and the benefit of that cess will go to these construction workers. The estimate is that about Rs. 30,000 crore is today lying in the kitty, not being utilised for the benefit of these construction workers. When the Court asked how this money was being spent, some of the answers we got were fantastic. One of the answers was that it was used for purchasing washing machines

and laptops. This is unbelievable. Many construction workers don't even have proper clothing and the State is buying washing machines for them. Laptops were purchased for the so-called benefit of construction workers, many of whom are illiterate. And we saw the agony they went through during the pandemic.

There is a statutory National Commission for the Protection of Child Rights. The law says it should have a chairperson. For about 18 or 20 months, there was no chairperson in place. So, you have a law, not being implemented. Similarly, under the Right to Information Act, there is an Information Commission where posts are lying vacant.

Under the National Food Security Act, which is a very important piece of legislation, a Commission is required to be appointed by every State but has not been appointed. One of the State Governments said the reason for not appointing a Commission is because it could not find even one suitable Scheduled Caste person in the entire State. Can you imagine? What is the kind of 'suitable' person that the State is looking for? What happens to food security? These are issues, touching the common man, the *aam aadmi*, which are important.

Another example is MNREGA, a social justice legislation to provide employment. The law says that the beneficiaries have to be paid their wages within 15 days, but they are not paid. It takes about a month, sometimes two months, for wages to be paid. If the wages are not paid within 15 days, interest has to be paid at 18 percent, which is not being paid. These unemployed persons obviously cannot go to Court. As long as they get the principal amount, they are quite happy and are prepared to forget the interest due to them. And sometimes, for getting the principal amount also, they have to share a part of it with somebody who has to sanction the amount. So really, they are squeezed both ways. The importance of MNREGA is being felt today when a very large population is being employed, such that a major portion of the budget for the year 2020-21 has already been utilised and we are just halfway through the financial year.

These are the kinds of cases where the people are directly involved, where democratic values and human rights are involved, where poverty is involved, where finances are involved and where constitutional rights are involved. They all come under the broad heading of social justice where equality is important. Just because a person happens to be poor does not mean that the State can deny him timely wages or make payment beyond the time prescribed by law.

Some more examples of cases where legislation exists, but implementation is lacking, are old-age homes, which are supposed to be in every district but are not there; provisions for housing; prohibition of manual scavenging; regulations on environmental issues. You name it, these are all social justice issues.

The **second category** is the failure to enact social justice laws. Sexual harassment is a classic example. There

is an international Convention on the Elimination of Discrimination Against Women (CEDAW). India signed the Convention in 1980 and ratified it in 1993. In 1997, a case of sexual harassment at the workplace came to the Supreme Court.² The Supreme Court asked what was being done about enacting a law prohibiting sexual harassment of women at workplace and punishing persons who indulge in this. No clear answer was given. So, the Supreme Court noted that India is a signatory to an international convention and has even ratified it. Can it be said that that the country is not going to implement that Convention? If the government and Parliament are not legislating on the subject, the court will issue guidelines in the form of orders. And that's how, in the famous case of Vishaka, the Supreme Court issued guidelines prohibiting sexual harassment at the workplace and laying down the procedure on how to conduct an enquiry. This was in 1998. When did a law on the subject come to be enacted? The law came in 2013, about 15 years after the judgement of the Supreme Court. And what was the trigger? The trigger was the rape and murder of Nirbhaya. If that unfortunate event had not occurred, God alone knows when the law would have been enacted. So, here you have a section of society, working women, being ignored. There is a law which should be enacted because of an international convention that our country has signed, but action is not being taken on the basis of that Convention.

Another example of failure to enact a law is in respect of abortion laws. There is enough evidence to show that medical termination of pregnancy can be safely carried out till the 24th week. But the limit under the law remains at 20 weeks, ignoring medical evidence. What is the consequence? The result is that at least about 50 cases have been filed in different courts across the country, including in the Supreme Court, by women who need an abortion. And why do they need an abortion? Some of them have been raped and are carrying the foetus of the rapist. They say we don't want that foetus; we don't want that child. The law says sorry, whether you like it not, you have to carry that child. So many of them come to the Courts, when the 20 weeks are about to be over. And there have been instances, by the way, where the lady has come after 18 weeks of pregnancy and by the time the Court takes a decision, 20 weeks are over and the Court says what can we do now? Why did the court not take a decision in time?

Human trafficking is yet another huge problem, and I think one of the worst crimes that can be committed. Today, it is estimated – there is no way of finding out except making an estimate – that 30 lakh women and girls have been trafficked. Women and girls have been trafficked in different parts of the country. Boys have been trafficked. What are we doing about it? We don't have a comprehensive or updated law on human trafficking. We have the Immoral Trafficking in Persons Act, 1956. But things have changed since 1956. We have Section 370 of the Indian Penal Code which talks about slavery, and trafficking is nothing short of slavery. But is anybody going to admit that there is slavery in India? Nobody is ever going to admit it.

The law needs to be updated to tackle modern methods of trafficking, such as cyber-trafficking, where women are being trafficked through computer networks. There is no

² The gruesome rape of Bhanwari Devi in September, 1992 shocked the collective conscience of a large section of Indians.

way of finding out the person trafficking them. 30th July was the International Day against Human Trafficking, and I had occasion to discuss the issue of cyber-trafficking with some survivors. In one example, at least 40 girls in one State were trafficked but they were unable to identify the person who had trafficked them. They were only told about someone named Raju. Now, this Raju was perhaps not responsible for all 40, but that's the pseudonym being used. So, is the police going to look around for Rajus all over the country? These are areas of concern for women, children and indeed society as a whole. What are we doing about it? We need to ask ourselves some of these questions. An international report says that between 2010 and 2014, something like 3.85 lakh children went missing. What are we doing about missing children? We need to look at this also.

The **third category** is where no laws exist, but there is a need to enact a law.

There are communities of widows in Vrindavan and the Supreme Court had to deal with their plight. Many widows, some of them educated, come to Vrindavan because they have been chucked out of their house for the reason that their husband died. For no fault of theirs, they are held responsible. Though they are not responsible, yet they are chucked out of their home and hearth. How do they survive? They go some temples in the morning, sing *bhajans* and are given breakfast or lunch as *prasad*. In the evening, they sing *bhajans* again, and they get *prasad* for dinner. So, for their breakfast, lunch, dinner, they have to sing *bhajans*. They have no proper source of income, no source of any entertainment, for whatever it is worth, and they live in terrible conditions in some *dharmashala* which doesn't care. Can something not be done about them? What is their fault? And it's not only in Vrindavan, there are thousands of such widows in other parts of the country as well. We talk about life with dignity and Article 21 of the Constitution. Where is the dignity for these women?

An area which urgently requires legislative action is prison reforms. Since the 1980s, discussions have been going on, judgements have been delivered, committees have been set up on reforms in prisons, but there is no law enacted on the subject. Torture is possible and perhaps happens in prisons, but who is to check? How do prisoners manage to commit suicide in prison? There is more than enough material available to show that some privileged prisoners use cell phones in prison. How do they get them? There is enough evidence to show that drugs are transported in prisons. How do they get there?

The pandemic has shown that many persons in many jails in the country have tested Covid positive. Who is responsible for that? What happens to the *parens patriae* principle that was laid down by the Supreme Court in the Bhopal Gas disaster case? Is the State responsible? The Supreme Court has said that authorities should be liberal in granting parole but that is not the reality. The authorities are content to let the prisoners remain in custody.

Fake encounters are another huge problem. We have had two fairly recently, in Hyderabad and near Kanpur. What is the justification for a fake encounter? Just because a person is suspected to be a criminal or may have committed a crime, is there a licence to kill? There is no law to address this issue. It has been reported that

so much fear was spread among criminals by such fake encounters that something like 16,415 persons who had been granted bail by the courts surrendered and said, please put us back in jail. They said that they would be safer in jail rather than outside where they may be involved in some kind of a fake encounter.

And now, during my research for today's talk, I came across something called a half-encounter. A half-encounter means the police don't kill the person. They injure him, and maybe injure him pretty badly. So, there are fake encounters and half-encounters that 'compel' criminals to feel that they are not safe on the streets. Isn't this rather ironic? These are problems that confront society. These are problems of justice. Who would voluntarily like to go to a Magistrate and make a request for being sent to jail for reasons of his safety?

There are equally serious issues with the unorganised sector of labour. The participants here know much better than I do, but the figures seem to indicate that anything between 80% and 90% of persons working today are in the unorganised sector. What are we doing about them? In some parts of the country, there are brick kiln workers who are as good as slaves, as good as bonded labour. We had a case in the Supreme Court where two persons had taken a loan from a contractor. The contractor assured them employment in a brick kiln in some State to enable them to repay the debt. But instead of taking them to the promised destination, they were being taken to another State. When they realised what was happening, they tried to run away but were unfortunately caught. What did the contractor do? He gave them an option – to either have a leg chopped off or the hand chopped off. Eventually, their hands were chopped off. Isn't this something to do with social justice? People take the law into their own hands, but can we not prevent an incident like this from happening? Should such an incident be allowed to happen? What justice are we talking about?

The **fourth category** is the creative interpretation of the laws. We have marginalised sections of society all over the country. For example, the transgender community has limited or no rights at all and no recognition. The Supreme Court creatively interpreted the fundamental rights chapter in the Constitution and said that the words 'person' and 'citizen' have been used. These words are gender-neutral. So, the State cannot discriminate against a transgender person because that transgender person is a person and a citizen. There must be equality and it is through application of this principle that recognition was given to what we call the third gender. That is social justice through a creative interpretation.

The LGBT community is also a marginalised community. The Supreme Court said what's wrong if somebody has a different sexual orientation? Can that be a ground to discriminate or can that be a ground to treat a person in a different manner, unequally from the rest of the population of the country? They said no, it cannot be done. And, they gave a creative interpretation to Section 377 of the Indian Penal Code and said that if consenting adults want to live in a particular relationship, they are entitled to do so. How can the State compel an adult to follow what the State says? It can't be done. That was again a creative interpretation by which rights were given or restored or recognised to the LGBT community.

Another huge problem that our society is facing is that of child marriages. During this pandemic, a lot of people said they got their daughters married because it's much cheaper now, because not more than 50 guests can be invited and they don't have to spend money on a *pandaal* or a *shamiana*, or this, that and the other. What happens to these child brides who are 13-year-old, 14-year-old, 15-year-old girls married off by their parents and who, sometimes, get pregnant? The Indian Penal Code says that if a married woman is a minor, sexual intercourse with her is not rape. A creative interpretation had to be given to the meaning of rape and to the meaning of child rights. And just because a girl is married even though she is a minor, it doesn't mean that her husband can commit rape. It is still an offence of rape. Independent Thought was the judgement where the Court held that the husband can be found guilty of rape and convicted.

There was an instance recently where a girl from Tripura got married to somebody in Rajasthan. Her mother said she had sold her minor daughter. This child bride got pregnant, and she was very unhappy. She ran away from the matrimonial home and went to Jaipur. The police saw her wandering around, they caught hold of her and took her to the police station where she explained what had happened. The problem was now of sending this girl back to Tripura. Who will pay for the journey and make other logistical arrangements? To go to Tripura, one needs to go via Kolkata and there is no railway in Tripura. A journalist had reported this story which I brought to the notice of the Chief Justice of Tripura. He took up the case of this girl as a Public Interest Litigation. During the course of hearing, the Child Rights Commission said that they will arrange for her transport by air. When the girl reached Tripura, her mother refused to take her back. It is in such situations that are created that we confront social justice at every point when we are dealing with marginalised or disadvantaged people. I think it is our responsibility as citizens to do something about it.

Judicial activism

What is the remedy available to such people? They come to the court and say there is a law, but it is not being implemented or there is no law, like the widows of Vrindavan, or that things are not happening the way they should be happening, according to the Constitution. So, the Supreme Court intervenes and then it is accused of judicial activism. The doctrine of separation of powers is referred to and the Court is told to stay where it is, interpret the laws, don't interfere with executive or legislative work. What is the work of the executive? It is to implement the laws. If the executive doesn't implement the laws, should the Courts tolerate being told that it is none of your business? If the fundamental rights of the citizens are taken away because of non-implementation of laws or because of non-implementation of international conventions, should the Courts be expected to say that it is none of our business?

Parliament enacts laws, but it does not monitor their implementation. That's the duty of the executive. And if the executive doesn't implement the laws, should the Courts remain silent? Should it permit human trafficking? Should it permit child marriages? Should it permit the government to amass Rs.30,000 crore and say, well, it will not be given to the construction workers but will

be used to purchase laptops and washing machines. Our reaction as citizens has to be one of social justice, which is what this problem is all about. And that is the reason why the courts interfere, because it is their constitutional obligation. They have to ensure that the fundamental rights of the people are protected.

On the other hand, if the executive does its job faithfully and sincerely, nobody will have to come to the court. If the executive ensures that the appointments are made to the National Commission for the Protection of Child Rights or to the Central Information Commission, why should somebody come to the court? If the executive ensures that the cess collected under the Construction Workers Act is paid to the workers for their education, for their livelihood, for their accommodation, why should they come to the Courts? If the executive ensures that there is no bonded labour, why should anybody come to the Supreme Court and say abolish bonded labour, abolish *begar*? It is a Constitutional issue. Let's look at many of these issues and concerns as a part of public policy. Where is our public policy headed? Are we looking at some of the concerns that impact a vast majority of our population who have perhaps, no access to justice? We can't expect a construction worker in Odisha or a brick kiln worker whose hand has been chopped off in some State to come to the Supreme Court or to go to the High Court, for that matter. It's not easy. Unless we discuss all this, and I have seen the themes that you are going to discuss, and I am very glad that many of these themes, if not all of them, in some form or the other, deal with social justice. Let's get something moving, so that we can help the people of our country, give them social justice which, I believe, is necessary particularly during the pandemic. But even otherwise, I think the time has come to talk about all these and many other social justice issues.

Justice Madan B Lokur is an Indian jurist. He was enrolled as a lawyer in 1977. He was later appointed as Additional Solicitor General of India in 1998. He was appointed as judge of Delhi High Court in 1999, where he also functioned as the Acting Chief Justice from February 2010 to May 2010. He was Chief Justice of Guwahati High Court from June 2010 to November 2011. He served as Chief Justice of the High Court of Andhra Pradesh from November 2011 to June 2012. Justice Lokur was appointed judge of the Supreme Court of India in 2012. He retired in 2018. Post retirement, Justice Lokur was appointed judge of the Supreme Court of Fiji in 2019, for a term of three years. He is the only Indian to be appointed as judge of the Supreme Court of another country.

Global Agro-Food Systems: Research, Policy and Implications for India



Barbara Harriss-White¹

It is a real privilege to join you and indeed it is a miracle of technology. When the Centre for Public Policy (CPP) asked me to talk about agricultural markets, I knew there was nobody better to do that than Dr. Mekhala Krishnamurthy. My own fieldwork on food systems in India took me from 1969 to about 2014, but no further. I currently have the opportunity, however, of participating in a food systems economics commission. This experience has done much to whet my curiosity about 21st century food systems worldwide, about market systems within food systems and about the roles of policy in how they develop. I hope what I am going to say will provoke questions. I apologise in advance because this is work in progress and, because of that, the slides I am showing are rather dense in content. If the slides and the talk interest you, do please get in touch with me for I am sure they will benefit enormously from your reactions.

First, I will outline the phases of my talk and discuss definitions because, unless we all are on the same page, we often talk past each other. We often conceive ideas and theories making assumptions that need to be made explicit, because lack of clarity – though it may act as a comfort blanket - impedes fruitful interpretations and understanding. So first, I am going to ask what is food. Food means many things to many people. Second, I ask what are systems. To answer the system question, I am going to invoke the pioneering work of Rolando Garcia, which I think has stood the test of time. Then I am going to turn to the question that was asked of me to talk about, which is that of agricultural markets. How are these seen in food systems terms? And fourth, policy: even more difficult. I will try to clarify and develop all these questions by looking at global research on food systems. Not Indian research, which I normally work on, but instead introducing work that tries to encompass the entire planet. I will finish by making a link from the planetary scale to some Indian themes, which I believe Mekhala will develop.

So first, *What is food?*

This may seem a strange question when we all depend intimately on food. It is important to ask because food is actually a fuzzy concept, one subject to multiple meanings. For some scientists, food is simply a set of

crops we eat - so food is categorised in various ways - either by individual crops or crop groups such as grains and legumes, vegetables and fruit. And very often, this kind of classification of food privileges vegetarian ideas of what food is. It neglects fish and animal meat and products. It neglects insects, which some people in some parts of the world enjoy eating quite a lot of the time. The definitions of food, feed and waste are often quite arbitrary. And what we all tend to forget is that food is impossible to produce or consume without water. Others—including some anthropologists - think of food as the elements of a diet. With this understanding of food, some of the world's multitude of food cultures are found not necessarily to distinguish between food and medicine. And then there are nutritional scientists, who think in terms of nutrients-- macronutrients, which are calories and proteins, plus micronutrients, which are vitamins and minerals. If you accept the nutritionist's conception of food, you have an enormous universe of detail which you are bound to try to describe and from which you have to select if you are going to try to build models of possible food systems.

Now, the central question about food, which is exercising the minds of people who study the planet, is three-fold. First, that current global food production and consumption has unhealthy outcomes for humans. We live in the midst of pandemics of over-nutrition as well as under or malnutrition. Second, at the same time, our global food system is environmentally destructive; it is completely unsustainable. The world food system contributes, nobody really knows how much, but around 30% of global greenhouse gases, and this would be an even bigger fraction if we factored in the enormous amount of carbon and other heating gases that are emitted when we change land use from forests to agricultural and pastoral production. The food system is nailed as a major driver of the sixth mass extinction that is gathering pace. The food system is a critical environmental problem. Third, it is alleged - and there seems to be some data to show this - that a significant proportion of food output is wasted-- we are talking 30 or even 40%. I think that FAO currently calls out 40% of food as wasted worldwide.

So, the food question concerns these three sub-questions. We already know the foods that are most damaging, both to human beings and their health, and to nature and the health of ecosystems. First, red meat produced by the mass-production of ruminants. Second,

¹ Transcribed from the special lecture given at the XV International Conference on Public Policy and Management, August 25th 2020.

refined and highly processed starchy food, the sort of food that you grab in hurry in a supermarket. Third, the intensive means by which milk and eggs are produced and consumed, which cause harm to both human beings and nature. So if you ask me now what should be the immediate priorities for policy, I would reply that enough is known to identify those parts of the food system that need to be changed in directions less unhealthy for us and nature. If you agree, then what is stopping it? And if you don't consider them as a food policy priority, the question is, why not?

In the 21st century, the food question is not just a question of the socio-economic system or the policies that have together produced this unhealthy outcome. It is also a question of nature. And giving nature due weight involves integrating into our concepts of food system, not just 'the environment' but the nine planetary sub-systems through which the environment is constituted. They are the carbon cycle, land use changes, water, the nitrogen and phosphorus cycles, biodiversity, chemicals production, ocean acidification, ozone and aerosols.² They are difficult for social scientists to get their minds around. The take-home fact is that our environment is made up of sub-systems. Or, at least, it currently makes sense to ecologists and bio-geo-physicists to study the planet through those nine sub-systems.

That then forces everybody – both physical and life scientists and social scientists - to figure out how we understand one another when we are talking about these sub-systems' conceptual categories, the relations between them and their measurement. It forces us to maintain coherence and consistency when trying to make trans-disciplinary models of food systems. One question among many that might occur to you, as it does to me, is that if we measure consumption in terms of nutrients, as nutritionists do, and which seems like a good common ground amid all the diversity, should the production and the distribution system also be measured in the equivalent sorts of units, which will be energy and material elements including biomass?

The 21st century has brought new urgency to the food question and new problems in our understanding of the food system.

We also need clarity about what a system is.

What is a system?

In about 1980, I was inspired by the ideas of the food systems theorist Rolando Garcia. His training was in meteorology but he was also interested in how we know what we know, in epistemology. His contribution was to bridge the gap between the engineering and mechanical mindset, which prevails in systems modelling, and the plural theoretical worlds, the varied kinds of evidence, and the reflexive nature, of the social sciences. His ideas influenced an early trans-disciplinary field project on food systems and society carried out in Mexico, in West Bengal and in Odisha, and coordinated in Geneva through the United Nations

Research Institute for Social Development (UNRISD).³

Garcia pointed out that systems are not something existing out there. They are conceptual devices to enable us to make sense of complicated things whose inter-related parts we think depend on each other, and whose sum exceeds the sum of their parts. In studying systems, we are not trying to understand entities in isolation. We are trying to understand things in relation to each other. He then argued that although we are prone to conceiving systems in terms of their elements⁴, this is an incomplete approach. Rather, you can best identify elements (and the 'stocks' of which they are composed) only once you have conceived the relationships, the links, the dynamics, the interconnections, the processes that you think contribute to the purpose or the goal of the system in which you are interested. Calling them flows and fluxes, he admitted that they have many names. His point was that the structure of a system consists of these relationships and the varied ways in which they feed back upon one another. And looking at the food systems in the late '70s and the early '80s, he identified many activities that we would now talk about as policies, as flows and fluxes entering and exiting the food system. Fluxes into the system include things like 'credit policies', 'technology', 'demand for specific products', 'food imports' and 'workers'; fluxes out of the system include 'agricultural products', 'processed products', 'water', 'workers' (again), and 'profits'. We can work back from these suggestions to the theoretical ideas informing them.

If we look at Garcia's elements and relationships from a 21st century vantage point, however, we find there's no energy there, no materials, no bio-diversity or planetary sub-systems. There is not even a hint of capital, although Garcia identifies labour and workers as flows or production relationships in his food system. There is no waste. There are no gender relations. There are no policies as a category, despite many policy-like activities. In fitting policy, and for this audience you might say public administration, into food systems, Garcia reveals that it occupies quite a fluid position conceptually.

Garcia also argued that there is no single scale to a food system. In the systems concept, scales will vary according to our own needs for precision, intelligibility and interpretation. Systems can, and usually must, also be conceived of as made up of sub-systems: these may overlap, they may be contained within a system or may exceed certain of its boundaries, they will almost always be in a hierarchy, and they will also be dynamic and unstable. For Garcia's food system, he suggested three sub-systems – a physical one, an agro-productive one and a socio-economic sub-system. The physical sub-system was constituted through soil, water, climate, biodiversity; the agro-productive one through costs and returns, technology, physical inputs, production relations, post-harvest technology and spatial transformations, consumption and waste; and (betraying Garcia's disciplinary formation as a meteorologist) the

3 Rolando Garcia 1994 *Food Systems and Society : A Conceptual and Methodological Challenge*, Geneva, UNRISD

4 Donella Meadows (1993) 2008 *Thinking in Systems*, London, Earthscan

2 Johan Rockstrom et al 2009 'A safe operating space for humanity', *Nature*, vol 461 pp 473-5

economic-social sub-system was very loosely specified as 'social and political structures'. This is an early pointer to the finding, that has struck me in reading for the work of the commission I mentioned earlier, that when people trained in one field, such as economics, try to model the planetary food system, vagueness in relation to other fields of knowledge is admitted alongside the precision of the concepts which their own training leads them to employ.

Garcia goes on to examine feedback relationships between sub-systems, and finds that they are not symmetrical and have varied content. The forces that the physical system imposes upon the agro-productive system are different from the forces acting in the opposite direction. He talks about such system attributes as quality, stability and resilience. The last two attributes work themselves out over time-- and time and delays are rarely explicitly acknowledged in depictions of systems. Resilience is something that has stood the test of time and the evolution of the food system over time. Garcia's key attributes are not things set in tablets of stone but constantly evolving.⁵ They are complex. Complexity is something we know quite a lot about these days but, for Rolando Garcia then, it was an attribute of the methodology and it was a function of our own capacities to understand. It required clear and widely comprehensible language, some kind of lingua franca, some kind of intelligibility between fields and disciplines and concepts, and this is not a trivial problem at all. At the same time, models have to be selective, a selection defined by the purpose of the analyst – the function or process that she/he wants to understand. Systems are concepts inside our heads and so we also need to be honest and critical in defending the two kinds of purpose-- the purpose for which we are translating the purpose of food production, distribution, consumption into a systematic model of a system.

Okay, most real-world systems are open but, when we conceive them, they have to have boundaries. They are conceptual and they result from hypotheses we have about how we might close a system conceptually. There are no isolated systems in nature, however. Physicists have a particular definition of closed systems⁶ but all our open conceptual systems and sub-systems have to have closure in order for us to analyse them. If you start thinking about economics, which is my parent discipline, even the economy is a closed system in terms of its concepts, its language and its definitions – all requiring us to be clear about disciplinary boundaries. We must try to specify why we bound the system in the way we do, recognising that things outside the system are not necessarily independent of it. There may be many flows, especially in the food system, which cross system or sub-system boundaries. Money, food products, material inputs and energy, for instance, are not independent of what we suggest as being within the food system. But there are other boundary conditions that can not be expressed as material flows,

5 Attributes are also contested. Others, such as the systems theorist Donella Meadows, have identified attributes as resilience, self-organisation and sub-system hierarchies (2008, pp 75-85)

6 Systems which do not exchange matter with their surroundings

and researchers in public administration and public policy may be interested in the idea that information is both a non-material flow and a constraint on system functioning. Decisions are taken outside the system which produce or include decisions and changes in flows within the system. Again, we have to be clear about the non-material boundaries and define them as best we can.

Lastly, reflexive relations also define the boundaries of the system – how agents within the system define the boundaries of the system in which they are acting. We need to try to incorporate this reflexivity as well. Nobody said this would be easy.

In systems theory, the environment refers to everything, which is outside a system - but again, I repeat, not necessarily independent of it. Rolando Garcia talks about a 'continuum of relevance' in which we make judgements about elements, stocks and flows, which are outside and affecting the system to a greater or lesser degree. And these days, economic modellers are focused on shocks (recognised as hidden costs by many of them), which occur outside a system but affect the elements and the flows within it. How do you identify such risky or downright uncertain forces, and describe or value their impact? The concept of system that Garcia described, which I think stands the test of time, attempts to minimise vagueness and yet is full of indeterminacy, full of concepts and ideas which might change in the process of research. He proposed starting with the concept of a system, which is justified through hypothesising its goals and relations, which could then be modified as things become evident from research. It is an exciting and dynamic kind of starting point. I would just want to add that in his conception, evidence or data is something that has to be sought. It is not confined to quantitative information. It is concepts, it is relations, it is definitions, which matter crucially as we go out and hunt for our system.

What are Agricultural Markets?

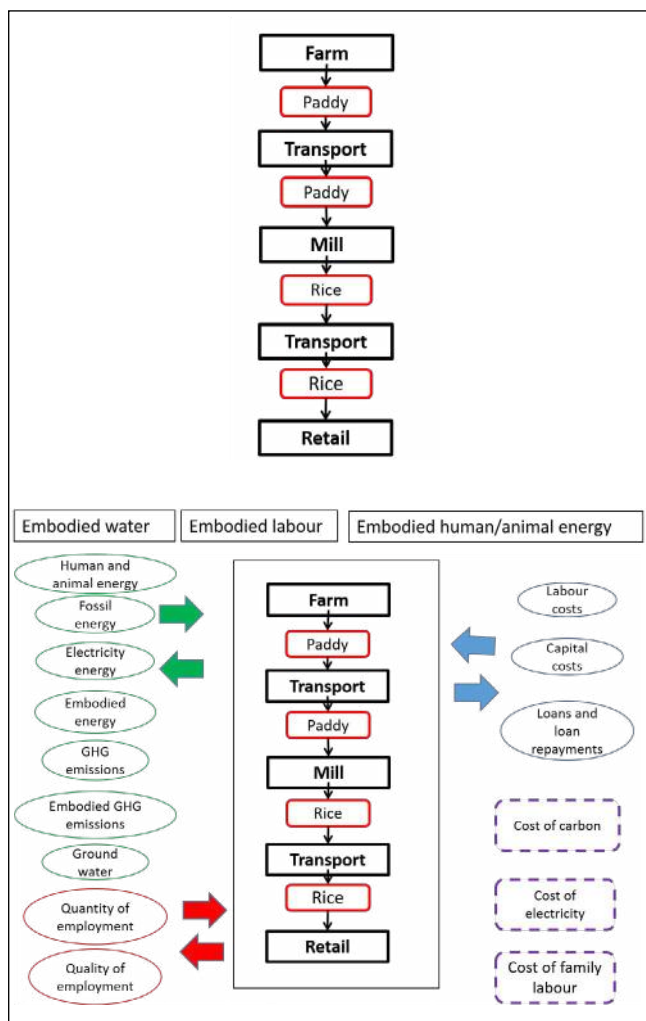
The next definitional part of my talk is the substance and role of agricultural markets within food systems. This is what Professor Sriram first asked me to talk about. In the food system, agricultural markets are the indispensable link between production and consumption. They consist of a series of economic activities in a sub-circuit of capital that we might call distribution. Those activities are buying, selling, brokering, transporting, storing and processing, and lending money and borrowing money throughout the sub-system that starts where production ends, and ends where consumption starts.

India's agricultural markets, which Mekhala is going to talk about, are commonly depicted in two extreme ways. The first is as competitive and efficient. When I started studying them in the late 1960s, that is exactly the simple (perhaps ideologically driven) conclusion that the early generation of price behaviour studies used to trot out – although they actually revealed considerable detailed complexity if you read the fine print. Second, they were and are characterised as oligopolistic - and socially protected as oligopolies - with masses of petty trade surrounding them.

Now, policy for India's agricultural markets rests on

owned or state-owned. And the flows are commodities -- paddy and rice, their by-products together with money. The dynamic of the system, which I would now identify as capital and labour, is missing. Energy, materials, biomass relations, all is missing. Policy is missing.

Now, Mekhala may well be going to argue that the sort of scaled-up global knowledge-- that I am trying to grapple with and will present to you-- is misleadingly inadequate unless it is backed up by empirical specificities. In her ethnographic research, she has shown the complexity of a single *Mandi* in Madhya Pradesh. However, having conceded that, when we start trying to depict a system using methods drawn both from social sciences and environmental sciences, we may have to simplify that complexity very considerably, down to this kind of a system with simple elements on to which we might be able to lay flows and attributes.



Systems are complex in reality – in the reality we conceive. They have to be simplified. They can then be made more complex, as here, in ways that satisfy methods of environmental science- but maybe not social science. In this case, the stork’s nest in the West Bengal system of agricultural markets has been simplified and stylised so that Life Cycle Analysis (LCA) from environmental science – through which the GHG pollution from each stage of a food production-distribution-consumption system can be computed - can be made compatible with Supply Chain Analysis (SCA) from business studies, through which we calculate costs, returns, energy and labour.

A big challenge for the 21st century is to find some way to complexify food systems in a way, which the physical

and life sciences speak in an equal way to the social science and together bring us insights about its purpose and dynamics that we didn’t know we didn’t have.

What is Policy?

Lastly, what is policy? And here we have a case of experience grating against concepts. In development economics, policies are conventionally a set of implications to be drawn from a modelling exercise or regression analysis. But policy isn’t an implication, nor is it well represented by a linear kind of organogram with arrows from design or formulation to implementation and onwards towards monitoring and evaluation – sometimes feeding back to design. Having taught policy for many decades, I have understood that policy is being theorised inside six disciplines, each with internal debates about paradigms and about the strengths and weaknesses of concepts and theories. An important lesson or ‘take-home’ about policy is that there is no one superior way to analyse a policy. There’s also no a-theoretical way to analyse policy, even when policy is being written about without reference to theory of any kind. Even if people don’t refer explicitly to theory, they have some kind of theoretical notion behind their use of the term ‘policy’.

I reached retirement concluding that comparative analyses combined with an inclusive but critical attitude to theoretical pluralism is very valuable. This is especially the case when we search for explanations for policy outcomes, which differ radically from their apparent original intentions – a common and widespread reality.

Further, as long ago as in 1974, at IDS Sussex, Bernard Schaffer declared ‘policy is what it does’. This shook me like an earthquake. I had just spent two years in the field researching the distribution of paddy and rice in South India and Sri Lanka, and discovering that policy was far more than an implication. Schaffer argued that ‘what policy does’ involves politics, so the key question was how to research the politics of policy. And what he argued in a nutshell - though certainly it was not in a nutshell, in fact it was in his rather mystifying language- is that policy is a simultaneous process of three (I would say four) kinds of bureaucratic politics seething away all the time.⁷ It’s not a ‘thing’, it’s not an implication, a lever or a ‘choice bundle’, it’s a set of processes with their own politics, and that resonates with Garcia’s argument that systems have to be identified through processes.

The first process in bureaucratic politics is the agenda -- policy formulation, intentions, plans, proposals, manifestoes etc. Most academic work is about this dimension of policy. Agenda-making – the social construction of ‘issues’ that bubble to the top of a list of priorities – is the product of a range of power relations, which determine what reaches the top and how the policy question is framed. Discourse analysis has its place here. So does the study of media and electoral political prospects. Agenda-forming is itself nested in a context, a political, historical context, which is almost always

7 Bernard Schaffer 1984, ‘Towards responsibility: public policy in concept and practice’, ch 9, pp142-190 in (eds) E. Clay and B. Schaffer *Room for Manoeuvre: an Exploration of Public Policy in Agriculture and Rural Development*, London, Heinemann

outside the study of a given policy. In systems terms, this context is the 'environment' of policy agenda making.

The second kind of 'politics of policy' congeals around procedure. By that, Schaffer meant laws, regulations and office practices. These are costly, though they have hardly ever been analysed. One starting hypothesis is that procedure warps statements of intention uttered at the agenda stage. A second is that control over procedure is also a resource, which is subject to all kinds of attempts by interested parties to capture it.

Third, and Schaffer didn't really write about this very much, are resources. We need to know about the politics of the allocation of financial resources needed for implementing policy -- and about resources of human skills and experience, the kind of personnel needed in a regulated mandi, for instance, to enable it to work. We also need to understand the politics of technology as a resource, and perhaps now energy, because we now know that these are necessary conditions for policy in practise. Fourth, in the processes of policy politics comes the politics of access. Schaffer stylised this as the rules according to which people in civil society queue (or jump queues) to gain access to the state. Queuing systems have politics, just as they have economic costs.

To accept the reality of four kinds of policy politics along with their costs is to accept complexity in real-world conditions in which there is plenty of pressure to simplify things. But if we deny the existence of this complicated set of bureaucratic political processes, they won't go away. So one current problem is how to incorporate all this into a depiction of a food system. I don't yet have the answer.

The Global Food System

Armed with these clarifications, let us turn to examine how some of these ideas are being represented at the level of the planet. Not India, but the planet. So far, I have collected 16 representations/models of the global food system that have often been collectively developed by expert teams and have been peer-reviewed. [By the time you read this, FAO will have collected over 150.] I see them as internationally authoritative, published representations of our food system. I have laid out six of the 16 in this slide so you can see concretely what I am going to talk about rather more abstractly -- in the next part of this talk

The six examples are complicated and every single one is substantially different from the others, not simply through their mode of visual representation but through their combinations of elements, their linkages, and their handling of the system's environment. My curiosity has been provoked by these differences. To take the 16 individually would certainly exceed my cognitive capacity and perhaps yours too. I will try to analyse them briefly in four dimensions. First, the way the food system is represented. Second, how its drivers and relations -- which Rolando Garcia argued were crucial to a food system -- are represented. Third, Professor Sriram's request to me; how these approaches to food systems handle agricultural markets. And last, your specialist interest as an audience in public administration -- how public policy is handled in these models of the planetary food system.

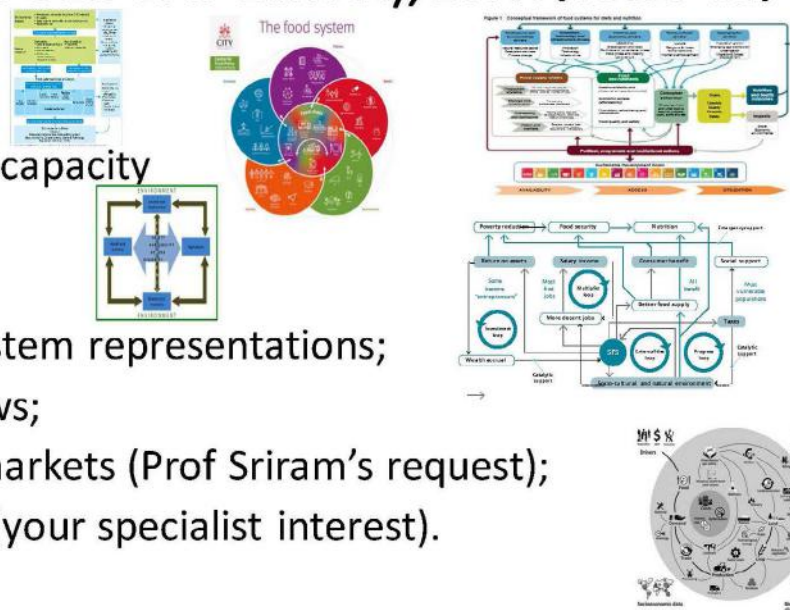
The answers prove unavoidably complicated and they are provisional.

Contemporary global food systems – 16 collective, peer-reviewed, internationally authoritative, transdisciplinary, published representations (Sources: Torrero (FAO); Rockstrom (PIK); FSEC (FOLU-EAT-Lancet); BHW(socio-ec, geog, ecol-metab))

Not one by one – (cognitive capacity constraints)

but

1. Characteristics of food system representations;
2. Relations, drivers and flows;
3. Handling of agricultural markets (Prof Sriram's request);
4. Handling of public policy (your specialist interest).



Global Food Systems Models

In the set of 16 planetary food systems' models, there is no consensus about what a food system is, and minimal consensus about what its sub-systems should be. Several identify the same sub-systems as Rolando Garcia, an environmental one although labelled variously (as an ecosystem, ecology, nature etc.), an agro-production system (variously called a food system (in itself) or agriculture), plus a sub-system to do with society. It might be called 'people', it might be called 'culture'. Various other concepts may be added on to these three sub-systems (e.g., innovation, technology, infrastructure). But most perplexing to me, about which I feel critical rather than simply reporting it, is that very often, the sub-systems are disciplines. There will be environmental, economic, sociological, political plus sometimes demographic or health sub-systems without apparent awareness of theoretical ferment within disciplines, of their scope, their different understandings of purposes, relationships and system drivers, their languages and protocols. In other cases, the sub-systems are food commodity groups or diet groups such as the meat/vegetable/cereal system and so on and so forth. I hope you are getting a picture not merely of complexity but of confusion.

Only one of these 16 models states that the system is irreducibly complex. This model conceives sub-systems in terms of resources and assets, labour, commodities, organisations and territorial spaces.

The classification of the elements of the system may be hard to justify. In one case, productivity, which is an outcome, is classified on a par with farmer behaviour, which is a flow, and on a par with the environment, which is either a framing or a sub-system. These conceptual and definitional weaknesses make it tantamount to impossible to make sense of the concepts through which experts and their organisations have modelled the planetary food system. And while we know that scales differ within systems, some give equal status to radically different entities - as when the 'household' is the same kind of unit as 'international trade'.

The planetary food system is conceived of as a closed system with boundaries, which are very rarely problematised. David Goodman, the sociologist, observes that the way the agro-food system fits into global political economy is itself a big problem. I think he is right about that, but you would not draw that conclusion from the 16 models. There is no indication in any of the 16 that the boundaries are political or multiple or 'zones', or that they might be modifiable through research.

Relationships and Flows

We appreciate more why this is so as we turn to drivers, relationships, processes. In most of these models, the drivers are not relations, they are available, measurable, quantifiable data that can/are meant to/ be inserted into models. They are not theorised processes as a result of which you go and find evidence so as to make the model work, to modify it or to splice quantitative together with qualitative evidence before inputting it.

Drivers are also often depicted as disciplines (e.g.,

politics, economics, demographics, environment), so disciplines can be sub-systems, they can also be drivers, and sometimes sub-systems in one model are drivers in another and just occasionally, the same discipline is a sub-system and a driver inside a given model.

The relationships between the sub-systems, which we know are very unlikely to be commensurable, or symmetrical, or subject to identical delays, or measurable along one single numeraire, are either evaded completely, with the use of arrows, feedback arrows, or lines connecting elements (or stocks) without specifying the content of the implied flows. Or they tend to be dollars, which I believe will become more and more important as time goes on, where flows and relationships are 'harmonised' by imputing dollar values. In substituting dollars for the material relations implied, other values are ignored and crucial relationships negated.

Now, missing from all of these models are gender-relations, and food behaviour inside the family which, if you are worried about over-, mal- and under-nutrition as parts of the food question, and if the purpose of modelling the food system is to improve such outcomes, ought to figure in global models. Even more striking, not one of the flow relationships expresses the contradictory economic interests of capital and labour. That the system's dynamics are not really interesting to the modellers except for the modelling of resilience, is likely to be due to the intellectual history of resilience in SDG 15. And questions of information, of money, of energy and its dissipation, of waste which is central to the food question, all these processes, relations and sub-systems are missing from these models, or at best occasionally alluded to at levels of abstraction which don't actually go into the difficulties of trying to relate them to other sub-systems.

Agricultural/Food Markets in Systems

How are agricultural markets or the system of agricultural market depicted in these food system models? For the most part, it's a lucky dip, it's shambolic, it is absolutely untheorised. References to aspects of agricultural markets are splattered all over the sub-systems. Only one model has a systematic representation of elements of an agricultural marketing system. But even this depiction does not show flows between its elements. Agencies, organisations, sectors and activities are conflated. So you recognise a category called 'traders' alongside one called 'food industry' or one called 'wholesaler' alongside 'delivery', or composite categories like (marketing and storage), (distribution and retail), shuffled from one model to another as (distribution and storage), (marketing and retail). Sometimes, concepts like 'food supplies' stand in for markets. Marketing processes are reduced to 'sourcing'. Some models ignore markets completely. Clearly, what a market system consists of needs better understanding. There are substantial literatures in social sciences, which are being ignored while physical science imagines social science to suit its purposes.

If we reduce food market systems to global supply chains, as I did in the earlier diagrams when I was explaining agricultural markets as systems, what we neglect are the market systems, which are complex. In simplifying planetary food markets to global supply chains we also miss out about 70% of food which is not actually entering

global supply chains in the way that supply chains are modelled. This actively expels the idea that local food markets are in fact major manifestations of commercial capitalism with local institutional specificities.⁸ If you are provoked by this state of knowledge, please work on it to make this part of the food system better conceived and more systematically represented.

Policy in Food Systems

Last, how do the 16 models deal with policy? While the purpose of food systems modelling is to see how to change its parameters, by providing a rational basis for policy, and while a model ought to be able to indicate the directional impacts of pulling a policy lever, there is very little shared understanding of what policy actually involves. Or where policy for a better global food system could be made. The conception of policy in these 16 food system models, if it exists at all, is usually confined to Bernard Schaffer's first process of bureaucratic politics: agenda – policy formulation, decision-making and policy selection. Occasionally, it's seen as part of the environment outside the food system and labelled as such. Sometimes, it's a 'frame', or context, and labelled as a 'system setting'. Sometimes, it's a sub-system in its own right and labelled 'choice bundles'. Sometimes, it's an element and sometimes, it's a flow. Very often, it's ignored, or it's aggregated on a par with other categories - so you get (policy + institutions), (policy law, political parties and governments) - or it is reduced to 'governance', or it is a list of specifics, all of them idiosyncratic. Few give policy any kind of attributes except, in one or two models, as 'lobbying' (which might be understood by some as an inconvenient and illegitimate interference with an ideal process). One of the models, however, does recognise trade-offs between policies as being an attribute of policy, which I think is an important insight.

But overall, there is no sign of engagement with implementation or policy practise as a field of public administration. In that sense, there seems to have been no change since the 1970s. How can we conclude other than that notions of policy are chaotic, that they are depoliticised in Schaffer's sense, or that they are repoliticised as a technical matter with power residing in the technician and scope confined to the agenda? Yet again, there seems to be a great deal of work needing to be done.

Conclusions

What are we to make of these 16 models? Is the obscurity we uncover actually for a purpose? One kind of interpretation is that of David Goodman and Mike Watts, both sociologists of the food system, when they talk about a panoply of tools and invoke the value of and the necessity for theoretical plurality.⁹ But is that really what we are seeing here? An alternative interpretation would be critical of an empiricism, which is led by available data, unaware of the kind

of preconceptions that lie behind the terms that are being invoked. On a bad day, you might call it pre-conceptual anecdotalism. And if there is no recognisable theory, and if empirical categories are driven by the availability of data – and it's got to be a certain kind of comparable data for, say, a minimum threshold of 150 of the world's 196 countries – what is the explicit role of a factor like 'experience' which the systems theorist Donella Meadows saw as valuable in evaluating models? Has experience – presumably that of experts – replaced theory and evidence? If so, why? These are questions I can't at present answer but they must be asked.

So, much of consequence for the 21st century's food question is missed out of the 16 attempts, all published in the 21st century, to model it. For environmental scientists, society can be simplified to the point of meaninglessness as 'people' or 'culture'. And conversely, the same is true for the environment when social scientists invoke it as 'resources'. There's an enormous trans-disciplinary project ahead, to accept sub-systems at different scales while making their analytical units consistent which may – or may not-- involve material elements and nutrients.

Now, Rolando Garcia, whose contribution I summarised at the start, acknowledged that systems are mental constructs and they are built for purposes. So when 16 models of the food system differ, should we be at all surprised? Perhaps not. But these models have been built for more or less the same purpose. I prefer to conclude that this extreme lack of consensus about the planetary food system and the privileging of idiosyncrasy is both surprising and a problem. It is not eased by invoking 20th century disciplines with all the contentions we know that exist within them. When disciplines are deployed to mask over discursive chasms and complexity, and when disciplines still remain irreconcilable domains of knowledge, when politics or economics or sociology are invoked as sub-systems – or drivers-- of a food system, assuming no difficulty in interpreting what the discipline stands for, I think we have a problem. I prefer to conclude provisionally that these systems manifest a stupendous disregard for theory of any kind. So, the food system exists, it exists in our heads. It functions in reality with outcomes we deplore. But conceptually, it is broken.

Are food systems modellers merely bringing the limits of their own experience to the food system? Or are we living through a crisis of naming where innovative labels are praised for their originality but where, at the same time, collective projects are more easily advanced if labels are fuzzy concepts and can mean whatever you like them to mean? Why are physical and life scientists treating the social sciences as though they did not exist?

For a country like India, this messy planetary situation presents an enormous opportunity for Indian food systems analysts to critique and avoid some of the elephant traps I have indicated while, like the proverbial blind men, you feel the elephant of the food system. There is a need for a rigorous analysis of the socially and ecologically beneficial and damaging outcomes of the Indian food system for specifically Indian objectives – and of the politics of Indian policies – nationally, at the state-level and locally.

8 Stefan Kuhl 2019, *Work: Marxist and Systems Theoretical Approaches*, London, Routledge

9 David Goodman and Michael Watts, 1994, 'Reconfiguring the rural or fording the divide? Capitalist restructuring and the global ago-food system', *The Journal of Peasant Studies* 22 (1) 1-29

Some Constitutive Context for Indian Agriculture

If you develop public policy as a political sub-system within the Indian food system, some aspects of the constitutive context may be worth flagging as a link from this to Mekhala's talk on India's reforms to agriculture and to agricultural markets.

First, with respect to policy agendas, we need to admit the power of hot air – of intention-- in which the government of a country like India (and this is certainly not confined to India) can sign international resolutions to limit global heating to so many degrees (say 1.5), or to claim a paradigm change in agriculture (in this case towards agro-ecology), and not to do very much about either in practise. Just 10 of the 27 states in India have policies promoting agro-ecology and they are all at variance with each other. India has made a commitment to zero budget natural farming but without any role for evidence in this decision and precious few resources to invest in a practical pathway which carries short and medium term yield risks, and which would require an increase in land area for cultivation.

All policies have necessary preconditions and hostile forces and other obstacles to their implementation. Behind the scenes, big agri-business campaigns for cash crops. And while the animal economy, fishing, and forestry are neglected, agri-business can ride roughshod over them, driven by its search for profit. Most of the resources, most of the subsidies for agriculture, incentivise intensive, chemicalised and fossil fuel-based agriculture. There is both rhetoric and a research aspiration toward agro-ecology but they both face a structure of incentives favouring chemical agriculture.

We need to try to figure out what institutions need to be in place for the policy to be implemented as we suggest it should, where the hostile forces are, and how their power is expressed. In the absence of hostile forces, sensible policies would have been implemented already. Where is the opposition? How is it to be neutralised, or bought off, or bypassed, or overcome? These questions need mainstreaming in all discussions of policy.

Another contextual factor for agricultural policy-making concerns its sites. It is widely believed that agricultural policy sits in the ministry of agriculture in central government and in departments of agriculture in the states. However, I challenge you to examine every nook and cranny in every department of both the central and state governments. You will find agricultural policy, or policy relevant to agriculture, everywhere, which means that there are many, many agendas at the discursive level whose implementation is carved up in institutional terms and which roll out differently at different scales.

And quite a lot of India's food system and India's agriculture is not regulated by the state at all, it's not directly influenced by policy because it's 'unorganised', it's informalised. India's informal rural economy is facing a great crisis as we speak, because of the shocks rippling through it from 'outside' – from the response to covid-19, which Dr Soumya Swaminathan will address. In agriculture, exchanges of credit, the circulation of seeds, commodities, labour relations, insurance against shocks are not regulated effectively by the state. Non-state institutions fill the gap. We need

to seek to understand how they work, how they make their equivalent of policy and how they resist that of the state. We must evaluate their implications for the contribution of agriculture to India's economy and society.

Last, we need to remember that policy is sedimented. Procedure, resources and access move more slowly than turbulent, volcanic agendas. India has moved from state capitalism through neoliberal reforms to new forms of state capitalism – more competitive, more subservient to private capital, less coherent. All manner of metamorphic schist, slates and quartz accrete around policy processes. Ignoring them does not make them disappear.

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**Mekhala
Krishnamurthy:**

Thank you very much. It is a great honour to be here this evening. Every time I am in an exchange with Barbara, I have to pinch myself to comprehend that it is happening and so it's always a tremendous privilege and pleasure and so thank you so much for having me be part of this discussion.

I am very aware of the time and so what I will do is make a few comments to follow on from Barbara's very comprehensive and brilliant and also very challenging presentation. And think about how we engage with these ideas, particularly where she left off, urging us to think about room to manoeuvre. Urging us to consider the different ways in which we might take this on. And one of the key points to remember is that we usually hear these kinds of presentations as critique in response to a policy and why it is unlikely to work. And so, it is particularly exciting to have this not as critique but as *context*. And so, I would urge us to use this presentation to think of it as the context. And Barbara, you said I would insist on empirical specification but what I found so fascinating in your presentation, and is in fact, something I have learnt from all your work that I so often cite, is that empirical specification is a general condition when it comes to understanding India's agricultural markets and their diversity, their complexity and their dynamism. And I think what you did in your presentation was that you treated these models as empirical, as certain kinds of facts -- as empirical material -- and subjected that to a conceptual, theoretical engagement. And so, what you did was actually just demonstrate why empiricism is so important but of a different kind, to be specific, to engage in detail. Over the last decade, it has been one of my great frustrations to try and understand why we do not engage with the details of the agricultural system, of agricultural marketing systems. And you raised some questions about this.

How does such a vital, vibrant and vast sector of Indian economy and society remain unspecified and untheorised? To me, the two go together. You will not theorise something you do not understand. We just consistently refuse to engage and understand. Perhaps, there could be more innocent answers -- that it is difficult, and it is tough to do and the data is difficult to gather, all of which would be true. I think even adequate empirical specification is often extraordinarily difficult to achieve. And yet, I do think that we have to ask ourselves, *why*. We are in an interesting moment because agriculture is certainly very much at the centre of India's policy agenda

in this post- or in the middle of the current Covid-19 crisis. There is a new conversation around the fact that now agriculture is the one sector of the economy that seems to be working. This is an extraordinary thing in itself because while I think, as you said, Indian policy has agriculture strewn all over it, the Indian policy imagination has tended to treat agriculture as residue and as a welfare sector rather than treating it as a vibrant economic driver with complex multiplier effects and complex linkages with the non-agrarian economy. This actually, if you look at Indian history, flies in the face of an understanding of the ways in which agricultural surplus has driven rural industrialisation in certain parts of India. And of course, there is great regional diversity. But how do we move from a narrative of agriculture as residue to one where you actually have an economic vision for the sector that does not see it as welfare. I mean, one of the things that was quite interesting a few months ago in the budget speech was that agriculture occupied a space in the budget on aspirational India, which came as part of the section on welfare. But it was not mentioned once in the section of the budget on the economy. So, this is quite a remarkable thing about the way in which policy treats agriculture, right? I think it is a central question, which is -- Do you see agriculture only as a welfare sector, or can you see it as a driver of economic life, at the heart of economic life? And of course, when you speak about the agricultural system, we are also talking about non-food crops, fibre and cash crops because India's own history with cotton and many other crops will tell you that there is a complex history there between food and non-food crops and commodities as well.

So, I wanted to start with this idea, that if we have your presentation as backdrop and context, what can we say about contemporary Indian policy on agricultural markets? I think this will in some way segue into some of the questions that the participants also have posed for us.

One of the big reforms that everybody has been talking about and that is on the table and I see a participant has raised this question of one nation one market -- has been regulatory reform. These three new ordinances have come in which look at a modification and amendment to the Essential Commodities Act, a change to the way in which agricultural markets are to be regulated, what we talk about as Agricultural Produce Market Committee (APMC) Acts. Often, we call them APMC Act and there is no one APMC Act because over the long history of Indian market regulation, these have always been state

Acts. So, to actually have a central ordinance regulating India's agricultural markets at the primary level and the level of the first transaction is historic. Both colonial and post-colonial Indian policy and legislation has never done so. There is a question about whether it should be on a concurrent list but clearly, the government has chosen to go ahead with this. It is also being done against the backdrop of an effort to have an electronic national agricultural market whereas all empirical research and engagement with India's agricultural market will tell you we do have a physical agricultural market, that is a physical national agricultural market where very complex transactions happen and there is extraordinary mobility across very uneven physical conditions.

So, credit moves, money moves, materials move, and our system is very dynamic and it's usually characterised as heavily intermediated, which it is. But here again, I think, the point that Barbara made in her presentation that intermediaries play multiple necessary and vital roles, but we see them entirely as distortionary rather than as part of a market. And we do not quite understand the kind of low-margin, high-volume business that is agricultural marketing and trade, and the complexity of these multiple roles. So, we have these regulatory reforms and I see amongst the participants here, a number of people who have written very thoughtfully on the actual content of these ordinances, and whether they are really going to change anything at all.

Looking at these reforms, one of the big lessons you will see from Indian history is that it does not look like it, because again, it ignores the empirical specificity. It ignores the layers of the state. It ignores both the state level and local variation. It does not really engage with the commodity specificity and does very little to handle what you said, which is the institutional preconditions to actually have this kind of regulatory system in place.

At the same time, these ordinances have raised questions about what happens to the existing system which, as you said, is co-existing. We have to understand that the vast majority of India's current agricultural marketing system is private. It is private trade and the state plays largely a regulatory role except, of course, in the massive and important area of food grains, particularly with wheat and paddy, where we have both a procurement system and a distribution system. But even within that, when you think about all the Indian agricultural produce produced and consumed, the amount handled by the state, although disproportionately occupying the policy imagination and the political space, is remarkably small. It is foodgrain-intensive, wheat and paddy focused, and it covers only a proportion of Indian farmers (although the data varies from 6 percent to 10-15 percent now depending on sources) and even in terms of everything that people consume, a very small proportion of consumption.

And so, the vast majority of Indians, both as producers and consumers, engage with the market, which is the private market. And here, I think, we must ask: What is the imagination at work about the "private?" And so much of your research has pointed to both petty producers and traders, we can use the word petty, we can use the word small-scale. Currently, we are starting to speak again with interest about the MSME sector and we are using the word again. But it is back

to the informal economy and it is about having an imagination for this vast, complex, extremely dynamic range of small actors and institutions – individuals, firms. Now, you can talk about this at the level of farmers, traders, commission agents, processors, wholesalers, retailers. We are talking about small actors throughout, and although again, in the political space, the debates about organised retail have been very prominent, even in the current phase of talking about reform, when we say private sector, the invocation is the private sector will come in and build infrastructure. The private sector, and here of course, they are talking about or imagining in their mind, the organised private sector, right?

But we know from research that a number of us have done in a state like Bihar that over 10 years or now over 14 years of not having any APMC regulation... You did not see the private sector, the organised private sector, go all the way down to farm gate. It has continued largely to buy at the secondary and tertiary market level because these costs of actually competing in these markets is extremely, extremely tough for the organised private sector. So, I think we do have this very challenging moment where we seem to need to point out that we are simply missing the plot. That we need to accept the plot that you have charted out for us instead and that empirical research and fieldwork has already put down on the table. But even if we do that, what are we to do? Where and how would we go from there?

With the policy changes, one is regulation, the other we are talking about an infrastructure fund, there is new discussion about farmer producer organisations, all of this has a history. It has a pre-history in thinking about cooperatives. It has a pre-history in thinking about Farmer's Producer Organisations (FPOs). The institutional forms are complex organisations and it is not easy to aggregate farm produce. We are talking about changing agricultural credit policies so that FPOs and farmers can borrow more. We are talking about storage.

So, there are all these elements that are populating the policy space at the moment. But missing is an overall vision of agriculture as an essential and distinctive economic sector and missing is an actual imagination for dealing with the small scale. I often used to joke – I remember when I was writing my thesis, my doctoral work, that the ABCD of the global grain trade is ADM, Bunge, Cargill and Dreyfus and together they control a very large amount of the global grain trade. And I used to say that in my research at least in Madhya Pradesh, the ABCD of the *mandi* was *adath* (commission), broker, *choupal* (private procurement), *dabba* (futures market) in the *mandi*. And somehow, that ABCD had kept out the big ABCD! Not because it was protected, interestingly enough, because one of the leading multi-national corporate traders, grain traders, I spoke to, he said the reason we remain asset-light in India is because you don't have *enough barriers to entry*. Not that you have too many barriers to entry, the problem is we have too few! He was not saying you need to liberalise your market; he was saying you don't have enough barriers to entry. And large corporations are not able to effect channel command or channel control. If you read the colonial discussion, it was the same time that large-scale corporate and global capital was saying the big problem with India is that we cannot get channel control and channel command.

So, for many reasons, we have a complex system that a very large number of lives and livelihoods depend on. And we have to now think imaginatively and take this as an opportunity. We could take it as an opportunity to critique, but I would like to ask instead, how we might take it as an opportunity to really think about what Indian policy going forward could be, given all that we do know and are still learning and need to learn about India's agricultural markets and our food systems.

I would leave it with this big question, which is to say let's look at the room to manoeuvre, let's think about the imagination. It is either that Indian markets cannot be reformed because of political interest and any attempt at state policy is really state capture. But that is not going to be adequate. I think the two decades now plus of speaking of reform by stealth is problematic because we are simply then replicating an idea that there is little space for democracy, there is little space for deliberation, for consensus-building. But we have a very fragmented landscape, even amongst civil society, farmers movements, policy-- and quite rightly so, there are diverse interests. But this contestation should be expected at the heart of the economy and at the heart of society. So, instead of seeing this as a liability, how are we to transform it? I always say that you cannot start by saying, if only then. That doesn't work for India, ever. Starting by saying if only we were, then this would work, that would never work. We are clear, we are what we are. But maybe we do have to start with in spite, despite, right? We have to move forward. But eventually, the in spite, despite has to become *because* we are democratic, *because* we have a large number of producers and consumers, *because* we have to deal with massive inequality, *because* we have democratic systems and *because* we are federal, we design systems that work for India. It is a big complex challenge. I think some of the questions that have been laid before us will push us to take this on more.

I do think there are experiences, both historical and contemporary, on which we could draw to think about what a good regulatory design and system for India would be. How might it look and what would be the role of different institutions in trying to see that happen?

Barbarra Harris White: I can't possibly respond to all of that, even though this is exceedingly rich and very relevant. I would just like to pick very briefly one or two points. One is, how good India is at setting up institutions and failing to enforce them. So, if we look around in Indian regulative law, we will find many instances of laws which are quite comprehensive, justified but which are not enforced. When the pollution control boards, to give you an example from my last fieldwork, has one officer without a vehicle to cover a district, how is he expected to enforce pollution regulations? It is so daft you have to ask whether the failure to enforce is deliberate. And over the years, I have come to feel that that is the hypothesis that we must start with. So, enforcement is as important as policy, yes. We have to figure out what needs to be in place for a policy to act in the way that the analyst or the policy formulator who has designed it thinks it will act.

Second, in Mekhala's really important statement about doing something for the actually existing system we have studied, we have to acknowledge the informal

economy and that turns a lot of our concepts upside down. And it is much worse than that because these days, a trader may be registered with the municipality and with the regulated markets but his mandi was not built according to the construction regulations. His labour force is completely unregulated. He will have 10 bank accounts and many more credit relations in the informal economy which are uncontrolled. He observes environmental regulations in the breach. Informal firms are selectively formalising. They are moving from being regulated by social institutions to being regulated by the state. But a given firm may be in a very complicated set of relations with existing regulations and institutions. Oh, and of course, they do not pay tax. Most of all, they avoid and evade tax. It's a huge subsidy to them.

That affects our vision for agricultural market reform. And all I want to say about Mekhala's strong call for a vision for what exists out there is that the National Commission for Enterprises in the Unorganised Sector which existed from 2004 to 2013 had a brilliant website which was taken down, did have a vision for what they call enterprises in the unorganised sector, which are not MSMEs. MSMEs are much bigger than the firms we are talking about. We are talking about one man and a bike kind of enterprises to up to small family businesses. NCEUS did have a vision and it was to strengthen everything they need either to grow as capitalist firms or to multiply amongst members of their families at the same scale. And it intrigues me. The last time I was in China, which was in 2018, my colleagues at Yunnan Agricultural University said they were all being asked by the Chinese government to teach self-employment. And it seems- I don't know the extent to which this is correct, but if what they said is correct- the Chinese government has decided that factory industry cannot absorb the supply of surplus labour in agriculture and that China's new phase of capitalism, state capitalism, has got to involve self-employment. And so my colleagues were all re-tooling to teach marketing, accounts, management of small labour forces, how you translate a good idea into practice. I mention this because if people are inspired to develop a vision for the small sector, however you label it, there will be experiences in other countries to draw on. I'm going to stop there because I know from the chat box that there are a lot of questions coming in.

But thanks very much, Mekhala.

Mekhala Krishnamurthy: I really do want to allow people to engage in this conversation, so I will keep this very brief. But just to pick up on this last point that Barbara mentioned, and I think Professor Sriram, your work in microfinance also points to this. I think one of the things that always interests me when we talk about agriculture is that everyone says, people do not want to be in agriculture, right? That people do not want to farm. But one of the interesting things about agriculture historically is that when people do well in agriculture, they move out of agriculture. When people do badly in agriculture, they move out of agriculture. Agriculture has never been a sector in which people will say: forever I wish to only be in agriculture! Part of your family may stay, you may grow, people will diversify. Diversification is always part of that story.

We know these two things from our own history -- first, Indian agriculture has always been more than rural. It has included the urban and, David Ludden wrote this long ago, that for the longest time, Indian urbanisation happened *within* agriculture. It happened within agrarian worlds. And we have studied market towns and other places and that is still very true. So, one, that Indian agriculture has always been more than rural. Two, the rural has always been more than Indian agriculture. This has also been true. It has always had more than agriculture. So, these relationships have long existed. When we think about self-employment, when we think about empowerment, when we think about decision-making and the complex choices that various actors make, I remember the *mandi* traders, very early on, one of my first discussions of the *mandi* trade, it was in Ujjain and he said, '*joh social tha, ab commercial ho gaya hai*'. What was social has now become commercial. *Aur joh commercial tha, woh social ho gaya hai*. Right? He was talking about health and education having become commercial and so his daughter-in-law now runs a tuition class and his own work, the grain trade, was at that time being taken over by the state entering the wheat market. So, he said, *joh commercial tha, woh abhi social ho gaya hai*. The commercial has become the social! But these are the dynamics that have always existed, right?

People make decisions very much aware of these dynamics, these changing worlds. I think one of the things that is very critical in our imagination of agriculture is not to hem it in into an idea that everybody will stay at a certain level or reproduce any kind of steady state.

It is one characterised by diversity and so regulation also, and policy and investment, will have to think about how to most enable people to make the decisions that they need to make, given the size of their land holdings, given the size of their family, given their own ambitions, their own interests, their ability to access resources.

That is very challenging. And again, it requires an understanding of what people's lives are like, what the complexity of market structures and economic structures are. But I feel we have to begin there and build it up with this kind of political and conceptual understanding.

But that's just one point. And I think the microfinance example, the reason I was mentioning this, because in our approach one often felt that you wanted to turn people into entrepreneurs when what many wanted was good jobs. Our inability to separate the labour market from thinking about what people's entrepreneurial ambitions were, and so what you were dealing with was a default entrepreneurship, not entrepreneurship by choice. Just like you are supposed to only love agriculture, otherwise you are not supposed to be in it at all. These are impositions that I think we can, we need to move away from as we imagine this space and actually think about how people make choices, often complex, keeping various realities in mind.

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Strengthening Public Health Systems¹



Dr. Soumya Swaminathan

Good afternoon to everyone and thanks for this invitation. A lot of the diverse topics that you are covering in this conference are very relevant to the impact that this pandemic is having on people's lives, because one of the things that has become very clear is that it exacerbates inequalities and inequities. And what I would like to do is talk a little bit about where we are in understanding the science of this virus, what we can expect over the next months and years, but also, I would like to touch upon the pandemic as a learning opportunity for us to face other threats to our health, to the environment and to society, and how we should really be looking at strengthening our institutions and systems and improving resilience so that we can face such future events.

It is clear that this may be the biggest pandemic in our lifetimes. Obviously, the previous major similar event was the 1918-1919 influenza pandemic, which is often called the Spanish Flu. Even though it did not originate in Spain, that name has stuck, because that is where it was first reported. That pandemic is estimated to have killed about 25 to 50 million people globally. It was right after World War I and at that time, the population of the world was of course much lower. So, it killed a huge number of people and the difference now is that science and the technological tools we have, are obviously much more advanced.

Now, this time around, within a few weeks of identifying this new syndrome of atypical pneumonia which did not have any of the known pathogens turn up positive on the tests, the scientists in China were able to identify and sequence the whole genome of the new SARS Cov-2 virus very quickly, and on 12th January, this was made public, through a public genomic sequence database called GISAID. The speed at which this happened obviously had a huge impact on the response -- the immediate impact was that scientists were able to develop diagnostics within 24 to 48 hours of the whole genome sequence being published. Vaccine developers also started working on vaccines within a couple of days. And that's why today, we see so many vaccine candidates in development. I will talk a little bit more about vaccines and where we are with that.

Starting right from early January onwards, we knew at the WHO that the focus needs to be on science, on research and on global collaboration on developing solutions, because that's the way we would be seeing an end to this pandemic. And so very early on, we convened global experts-- scientists, researchers, private sector and academics-- to start looking at all the different topics and areas starting from the origin of the virus itself, what the animal host could be, how it jumped to humans, what the transmission routes were, the epidemiology and clinical manifestations, what were the effective prevention and control measures, as well as research on vaccines, therapeutics, diagnostics and so on. Further, we also set up a working group on social and behavioural sciences and another one on ethics examining different topics that came up during the pandemic as well as the different aspects of the response. So, these scientific working groups were set up in February; they have continued to work, we virtually reconvened in July for updates on developments. We had over 1,300 people at that meeting. We had 400 experts attend the first one in February. And it was clear that we had made huge advances in our knowledge, we had learnt a lot. We understand transmission much better now, we understand the epidemiology of the disease. We are still learning about things like what happens in children, what the long term effects of the disease are, and so on. The manifestations of the disease in children is a very important question, because around the world, schools have been shut. It is estimated that something like 1.6 billion children are impacted by being out of school and obviously in the poorer communities, this has a very negative impact on learning, cognitive development but also on just the social fabric of those communities. Parents can't go to work, children miss mid-day meals, there has been an increase in violence against children etc.

So, it is clear now that children can get infected, but that children under 10 years have lower rates of infection. Also, younger children under ten years tend to spread it less than older children but older children and teenagers spread it as efficiently as adults. The good thing is, of course, children get less sick and a very small percentage of them end up needing hospitalisation. And a very, very tiny percentage of them develop multi-organ inflammatory syndrome, which is a rare complication. In this pandemic, we see clearly the relationship between age and severity, and between co-morbidities -- e.g., the non-communicable diseases like hypertension, renal disease, heart disease,

¹ Valedictory Address delivered by Dr. Soumya Swaminathan, Chief Scientist, World Health Organisation at the XV International Conference on Public Policy and Management, organised by the Centre for Public Policy, Indian Institute of Management, Bangalore on August 26th 2020.

dementia-- being risk factors for severe illness and death. And so this disease has disproportionately affected older people, and the impact has been felt most acutely in countries with a larger proportion of the elderly.

But later, we started seeing that a risk factor like obesity could very well play a role in young people as well. While young people generally felt quite confident that they wouldn't get sick, that's not always true because if they have other risk factors – smoking, obesity etc – then that can also make young people ill. In the past few weeks, infection rates have been going up in many countries and we see mainly that it's infections in young adults that are driving the epidemic, whether it is in the US or in Latin America or in Asia. So far, the mortality rates are lower than they were in March-April, but we have to prevent health systems from getting overwhelmed again.

We see the second wave happening in many countries in Europe that had achieved good control. After opening up, the transmission increased again, but the mortality has stayed low. So that is a good thing. It is partly related to the age-group of the people who are now getting infected as opposed to the ones in the earlier March-April phase where a lot of the elderly, a lot of people in care homes and nursing homes were getting infected and dying, at least in Europe. We do not yet know the answer to why South Asia and Africa in general seem to have much lower mortality rates than what we have observed in Europe and in North America – apart from the obvious differences in demographics. More research is needed into the underlying genetic, environmental and immune factors that could account for some of these differences.

The pandemic has also impacted the health system in many ways because the lockdowns that were imposed did result in partial or complete disruption of essential health services. The WHO did a survey in about 120 countries and we found that the majority of countries that responded told us that essential health services were disrupted in more than one domain, ranging from immunisation services to antenatal care to essential surgery to diagnosis and treatment of diseases like tuberculosis, malaria prevention programmes – all of these saw an disruptions of anywhere between 30 to 80%. Cancer and non-communicable treatment services were also affected. No doubt, we will see the impact of this in the coming months, both in terms of excess mortality that happened during this period but also in terms of the poorer health status of individuals who were not able to get care during this period.

So, what does it mean for a health system really being able to prepare for something like this and being able to respond? In other words, resilience. We have talked about the possibility of a pandemic for many years. There have been many papers written about this, there have been many warnings given by different agencies around the world and the WHO has been urging countries to prepare for pandemics, for health emergencies, whether localised or broader. They do not have to be pandemics, they can still have a serious impact. And India has many such situations where there are annual outbreaks in different parts of the country of either known or unknown diseases. We had Nipah virus outbreaks two years ago. We have acute encephalitis syndrome which occurs in children in Bihar and Uttar Pradesh every year. We have many

outbreaks of diarrhoeal diseases and other infectious diseases. So unless you have a system of surveillance, strong surveillance, where you are able to pick up these outbreaks, find out the etiology and immediately address the issue, this can easily become something which goes out of hand and that is why we do have the integrated disease surveillance programme, the IDSP, which was essentially set up to have this kind of surveillance capacity at the district level and below and also be able to respond. In the modern era, surveillance should include genomics – as this enables tracking of the pathogen, understanding its evolution, as well as being able to study the impact of mutations on diagnosis or treatment.

One of the challenges facing us is that we do not have – I am specifically talking about India but this applies to other countries as well – a public health cadre that is basically devoted to issues of public health. This includes not only the detection and response of infectious and non infectious diseases, but also prevention, management, training, capacity-building and looking at other risk factors for disease, i.e., the environmental risk factors, social and economic risk factors.

So, I think one important priority really is to have a model, public health administrative architecture and cadre for states. There are only a couple of states in India that have a separate department of public health with a separate cadre. This is something that the national health policy 2017 does talk about, and it needs to be implemented. It should be decentralised but at the same time integrated into the health system and of course it should achieve convergence, particularly in data. Data streams from different parts today end up in different places, so they cannot be effectively utilised for a response. There should be minimum governance norms and standards for this public health architecture which should be determined by the central government, but then a nodal agency in states with good governance indicators and a rights-based public health law could be some of the innovations that one can think about, particularly looking ahead and responding to this pandemic.

The Vidhi centre for law has actually put out a very good report on what the existing laws are and where we should really think about new laws that will help address such public health emergencies. For example, we have the Public Health Preparedness and Response Law, the Epidemic Disaster Act of 1897, which is still valid today. And of course, we have the Disaster Management Act of 2005 which is what is being invoked now. A law which delineates the powers and functions, a communications and command structure and defines what public health emergencies are, is needed. It safeguards rights of individuals, empowers states to create rules and sets aside a percentage of the budget for public health emergency preparedness. This would be, I think, a very positive step in looking forward and preparing for the future.

The other important factor that has had an impact on how countries and states have responded, is the participation of people and communities, and how decentralised the health system is and how close the health system is to the communities and how good that two-way communication is. When we talk about primary health care, very often we look at health care as a delivery of health services from the supply side.

But on the demand side, there is less attention paid and the role of individuals, families, communities is extremely important because obviously health is not just something where you treat diseases but if you want real well-being, then you have to attend to nutrition, to housing, to sanitation, to water, food and so on. All of these other things and risk factors like tobacco, alcohol, air pollution, play an important role. Communities have a crucial role to play, and wherever there has been this kind of a decentralisation of power, devolution of functions, this facilitates community participation and has been shown to be effective. In the long term, if you want a sustainable response, then one has to do it this way.

Next, on the usage of health data. There is a data protection legislation now that is under discussion - there should be an element of being able to streamline the use of data, especially in health emergencies. And one can bring in certain rules and regulations just during the period of a pandemic in order to help the government to respond. The public needs to be involved in the debate on the use of personal health data and the circumstances under which these are shared and used.

Now, how long is this pandemic going to last? I mean, this is often a question that I am asked and the WHO is asked. And of course, we do not have a crystal ball to predict. But what we can say is that the flu pandemic lasted two years - 1918 and 1919. Of course, it had a huge loss of lives associated with it. And that is why we are working on a vaccine because that is the only way probably to bring an end to the acute phase of this pandemic. I do not think we are going to be looking at eradicating this virus as it is firmly established in the human population now and is likely to continue to be there at a low level. But then it becomes like another virus that we live with; something like influenza, which has an outbreak every year but it is manageable because there is a vaccine. It is not 100% effective but, if people take it, then at least the vulnerable populations can be protected. As for Covid-19, there is a huge amount of work that has gone into vaccine development with over 200 candidates in development and over 35 in Phase Three, which is the last stage of clinical trials.

So, by early 2021, we should have some news about a couple of candidates that are effective, even if not all of them, and then of course is the big challenge of being able to scale, of being able to produce enough, being able to distribute and most importantly, being able to have a fair and equitable distribution or allocation mechanism. It is important that populations in all countries get vaccines at the same time, or at least the vulnerable groups get it and we do not have the situation that we had in 2009, where a few rich countries had cornered most of the doses of the vaccine and drugs for H1N1 and the poorer countries were waiting for a long time. Luckily, that pandemic did not turn out to be very serious but this time around, WHO has been focusing on a lot of discussion with all our member states in order to come to some consensus on how we can have a fair distribution. So, if you start with limited number of doses, we are going to have probably a couple of hundred million doses to begin with, not the billions that are going to be needed and so you would have to distribute it to priority groups like healthcare workers, frontline workers, the elderly. WHO has developed a framework

of prioritising who should get it, and everyone, all of these high-risk individuals in all countries, should get it at the same time. That would be the ideal situation. There is obviously quite a lot of funding that is needed. We estimate about 20 billion dollars is going to be needed for the vaccines initiative alone. Therapeutics and diagnostics have their own needs. We (WHO, Gavi and CEPI) are appealing to all countries to join the Covax facility, which is the best chance to develop and deploy vaccines equitably and save the world the trillions of dollars that are currently being lost from economies. India is in a good position because we have a large number of companies that are working on vaccines and quite a number of candidates which are under development. Some are in collaboration with companies outside but some are also local innovations. So that is very good. It is creditable that so many candidates are advancing in India. And India is obviously a manufacturing hub for vaccines. It supplies something like 40% of the global requirement for childhood vaccines.

The other challenge is going to be that most countries have experience with childhood immunisation programmes. There are very few adult immunisation programmes globally. So to get this vaccine out to people who need it - like we talked about those who have co-morbidities or older people or those who are in risky occupations etc - that is going to need quite a lot of planning and it is going to need both policies to be developed and also a lot of practical planning and putting in place systems by which this immunisation can be carried out. Finally, I would like to say that the other big threat to all of us, to mankind, is climate change - the two are linked because viruses have a tendency to jump species barriers from animals to humans. It is more likely to happen when their natural habitat is disrupted because of climate change or urbanisation, where there is meddling with wildlife, where there is illegal wildlife trade, where there is farming of wild and domestic animals, where the markets are not segregated etc. And of course, urbanisation itself is a risk factor just because of the density of population you have in cities. And that is why you see this pandemic really impacting cities disproportionately, especially the mega cities, because of the population density and how that impacts transmission.

Climate change is slower, and not visible, and therefore it has been neglected. It is not as dramatic as a pandemic but certainly one of the defining threats that we face, that we all have to respond to. And so, this is a good time actually to think about how do we build back better, or build forward better - some people like to say -- what are the things we can do differently? Reducing our carbon footprints, cutting down on travel, doing things using digital technologies is certainly one. But there are many other things we need to think about. How we are going to expand universal health coverage to make sure that everyone, regardless of the ability to pay, is protected. And universal health coverage again, as I said, is not just about delivery of health services. We have to look at it more holistically and think also about health promotion and disease prevention, i.e., addressing the risk factors and determinants of health. And very often, those are actually more difficult because they are not things that the health ministry or departments are responsible for. They cut across different sectors and therefore it has to really be an all

of government approach because there are policies in every ministry, every department that do impact health. And so the health ministry really becomes an advocate for health but very often the action is in other sectors.

So, the investments in universal health coverage need to be increased and the health security aspect that we have been focusing on now can only happen if there is also investment in the other elements of universal health coverage. They are like two sides of a coin, really. You can not have health security without having a good health system and investment in preparedness has to go hand in hand with investments in response and in management of chronic diseases.

Dr. Soumya Swaminathan has been appointed Chief Scientist heading the division created to strengthen the organisation's core scientific work and ensure the quality and consistency of its norms and standards. A paediatrician from India and a globally recognized researcher on tuberculosis and HIV, she brings with her 30 years of experience in clinical care and research and has worked throughout her career to translate research into impactful programmes. She has published more than 250 peer-reviewed publications and book chapters.



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