

THE ADMINISTRATOR

Journal of LBSNAA

CONTENTS

| | |
|---|-----|
| Muskan : A case Study on Improving Sex Ratio at Birth in the District of Hamirpur and Bilaspur of Himachal Pradesh : Rohan Chand Thakur : Manasi Sahay Thakur | 01 |
| Increasing Role of Standards in International Trade in Goods : Sudhanshu Pandey | 16 |
| Annapurna BhandarYojna: An Initiative to Revamp the Public Distribution System in Rajasthan : Dr. Subodh Agarwal | 24 |
| Performance of Planning Boards in India: Evidence from Southern States : Deepak Kylasam Iyer : Tanya Agarwal : Francis Kuriakose | 39 |
| Forestry and Determinants of Timber Supply in India : Dr. Mononita Kundu Das | 50 |
| Funding for start-up entrepreneurship in India Qualitative Assessment and Way Forward : Govind Mohan | 69 |
| Rationalization of Fertilizer Subsidy in India : Kalpana Awasthi | 82 |
| Options for Health System Organization in Indian States: The Key to improving System Efficiency : Rakesh Sarwal | 115 |
| Economic wellness and behavioral application: The relevance of behavioral economics in agricultural productivity. An comparative analysis and prescriptions. : D. Manikandan | 122 |

January, 2018
Volume 58, Number 1

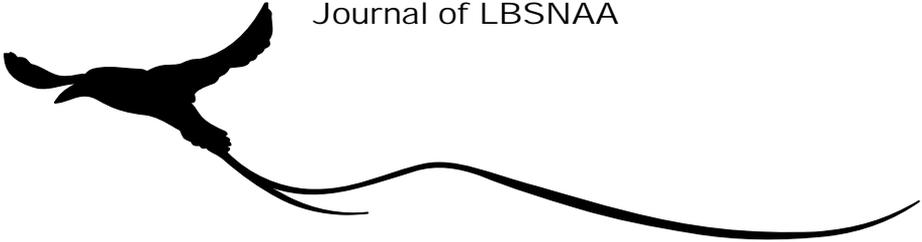




ISSN 2319-6157

THE ADMINISTRATOR

Journal of LBSNAA



January, 2018
Volume 58, Number 1

Editorial Board

| | |
|--|------------------|
| Ms. Upma Chawdhry, Director | Chairperson |
| Mr. Manoj Ahuja, Joint Director | Member |
| Ms. Arti Ahuja, Joint Director | Member |
| Mr. Alok Mishra, Deputy Director (Sr.) | Member Secretary |



 LBSNAA



Copyright © 2018 TRPC

Lal Bahadur Shastri National Academy of Administration, Mussoorie (Uttarakhand)

This Journal or any part thereof may not be reproduced in any form without the written permission of the publisher.

The view expressed and facts stated in the articles contained in this volume are of the individual authors and are in no way those of either the Editor, the institution to which he/she belongs, or of the publisher

Published by : TRPC

Lal Bahadur Shastri National Academy of Administration, Mussoorie (Uttarakhand)
Printed in India at Print Vision, Dehradun - 248 001



The Administrator

Volume 58

January, 2018

Number 1

CONTENTS

| | |
|---|-----|
| Muskan : A case Study on Improving Sex Ratio at Birth in the District of Hamirpur and Bilaspur of Himachal Pradesh : Rohan Chand Thakur : Manasi Sahay Thakur | 01 |
| Increasing Role of Standards in International Trade in Goods : Sudhanshu Pandey | 16 |
| Annapurna BhandarYojna: An Initiative to Revamp the Public Distribution System in Rajasthan : Dr. Subodh Agarwal | 24 |
| Performance of Planning Boards in India: Evidence from Southern States : Deepak Kylasam Iyer : Tanya Agarwal : Francis Kuriakose | 39 |
| Forestry and Determinants of Timber Supply in India : Dr. Mononita Kundu Das | 50 |
| Funding for start-up entrepreneurship in India Qualitative Assessment and Way Forward : Govind Mohan | 69 |
| Rationalization of Fertilizer Subsidy in India : Kalpana Awasthi | 82 |
| Options for Health System Organization in Indian States: The Key to improving System Efficiency : Rakesh Sarwal | 115 |
| Economic wellness and behavioral application: The relevance of behavioral economics in agricultural productivity. An comparative analysis and prescriptions. : D. Manikandan | 122 |



Muskaan

A Case Study on Improving Sex Ratio at Birth in the Districts of Hamirpur and Bilaspur of Himachal Pradesh

Rohan Chand Thakur, IAS, Deputy Commissioner, Shimla &
Manasi Sahay Thakur, IAS, Director, Women and Child Department,
Government of HP

Introduction

One of the most talked about facets of the 2011 census data was that of the sex ratio. As much as the overall sex ratio of the country had increased from 927 in 2001 to 940 in 2011, the child sex ratio (herein after referred to as CSR) had decreased from 927 to 914. This adverse trend had been seen in a number of states in the north and west of the country. In the state of Himachal Pradesh, the number had increased from 896 in 2001 to 909 in 2011. Yet, this number was much below the national figure, which itself was on the much lower side. The problem of declining sex ratio in the lower belt of Himachal Pradesh has been recognised in the last ten years. This year, district Una made it to the infamous list of the 60 worst districts in terms of child sex ratio amongst all the districts in the country. With this dubious distinction, it also got naturally selected for the 'Beti Bachao, Beti Padhao' (save and educate the girl child) campaign. However, this does not mean that the problem deserves no attention in the adjoining districts of Hamirpur and Bilaspur, where the problem is almost as chronic as that of its more dubious neighbour. When Muskaan was initiated, it was noticed that the main hurdle was to get people talking about this burning issue and to admit vocally that this indeed is a major social issue. Till then it was noticed that people refrained from even discussing this matter. Hence, a lot of emphasis was laid on bringing about a mindset change by getting people to talk on this issue. It was also felt that a sustained systemic involvement of the state machinery could evolve systems, which could institutionalise a stronger system in which any act of female foeticide would become more difficult. The first leg of the programme included collecting sex ratio at birth (herein after called SRB) data gram panchayat wise over the last three years in order to get a fair idea of the statistics in these panchayats. The figures of SRB since 2012 in the districts of Bilaspur and Hamirpur are provided below:

| | 2011-12 | 2012-13 | 2013-14 | 2014-15 |
|--------------|---------|---------|---------|---------|
| Bilaspur-SRB | 891 | 879 | 901 | 893 |
| Hamirpur-SRB | 885 | 908 | 907 | 893 |

As is evident from the table above, the situation in Hamirpur and Bilaspur districts in respect of SRB was quite grim. Hamirpur was ranked third lowest and Bilaspur was ranked fourth lowest in the state in terms of sex ratio. Hence, this cause was taken up by the respective district administrations.

Before we delve further into the case study of the set wo districts, it would be important to underline the difference amongst the various terms that are used to study the gender balance within the demography of a region. The CSR takes the ratio of the population of boys and girls in the age cohort of 0–6. The secondary sex ratio (SSR) is also referred to as the SRB. After birth, we adjust for the mortality rates to arrive at the CSR. If we influence the SRB, the CSR gets directly impacted. It also gives a more recent finding vis-à-vis the CSR, which is an aggregation over six years.

The Unholy Trinity: SRB, Late Registrations and Sex Selective Diagnostic Tests

One of the big reasons often given for doing selective sex test is the preference for the male child. The farther a woman is into her pregnancy, greater the accuracy of the sex test. Studies have shown that at 13 weeks, the accuracy varies between 98 and 100%. Another study says that at 14 weeks of pregnancy, the accuracy is almost 100%. The overall success in accuracy between the 12th and 14th week is between 80% and 90%. Thus, it is natural for people to get the test done between the 12th and 14th week or even later. The question which then arises is how to define a late registration? As per the general directions of the Women and Child Department in the state, women are advised to get the registration done within 12 weeks of pregnancy. Thus, the department was terming any registration after 12 weeks as late. Also, it was important to analyse past data to examine the link between the late registrations and the SSR/SRB.

In a study conducted by Dr. Sonika (District Health Officer) in Hamirpur, very interesting trends emerged. It was found that in 2013–14, the SRB was 927. However, it dropped to 848 if we took into account only the late registered pregnancies. If we drilled the data further, and took the SRB for those pregnancies where there already was one child in the family (meaning 2nd pregnancy), the SRB dropped to 909. If we took those pregnancies where there was already one child in the family and it was registered late, the SRB/SRS was 790. Similar figures where there were two children already (meaning 3rd pregnancy), the figures were 665 and 506. The block-wised at a for the same are shared below:

| | Whole District | Barsar | Bhoranj | Galore | Nadaun | Sujanpur | Tauni Devi |
|------------------|----------------|--------|---------|--------|--------|----------|------------|
| SSR (Total) | 927 | 909 | 952 | 930 | 915 | 976 | 936 |
| SSR (Late Reg) | 848 | 860 | 933 | 850 | 835 | 724 | 865 |
| SSR ≥ (Total) | 909 | 1000 | 903 | 941 | 865 | 809 | 939 |
| SSR ≥ (Late Reg) | 790 | 723 | 835 | 743 | 911 | 608 | 783 |
| SSR ≥ (Total) | 665 | 745 | 509 | 500 | 681 | 694 | 905 |
| SSR ≥ (Late Reg) | 506 | 524 | 345 | 276 | 608 | 500 | 656 |

The data broadly led to a hypothesis that the SRB (and in turn the CSR) was lower when the pregnancies were not registered in time. Registrations could be late for a number of reasons, but the one which is linked to preference of the male child is clearly the sex selective pregnancy test. A sex selective pregnancy test can be done after registration also, but clearly the scope to do any sex selective abortion is significantly reduced. Thus, upon discussions with the anganwadi workers, panchayat representatives, health workers and departmental officials, it was decided that registering all pregnancies within time was a necessary first step to tackle this problem of declining child sex ratio.

Three-Pronged Approach

Numerous awareness campaigns have been organised at the state and district levels courtesy to the initiative and personal interest of administrators and department officials across the country. However, there is no clear study which has been able to show that such high decibel campaigns alone have been able to improve the SRB. Also, can the SSR/SRB be actually influenced by a high decibel campaign with a very high component of IEC within a short period of time, say one year? Thus, the need to have administrative measures to monitor parameters arises, which could in turn, leads to a better CSR.

Improvement in child sex ratio has to happen through an increased SRB/SSR. Change of attitudes is possible, but since this is embedded in socio-cultural factors, any result emanating from a change of attitude will take time. There is no doubt that the ultimate goal has to be to change the people's mindset. However, this changing of attitudes is an incremental evolutionary phenomenon, which has to be supplemented with a more direct, easier to correlate parameters of performance. To celebrate the birth of a girl child is obviously a faultless exercise, but to link the SRB/SSR figure in the coming months to the number of celebrations is not as convincing as linking it to something more directly measurable, say timely registrations.

As mentioned in our initial hypothesis, we kept early registration of pregnancies as the parameter which should be monitored by the department. If pregnancies are registered before 70 days, the chances of missing fetuses reduce. If no foetus is going missing or unreported, then surely over the long run the SRB should be in the range of 950–1000. Also ceteris paribus, if this measure yields results, it could be implemented with much greater ease across varying geographies because its implementation lies totally in the hands of the state. If every pregnancy gets registered in time at an anganwadi or health institution, and is supported by a sensitisation campaign targeted at certain sections of society, the chances of a better SRB/SSR automatically increase.

The above thinking was kept in mind that a three-pronged approach comprising awareness and sensitization, administrative measures and regulation was used in both the sedistricts.

Awareness and Sensitization

Who should the awareness campaign target and what form should it take? As much as it is important to spread the message of the saving, educating and empowering the girl child to the wider society, it is more important to focus on certain groups. These groups, according to us, are the ones who have key role in influencing decisions within a household. A decision to abort a female foetus is never the decision of one personal one. It is a joint family decision to which everybody is a party. There might be varying levels of resistance or acceptance to that decision. However, it is important to stress the importance of the anganwadi worker in spreading the broader social message and also gathering important information about families who are vulnerable to the practice of foeticide. At the same time, it is important to reach out to the family by insisting to them repeatedly, through various communication strategies, that giving birth to a girl child is not a disadvantage either socially or economically. The feeling of being less empowered if someone does not have sons has to be progressively tackled by insisting, at every instance, that the state and administration recognises and empowers couples who are giving birth to a girl. It was keeping these two broad themes in mind that we took certain steps which are explained below.

Anganwadi Worker over ASHA

One of the key strategic decisions we made right in the beginning of the campaign in March 2015 was that we would use the field staff of the WCD (Women and Child Department) as opposed to the same of the Health Department. The first reason for this was the depth of penetration. For every ward of the panchayat, there is an anganwadi worker and a helper. Thus, in Hamirpur District with a total of 229 panchayats, there were roughly 1300 anganwadi workers and roughly the same number of helpers. Similarly, in Bilaspur, there are 151 panchayats with roughly 900 anganwadi workers. On the other hand, the number of ASHAs is much smaller at roughly one per panchayat. Secondly, since ananganwadi worker has to cover a smaller number of families and area, she has greater capability to gather local intelligence about intra-family decisions. Thirdly, the scope of the health department is lot wider in context of this task. The day-to-day functioning has to revolve around the core area of health treatment and spreading awareness of diseases and illness. However, for the WCD, this is the core of their work.

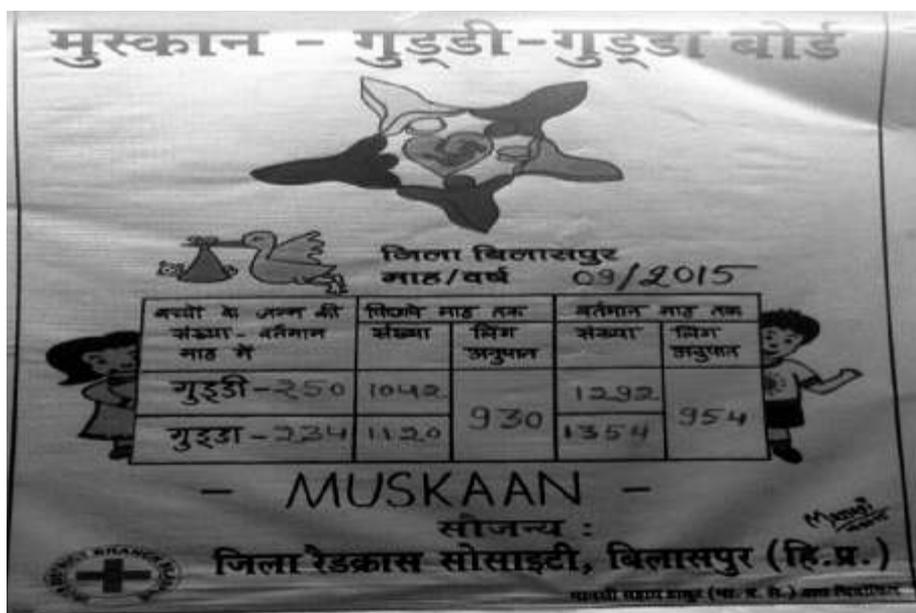
Camp Approach

Thus, it was decided to organise camps at the block level with the anganwadi workers in which the Deputy Commissioner himself would go and speak about this menace. The idea was to have a two way communication and use

various modes of media to convey the same message. It was realised that making the people aware of the harsh reality about the process of abortion really works as an eye opener. It was the mind set change approach that was adopted in a massive way. The intention was to spread the message of protecting the girl child rapidly and as deeply as possible in the society. It was intended that people be forced to think twice before aborting a girl child. A video that has been especially useful in this campaign is the “The Silent Scream,” which is available on You Tube. A sit was used as part of the anti-abortion campaign in America in the mid-1980s, we used the same video to illustrate our point on the evil of selective sex testing. This video was cut and dubbed in Hindi by the Bilaspur administration for increasing its reach and effectiveness amongst the masses. This video has proved very useful in making deep impressions on peoples’ minds. The idea of these camps was to instill in the anganwadi workers a sense of empowerment and importance on one hand and a sense of responsibility and accountability on the other.

Guddi-Gudda Boards

In order to make it a more public-appealing movement, we also got Gudda-Guddi boards installed in all important public offices including panchayats. It started showing the number of boys and girls being born every month and its comparison with the earlier months.



Personalised Messages

We also started a system of sending a personalised message of congratulations from the office of the DC to the parents of every girl child who was born in the district. The idea was to instill in the parents a feeling that the administration was there with them. To give birth to a daughter should not be construed to be a liability or disadvantage.



Financial Inclusion of Girl Child

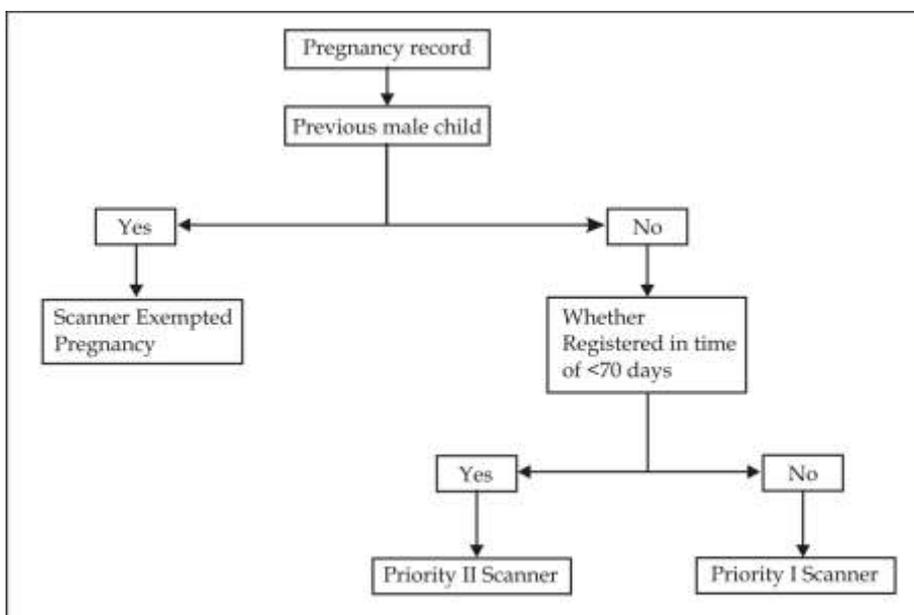
The WCD officials were directed to open a post office savings account for every girl child born in the district for which a one-time contribution of Rs.200 per child was made from the Baba Balak Nath Temple Trust in Hamirpur and Shri Naina Devi Temple Trust in Bilaspur. Since the Deputy Commissioner is also the Commissioner of the temple, we were able to converge the temple's efforts at social service with the administration's crusade against female foeticide.

Administrative Measures

As mentioned earlier, a key strategic decision was to tighten the definition of late registration from "after 12 weeks" to "after 10 weeks". The anganwadi workers were to ensure that all pregnancies were to be registered within ten weeks, almost ensuring that everybody would get the registration done in time without the test. The key challenge was to ensure it. For this, some of the key measures are mentioned below.

The Red Scanner and Early Registration Rate

Red scanner was a simple excel based software, which tracked certain pregnancies satisfying the below mentioned twin criteria. The twin criteria were to track those pregnancies where registration of pregnancy was done after 70 days. These families did not have a male child earlier regardless of the number of the pregnancy. These were termed as Priority1. The flowchart will illustrate this clearly:



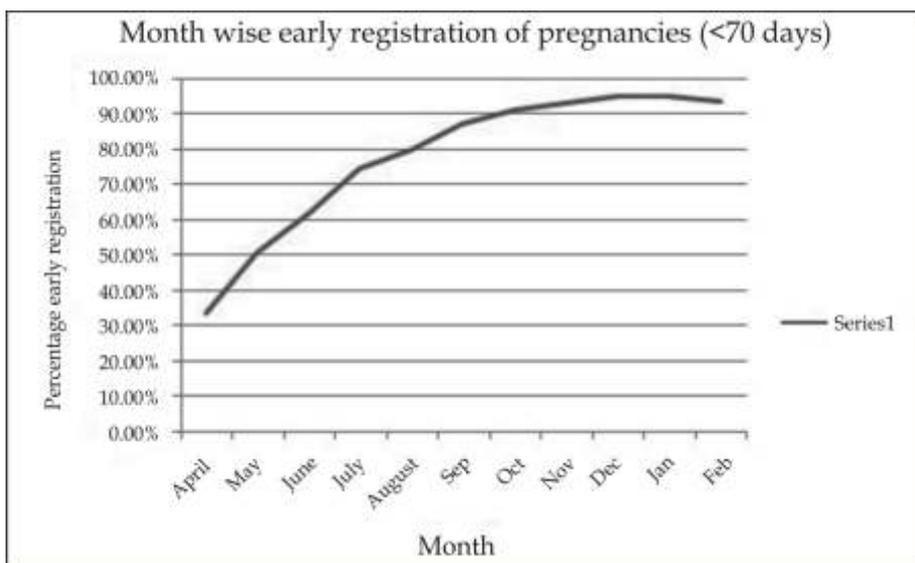
A list of such cases was then marked and identified by the colour red on the software, giving the term “red scanner”. Every such Priority1 pregnancy had to be explained by the concerned anganwadi worker in the monthly meeting held in the DC office. Very interesting reasons would be given for the late registration. A qualified doctor would also be present in the meeting to clear our doubts on the medical side. An example was that of a woman who got pregnant for these cond time immediately after she delivered her first kid and did not realise why she missed her menstrual cycle. Was it the after effect of the first pregnancy or these cond pregnancy itself? Similarly, the issue of women going to their pre-nuptial home for delivery outside the administrative boundary of the block or district created logistical issues of its own. As long as the woman was within the district, data could be exchanged between the block officers at the level of the district, but inter-district coordination was more difficult. At times, it was an issue of sheerig norance but that was mostly amongst the labour and immigrant class. Every month through this system of

rigorous monitoring at the level of the Deputy Commissioner, we were able to improve our rate of early registrations from 25% in April 2015 to 95% in the month of January 2016 in District Hamirpur. The corresponding figures of district Bilaspur were 71.78% in April 2015, which rose to 95% in March 2016.

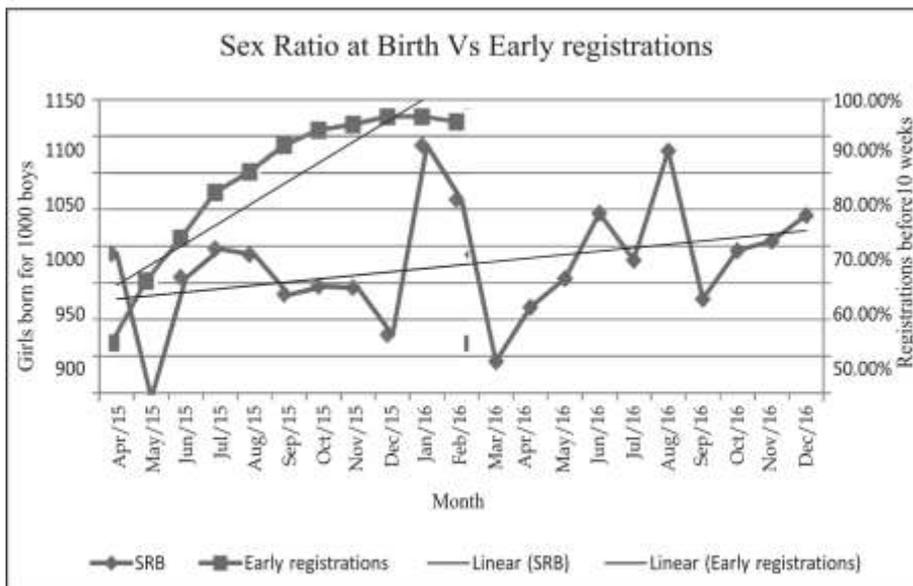
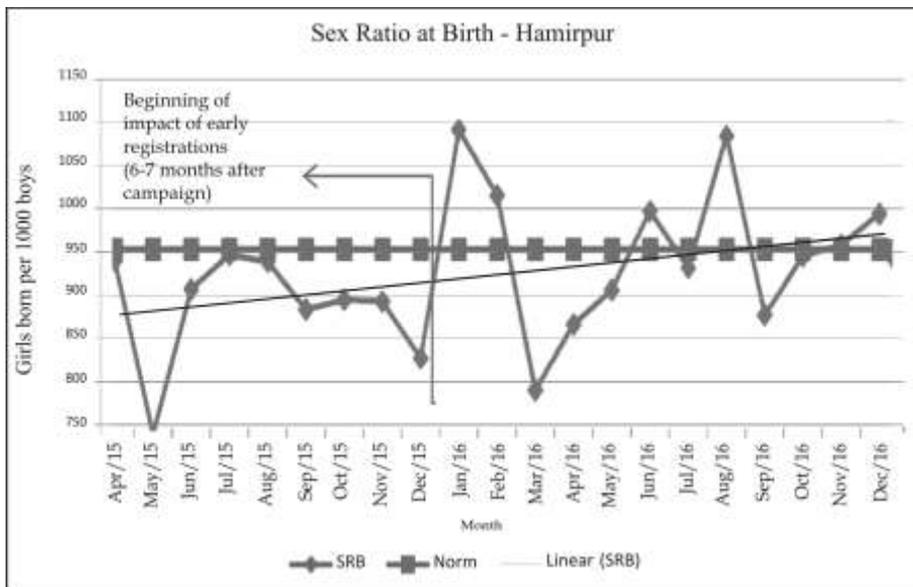
The above figures also show that the situation in Bilaspur district in terms of the early registrations was not at all bad. But the SRB figures for the district were still very low. Thus, it led to a greater focus in the district on combining strategies of regulatory measures and targeted IEC. District Bilaspur being a border district of the states having its boundaries with Punjab also led to several avenues being available to the people for terminating. Hence, making deep impressions on the people towards a mindset change pregnancies. process and creating general pressure of being watched by the administration were emphasised upon along with attempts at improvement of early registration of pregnancies.

Link between Timely Registration and Improved SRB/SSR

The inherent logic of monitoring this was that if registrations are done in time, people's tendency to go for selective sex test would be seriously checked. Once this tendency is checked, the chances of female foeticide would reduce and the SRB/SSR would improve. It is important to note that the SRB/SSR would improve only after a lag of 6–7 months, since children being registered within 70 days would be born roughly between the 250–270 day range of their last menstrual period (LMP). Thus, starting our program in April 2015, we knew that the earliest response in improved SRB would occur after December 2015. It would be very interesting to study the two graphs shown below together.



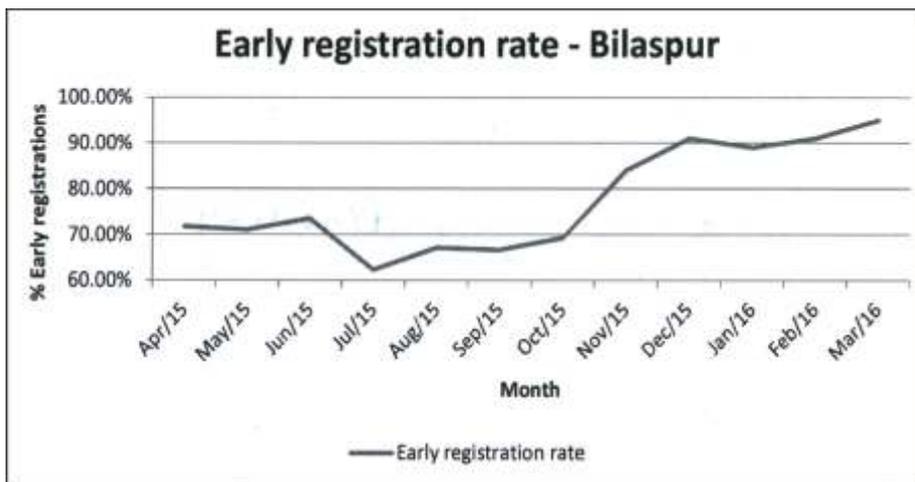
Significant improvement in the early registration rate happened every month, but rate was highest in the months from April to September. These registrations comprised the low hanging fruit. As per our hypothesis, there is a direct link between higher registration rates and higher SRB. How has the SRB figure performed in the same period?

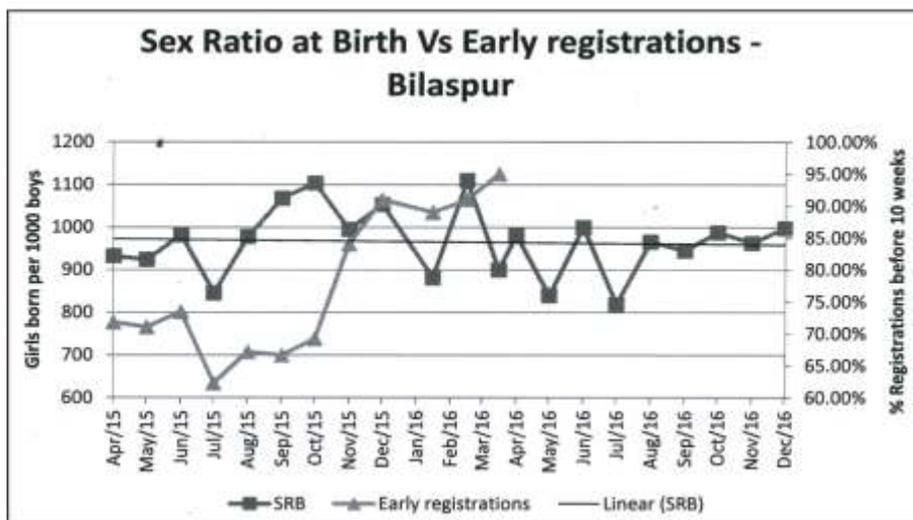
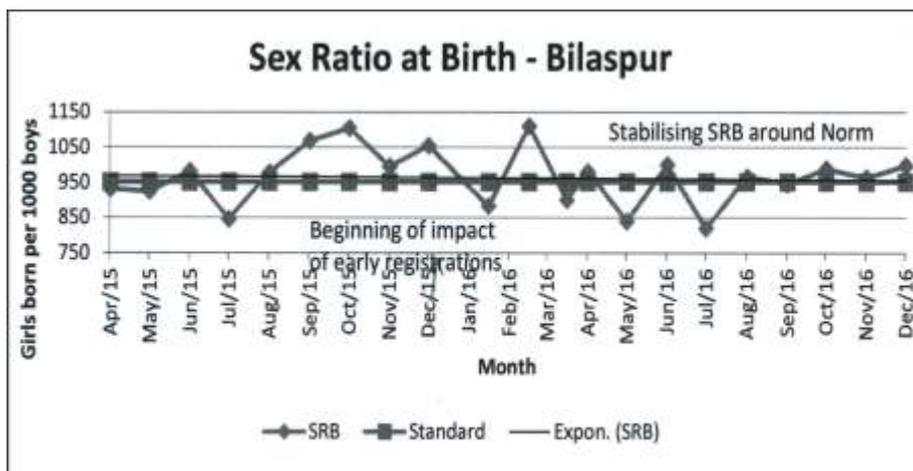


The SRB/SSR was in different for the months from April to December. It can easily be explained because these were pregnancies which should have been

registered before April 2015. The early registration rate was a paltry 33% in April, 50% in May and reached 62% in June. Children of the pregnancies registered in time in June would be born, at the earliest, in the month of January. They could also be born later. For the first time, the SRB/SSR went beyond 1000 in the months of January and February. The period between March and December 2016 saw a secular increase in SRB/SSR with it crossing 1000 in June and August. If we are to go back and see the corresponding early registration rate, it would have been of the months of November and January (both above 90%). It is easily visible that in the months before December 2015, in not a single month did the SRB cross the internationally recognised norm of 952. However, in the one year since then, the SRB has crossed 952 on seven occasions out of a possible 12. Clearly, in the Hamirpur scenario, where there was greater emphasis on administrative measures and less soon a high decibe IIEC campaign, the improvement had to be largely attributed to the increase in the early registration rate.

The performance of district Bilaspur, where the program combined alongwith the above mentioned administrative measures a strong IEC campaign, is shown below. Here the improvement in sex ratio is seen even before December 2015 that we have kept for the impact of greater early registrations to kick in. The earlier improvement in the SRB could be attributed to the high intensity IEC campaign, which was launched since February 2015. This high intensity campaign in which the anganwadi workers, mahila mandals and young newly-wed couples were targeted may have led to as harp improvement from August 2015 itself. The marked improvement in the early registration rate happened in October 2015. If one sees SRB figures with a seven month lag (May 2016 onwards), a greater stability around the natural rate of 952 is noticed.





Thus, the strategy adopted in Bilaspur had elements of both IEC and administrative measures, whereas the Hamirpur strategy mainly focused on early registrations. Need less to say, the results have been very positive in both districts.

Motivation of Field Staff

The big challenge was to ensure that the anganwadi workers take this task of registrations seriously. With a paltry honorarium of Rs.3500 and a host of other tasks, the task of keeping them motivated and serious about this campaign at hand took centre stage. On the suggestions of anganwadi workers in one of the block meetings, we came up with the idea of publicly honouring the well

performing workers. This too had to be done along objective, measureable lines. Thus, it was decided that the three anganwadi workers of each block having the highest number of early registrations would be honoured on the Independence Day and the Republic Day. To be amongst the 18 workers to be selected from amongst 1300 based on a clearly measureable criteria ensured that nobody had any complaints, which is often the case with awards given by the state. This involved giving them certificates and household kitchen items. Similarly, it was also made very clear to anganwadi workers that if for three consecutive reviews late registrations were found for any centre, then that worker would need to explain such lapse on her part, in writing. Thus, a balanced carrot and stick policy was an essential feature of our campaign. This strategy was implemented in both districts.

Regulatory Measures

It should be mentioned that the power under PCPND Tactin HP lie with the Chief Medical Officer and not the District Collector. Therefore, one has to act through the Health Team, which requires greater effort and coordination. However, on April 2015, the district administration in Hamirpur on the basis of local inputs conducted a surprise raid on one of the leading hospitals and ultrasound centres of Hamirpur. The centre was sealed and an FIR lodged. It happens to be the only FIR lodged under the PCPNDT act in the whole state. This was meant to set an example to others, since there are limits to regulations. The more fundamental issues are those of the mindset change and also of better administrative measures.

The experience in this measure was varied. In Bilaspur district, raids were conducted in at least three ultrasound centres based on informal intelligence. It was seen that each one of the clinics/centers had maintained their records and there was no lapse on this count. This could be a result of the effective raid conducted in Hamirpur (as stated above), which caused an alarm throughout the state and also resulted in these clinics becoming smarter and more careful in maintaining the basics in the form of required records as per the PCPNDT Act. We observed that before 2015–16 in both districts the SRB wash overing around 900. However, with IEC strategy in Bilaspur, improvement in results became visible in 2015 itself. Hamirpur, which had a more administrative measures linked strategy, got the results in 2016–17 where its SRB reached 950 (up to December 2016). In the case of Bilaspur, the SRB was 941 up to the same period. Thus, it is established, without doubt, that SRB improved post interventions in both districts.

Another logical study was to evaluate the results of the pregnancies on the red tracker. In a nutshell, what was the SRB for the Priority 1 pregnancies? This was essential to reaffirm our approach. Are we tracking the right parameter

and are we employing the right strategy? By this, we refer to the use of administrative measures, IEC and regulation. As an example, a study of the Priority1 pregnancies of Hamirpur from April 2015 to March 2016 showed the following results.

| Block | Males Under Scanner | Females Under Scanner | SRB (Under Scanner) | ER Rate (%) | Total SRB |
|----------|---------------------|-----------------------|---------------------|-------------|-----------|
| Bamson | 28 | 3 | 107 | 86.6 | 988 |
| Nadaun | 45 | 26 | 578 | 75 | 842 |
| Sujanpur | 26 | 30 | 1154 | 75.9 | 856 |
| Bhoranj | 23 | 16 | 696 | 83.5 | 866 |
| Bijhari | 32 | 20 | 625 | 83.15 | 970 |
| Hamirpur | 36 | 32 | 889 | 66.7 | 895 |
| Total | 190 | 127 | 668 | | |

These are the results of the pregnancies in different blocks. Only those cases of registrations were tracked in which the couple had no male child before and had also registered late. The most glaring result was in the case of Tauni Devi where out of the total 31 such cases, 28 were males. The SSR or SRB for under Priority1 scanner was as low as 107. Yet in the same block, over this period, the early registration rate was a healthy 86% and the overall SRB was 988. This clearly shows that if pregnancies are registered in time, the chances of a healthier sex ratio increase. An approach with a greater emphasis on administrative and regulatory measures will yield good results as shown; Nadaunhasan SRB of 578 for Priority1 scanner pregnancies. However, its registration rate was only 75% and the corresponding SRB for the period was only 842. Bijhari had an SRB of 625 for Priority1 scanner pregnancies. Its registration rate was 83% with a SRB of 970.

The cases of Sujanpur and Hamirpur are exceptions to the trend. This can be explained by the high level of migrant labour population in these blocks, which makes timely registration of pregnancies more difficult. Here, a more IEC oriented approach could pay higher dividends than purely going by administrative measures.

Policy Recommendation

Based on the study above, we feel there is a reasonably convincing case to institutionalise a system of early registration of pregnancies. Till now, grants in schemes like IGMSY were linked to “early registrations,” but early registration has not been defined. For getting the grant under the scheme, it was fixed at 12 weeks. We feel that this should be reduced to ten weeks and progressively reduced to eight weeks. It is well known that levels of accuracy of any sex detection test improve significantly after 75 days from LMP. So if we are able to register before 70 days, the deterrence to doing any such test automatically increases.

The second recommendation we propose is the use of anganwadi staff for reporting and tracking pregnancies vis-à-vis the Health Department. This is

due to the greater penetration network and also the greater suitability of their job profiles. Adequate attention should also be paid to develop incentive structure for the better performing anganwadi workers and helpers.

The third recommendation relates to the role of targeted IEC and environment building. As much as this is very important in spreading awareness, it must be recognised that its efficacy will be felt when there is a change in mindset. This change in mindset has to be of the decision makers and people giving effect to these decisions. These are potential parents and family members (decision makers) and the doctors (giving effect to these decisions). Specific IEC campaigns have to be targeted at the mandal so supported from time to time with regulatory measures.

The fourth recommendation is linked to the third. The competent authority under the PCPNDT act varies from state to state. In the state of Himachal Pradesh, these powers lie with the Chief Medical Officer. It is strongly recommended that these powers should lie with the District Magistrate for the purposes of better coordination and implementation. This would allow the Medical officers to focus on their core job of providing health services without getting into the domain of regulation and implementation of the law.

The fifth recommendation is that for each area a different mix of strategies may yield positive results. Thus, before working in the field, a brief analysis of under scanner pregnancies, their results and comparison with overall SRB/SSR would give a good idea of which strategy to employ.

Finance

It is important to reiterate that neither Bilaspur nor Hamirpur was part of the Beti Bachao Beti Padhao (BBBP) districts list in they ear 2015. It was in 2016 that Hamirpur was included, whereas Bilaspur is still not a part of BBBP. Thus, all the above stated work was done in the low resource setting of the districts itself. Banks were asked to sponsor publicity material like posters and congratulatory messages. We also got the temple trusts involved by getting recurring deposits and Sukanya Samriddhi accounts opened through temple funds. The camps were sponsored by using paltry departmental funds, which when fell short were covered by the District Red Cross Society. In a nutshell, for this noble cause of saving precious lives, the roles of the Deputy Commissioner, Temple Commissioner and Chair person of the District Red Cross Society were all converged. However, the act of celebrating the birth of every girl in the district was sponsored completely by the community. No aid was given by the administration for this.

The Way Forward

Once the sex ratio at birth was stabilised, it was decided that along with sustaining the same, we would take Muskaan to the next level, i.e., follow the

life cycle approach. Following steps were taken for encouraging the girl child and ensuring her well-being in district Bilaspur:

Providing sanitary napkin incinerators to high girl density schools in the district in order to ensure the comfort of the girl child and also to ensure that she does not drop out of school due to basic sanitary issues.

Funding the education of girl children who were being forced to drop out due to direfamily circumstances.

The funds needed for the above were again utilised from the Corporate Social Responsibility funds generated at the district level.

These steps were just few of the many that would be needed to promote the interest of the girl child. The task is a major one and needs consistent efforts to sustain any improvements made.

Implementation at State Level

Based on the successful implementation in Hamirpur and Bilaspur districts, Muskaan was launched at the state level by the Chief Minister of Himachal Pradesh on 20th October, 2016. Detailed guidelines have been issued to DCs about the same by the Directorate of Women and Child Development. Muskaan has been adopted as a lifecycle approach and endeavours to promote the cause of the girl child at every stage of her life. It is expected that the positive results experienced in the two districts of Hamirpur and Bilaspur will be felt throughout the state.



Increasing Role of Standards in International Trade in Goods

Sudhanshu Pandey, IAS, Joint Secretary, Department of Commerce, New Delhi

Introduction

A key feature of globalization is the increasing economic and trade importance of global standards. Compliance with global standards is a key policy concern, especially in developing countries. Understanding the making, working and implications of these standards is important for policy makers. A major problem lies in preparation, adoption and application of standards among various stake holders. This case study is an attempt to identify the problems daunting standards environment in India and how attempts are being made to streamline it and bring it upto the global level.

Voluntary Standards and Mandatory Standards

Standards are of two types: voluntary and mandatory. The voluntary standards are generally called 'standards'. The mandatory standards are called 'technical regulations', which are becoming important for international trade as per details in Annexure A.

Trade Concerns

The international trade of India stands at an export of US\$262 billion for 2015–16, which has decreased drastically by 15% over 2014–15. The decrease could have been foreseen over the last 4 years where the growth has been nearly stagnating for exports.

If we look at the reasons behind the surge in imports from China, the outcome shows that India has to go along way in strategizing by setting up standards, the lack of which is making India a dumping ground for anything and everything that is manufactured with substandard quality.

The Dragon

Today, China is considered to be the manufacturing hub of the world. Over a period of time, it has achieved economies of scale in many sectors owing to large scale of operation, with cluster approach and subsidized common facilities there by reducing the cost per unit.

According to a report by a leading consultant firm¹, China leads in

¹ Report by Mc Kinsey & Company, "Chinese Infrastructure: The Big Picture", article in Mc Kinsey Quarterly.

infrastructure investment, which is also a top priority of the Chinese government. The infrastructure investment from the early 1990s has averaged 19% of GDP in China, compared to 2% in India. The development of infrastructure plays an important role in reducing the cost of production. With better infrastructure coupled with cheaper production process in place, China provides strong competition with cheap and differently standardised goods for different markets. While same goods will have exacting standards for US and European markets, standards will be low for Indian and African markets.

The absence of mandatory standards in India in many sectors has cost the people, industry and economy heavily. India in that sense is one of the least regulated markets in the world. Often, presence or absence of mandatory standards today defines the level of development of an economy.

The Tiger

A robust manufacturing sector not only helps in achieving high GDP growth rate and creates gainful employment but also provides a big boost to exports. Amongst the various enablers helping in reviving manufacturing, ensuring quality through better compliance with standards and technical regulations is of paramount importance, as it brings better technology and competitiveness. The applicability of such standards is not just for the imports butals of or the domestic manufacturing sector in India, which is required for meeting international demand of quality products. Because India's manufacturing lacks comprehensive ecosystem of mandatory standards, it is eroding our competitive advantage and market share.

Stakeholder Analysis

Today, due to limited and often divergent/different interests of all stakeholders, no one is interested in creating a complete ecosystem of standards, which serves all stakeholders in the best possible manner. Ensuring that a suitable standardization regime is brought in India and followed by all is a priority seen only by few including the Department of Commerce. To meet this challenge, involvement of stakeholders started with their sensitization.

Industry

The perils involved in setting up a manufacturing unit have reduced over a period of time with the introduction of online systems by the Government of India ,but it is far easier for an aspiring entrepreneur to enter into trading than manufacturing. The resistance in setting up of standards is, however, by both of them. The traders, out and out, resist the formation and implementation of standards, as they also do not want the easy way without much liability on them. On the other hand, the small and medium enterprises (SMEs) have limited capacity to meet them and hence a revery reluctant. An industry set-up

in India can turn to tally non-viable if same products (sub-standard) are dumped in the market at lower cost from other countries. Expecting only consumer to decipher standard and quality is not a realistic assumption in a price sensitive market. Who will fix it?

Ministry

The decision makers in the government have unfortunately little awareness of the prevalence and importance of adoption of standards. Since most of the laws are archaic, there are ambiguities in laws, which create hindrance in setting up of mandatory standards. The case in point is Section 14 of Bureau of Indian Standards (BIS) Act, 1986. This section's provisions allow BIS, a standard setting body, to make or amend standards for the products which are listed in IDR Act, 1951 only. This limits the scope of standard setting and creates legal hassles for standard setting bodies, where there is a requirement of creating a standard but the legal provisions do not provide any scope for it. There is need of an enabling law that helps in bringing all stake holders on a platform for standard setting promptly. Most importantly, since the impact of standards across various sectors is invisible, its real impact is not understood as it is delivered like a slow poison over a period of time and its widespread impact is diffused.

Standard Setting Bodies

As mentioned above, BIS is designated to make standards but its establishment has an inbuilt conflict of interest in it. Standard setting and its assessment, known as conformity assessment procedures (CAPs), are two different activities which are complementary in nature. So if a standard is set by an organization, it may not be viewed as a conformity assessment in the same light or vice versa. Globally, the trend is that both of them are entrusted with different agencies. So, BIS cannot do justice to both the processes.

BIS has around 20,000 existing voluntary standards but only around 800–900 standards are functionally adopted. Only about 150 of them are mandatory. There is also little promotion by BIS in creating awareness about benefits for adoption of these existing standards.

These established standards are under copyright protection and hence SMEs, who need it the most, have problems accessing them. Infact, general public, who is the biggest stake holder, has no access and hence poor understanding. This ultimately impedes demand for new and good standards and hence the industry stagnates with old and obsolete technology. Who will change this?

Accreditation Bodies

The nominated body for accreditation in India is the Quality Council of India (QCI), which has been given the task of accrediting bodies for following CAPs.

There is no role clarity for QCI, as BIS is also doing the same work of accreditation as QCI. BIS is doing all three aspects of standardization, i.e., standard setting, accreditation and setting up of conformity assessment procedures, which undermines the fundamental objective of independent assessment and avoidance of conflict of interest between these two bodies.

Challenge

India's technical regulatory regime is still at the nascent stage of development. In the present scenario, where the arena of standards is very dynamic and poses barriers to Indian exports, most of the ministries do not have a dedicated setup dealing with setting up and monitoring of standards. Only the Ministry of Commerce, which has the mandate of taking exports of India towards the target of \$900 billion by 2020, recognises this as a major challenge. Ministries like M/o Steel, M/o Electronics and M/o Health and Family Welfare have indeed started establishing standards lately.

The key challenge therefore is how to embrace a stronger standards regime in India while taking along all stake holders.

The key points of decision were:

We don't have proper legal instrument to mandate technical regulations on goods. How to resolve this problem? While after the 1991 reforms, we have brought deregulation from price and quantity control regulations for industry, but to bring compliance based on mandatory standards cannot be ignored. How to bring about this in conformity with the ethos of ease of doing business? What should be the products which should be brought under technical regulations? How to improve our response to technical regulations of other countries?

Awareness Generation:

Standards Conclaves

To arrive at a road map involving all stakeholders, Department of Commerce, Government of India in collaboration with Confederation of Indian Industry (CII), Bureau of Indian Standards (BIS), National Accreditation Board for Certification Bodies (NABCB), state Governments and other knowledge partners decided to organize 8 standards conclaves (3 national and 5 regional) over three years. The standards conclaves have now become an annual feature and an evolving platform on discussion on standards.

The outcomes from these conclaves became the basis of action plan of the Department of Commerce at the Government of India.

Enabling Law:

Background

Currently, the Central Government does not have a suitable general legislative frame work, as discussed earlier. The sector specific acts like the Food Safety and Standards Act, 2006 or the Drugs and Cosmetics Act, 1940 understandably

have limited domains. The only general instrument available was the BIS Act, 1986, which empowers the government to notify standards for regulation in any sector but it was restricted in the following terms:

- Only Indian standards could be notified.
- Only product certification (licensing) or registration scheme of BIS could be applied for conformity assessment.
- Only standards in sectors included in the schedule of the Industrial Development and Regulation Act can be notified.

Two solutions came out of deliberations in the two standards conclaves:

Option1: New Law on Technical Regulations Option2: Amendment of BIS Act

Accordingly, this issue was taken up by the Department of Commerce with Ministry of Consumer Affairs. As per option2, the BIS Act has been amended and a new BIS Act 2016 has come into force. With this, BIS can make standards mandatory for a sector, which will give a fillip to standard setting.

Less Onerous Conformity Assessment Procedures:

Background

Globally, for low risk items Suppliers Declaration of Conformity (SDoC) is used, which is a cost saving and less onerous approach to conformity assessment. Taking a cue from the developed countries, who have introduced SDoC, an amendment of Consumer Protection Act incorporating a new chapter on 'product liability' was proposed, which has been approved by the Cabinet.

However, in India under BIS Act only 2 types of conformity assessment options were available: Licensing (all products except electronics) and Registration (electronics). The amendment in the BIS act now makes available other options of conformity assessment as well as use of third party conformity assessment bodies.

Trade Facilitating Portal - Indian Trade Portal

One of the most supportive outcomes of the standards conclave has been the creation of the trade portal (www.indiantradeportal.in), which is being maintained through FIEO. It was launched to enable businesses to get the information about the changing dynamics of trade at the single point.² The highlights of the trade portal are mentioned in Annexure C.

Bringing Products under Technical Regulations (Mandatory Standards)

The first step included identification of products to be brought under technical regulations. These cond step focused on bringing these products under technical regulations.

²Annexure C: Highlights of the Trade Portal.

Step1: Identification of Products - Products based on various criteria like anti-dumping duty and export interest were identified.

Step2 : Bringing products under technical regulations in reality.

Status

There has been considerable success in bringing a product undertechnical regulation viz193 standards along with 84 horizontal in food sector.

The impact of making standards mandatory has been assessed by DEITY, according to which import from some countries of some electronics goods have come down.

Preparedness and Response for Importing Countries Regulations

The Department of Commerce has implemented a project of monitoring of SPS/TBT notifications of other countries through APEDA/EIC on outsourcing basis. This is helping in identifying barriers and evolving regime globally.

Private Standards

Over the last 10 to 20 years, private standards have emerged as an important mode of market governance in many developed countries and they are new trade barriers created based on buyers and consumers choice.

Conclusion

The importance of standards is now being realized at the highest political level. The Make in India initiative has identified 25 sectors where the technical regulations need to be promoted. Overall the initiative taken by the Department of Commerce to overhaul our standards ecosystem as a coordinated national response and strategy to meet the challenges of mandatory standards is being increasingly but yet slowly recognized as overdue. Advances in technical regulatory agenda are vital to leverage our strength as one of world's biggest markets and also to promote our presence in the international markets. However, in view of conflicting interests and diffused decision making, actual achievements are doubtful.

Annexure A

Importance of Standards

a) There is synergetic relation of standards and technical regulations with trade. Standards and technical regulations are trade enhancing because standards reduce information asymmetries, signal quality to consumers and create a common language for potential trading partners, thus reducing overall transaction cost. However, at the same time the concerns over the

impact of standards and technical regulations as non-tariff barriers (NTBs) in global trade are also well-documented.

b) Internationally, tariffs have been going down and overall global average import weighted tariff on industrial goods has gone down to just around 4%. With FTAs being negotiated among large number of countries, average global tariff rates will go down further, reducing the role of tariff in market access.

c) At the same time, the use of technical regulations (mandatory standards) has grown world wide along with growth of variety of conformity assessment procedures, which is having a vital impact on market access and global trade.

d) Mandating standards on products and processes and putting in place a proper eco-system related to technical regulations, standards, metrology, conformity assessment and accreditation would help prevent flooding of domestic market with unsafe imports, which adversely affect consumers as well as domestic industry.

e) In the globalized market place following the creation of the World Trade Organization (WTO), a key challenge facing developing countries is the lack of national capacity to overcome technical barriers to trade and to comply with the requirements of agreements on sanitary and phytosanitary conditions, which are now basic prerequisites for market access embedded in the global trading system. The WTO has adopted two important agreements in these areas: the Agreement on Technical Barriers to Trade (TBT) and the Agreement on Sanitary and Phytosanitary Measures (SPS).

f) It has to be recognized that the days of differential standards-low for domestic market and high for exports-are over and if the Indian industry has to survive and thrive, it has to adopt global standards. The ministries/regulators/state governments have to also realize that their initiatives and schemes have to be built around global standards if they have to succeed in their objectives. Moreover, by measuring up to standards and conformity assessment procedures, exports can also be increased both in volume as well as in value terms. This is vital for Make in India to succeed because world market would demand goods made to global standards.

g) Understanding the implications of standards in international trade is therefore very important from the perspectives of the central government ministries as well as of the state governments and most importantly for the industry. Upgrading to international standards on your own, making standards mandatory, requisite infrastructural facilities like testing, certification, trace-back, packaging and labelling as well as promotion schemes adhering to international standards can go along way in meeting challenges of a large number of SPS and TBT measures.

Annexure B

Imports from China (2015–16)

Total imports from the world³ =US\$381 bn

Petroleum related imports =US\$96 bn

Gold related imports =US\$56 bn

Total imports from the world minus petroleum and gold =US\$229 bn

Imports from China =US\$61 bn

% of imports from China after taking out petroleum and gold imports=26.6%

Annexure C

Highlights of Trade Portal

This portal helps businesses to evaluate the competitiveness of their products in a particular market, based on applicable Most Favoured Nation (MFN) tariff and concessional tariff (if any) under any bilateral or regional preferential trade agreement.

Another important feature of the portal is information on ‘measures’ other than tariff called the Non-Tariff Measures (NTMs) like standards, technical regulations, conformity assessment procedures, sanitary and phytosanitary measures, which may affect trade adversely. This is important because if Indian manufacturers and enterprises cannot meet mandatory obligations of meeting standards, etc., increasingly we will start losing major export markets in the world.

The portal is infact a single point for almost all the information required by an exporter in a user friendly manner, which will help exporters in accessing markets easily and incomprehensive manner. It also provides information like how to export, export acts of India, export promotion schemes, banking regulations, frequently asked questions (FAQs) on various topics, etc. Free subscription for alerts on the updates on the portal over email and SMS is also available. A small video on the operation of the portal has been made available in the “Help” section of the portal.

³Source DGCIS data.



Annapurna Bhandar Yojna: An Initiative to Revamp the Public Distribution System in Rajasthan

Dr. Subodh Agarwal, IAS, Principal Secretary, Food and Civil Supplies, Rajasthan

Introduction

Public distribution system (PDS) is a government funded and administered program, which comprises of a network of retail outlets, known as fair price shops (FPS), entrusted with the distribution of basic food and non-food commodities, such as wheat, rice, sugar, kerosene, etc., to the needy sections of society at subsidized prices. With a network of about 5.35 lakhs fair price shops distributing commodities to millions of families, the PDS in India is perhaps the largest distribution network of its kind in the world. Rajasthan has the largest geographical spread among states in India with a population of 6.86 crores (Census 2011), a majority of which is rural. Approximately 6.73 crore people (more than 85% of the state's population) benefit from the 26,500 fair price shops in the state, by getting access to wheat, rice, sugar and kerosene at subsidized prices. However, commodities other than those supplied through the PDS also have demand in both urban as well as rural areas. All major cities have shopping malls, departmental stores and retail supermarkets to cater to the urban demand for daily consumer goods and commodities; however, majority of the rural population still doesn't have good and stable access to quality consumables. On the other hand, the PDS, which is designed for providing access to rations at subsidized prices to low income households in rural areas through its network of FPS, suffers from endemic problems and irregularities, many of which are systemic. Numerous incidents of diversion of resources and leakage in supplies have been noticed from time to time. This is due to a variety of factors, of which, lower than market income earned by dealers from the fair price shops operated by them could be one of the factors.

The state government of Rajasthan is committed to providing various consumables alongwith food grains, through PDS, to the common people in an efficient and transparent manner. In order to address the dual problem of dubious and spurious consumer goods being supplied and sold in rural parts of the state, as well as enhancing the income of FPS dealers, the Department of Food and Civil Supplies, Government of Rajasthan has introduced an innovative scheme in the field of public distribution system. The scheme commonly known as "Annapurna Bhandar Yojna" is a first of its kind initiative

in the country. It is a truly innovative and genuine public private partnership (PPP) scheme for providing multi-brand products of daily consumption at fair price shops at competitive prices.

Conceptualization to revamp the current “holes in the wall,” dilapidated fair price shops into modern retail Annapurna Bhandar stores was based on an interesting incident. Honorable Chief Minister of Rajasthan, Smt. Vasundhara Raje, during government campaign “Sarkar Aapke Dwar” in Tamatia village of Dungarpur district of Rajasthan, visited a Large Area Multi-Purpose Society (LAMPS) under Gram Seva Sahkari Samiti (GSS in tribal area), which was also working as a fair price shop, in the month of August 2014. The dealer of this FPS, besides selling the subsidized items under the PDS, was also selling FMCG, fertilizers, seeds, cement and other consumer items. The model was not only providing a facility to the consumers in interior areas but was also a source of additional income for the cooperative organization. This FPS model was appreciated by the honorable Chief Minister and it laid the foundation for the concept of Annapurna Bhandar Yojana.

Objectives of Annapurna Bhandar Scheme

Giving shape to the concept, the scheme was launched with an objective of making daily consumer items available and accessible to the rural population. The major objectives of the “Annapurna Scheme” are listed as follows:

- To ensure delivery of better quality and multi-brand consumer goods at a reasonable as well as competitive price through the network of fair price shops.
- To benefit the common people through modern retail; fair prices and choice of a wider range of quality products.
- To expand the capabilities and potential of fair price shops by sharing modern trade practices with the FPS dealers, ultimately resulting in their earning additional income.
- To strengthen government’s effort in bringing about a positive change and improving the day today life of the people of Rajasthan, also helping overcome the problems of corruption and leakage in the system.
- To provide dual benefit of the public distribution system and modern retail in reaching out to people in urban, semi-rural and rural areas, thus empowering common people with choices of affordable good quality branded products for their daily consumption.

Implementation Methodology

To implement the scheme, an organization capable of supplying multi-brand consumable goods to Annapurna Bhandar stores was to be identified. For this,

meetings were held with various prominent manufacturing companies, such as Proctor & Gamble, ITC, Nestle, Aristocrat and VIP. However, in order to avoid possible monopolized promotion by these manufacturing companies of their own goods, it was decided to invite only multi-brand retail chains such as Big Bazaar, Sahara, Hyper city, Metro, Easy Day and Reliance Fresh with their proposals for providing varied brands of consumer goods.

The Food and Civil Supplies Department, through Rajasthan State Food and Civil Supplies Corporation, invited open e-tenders from multi-brand retailers for providing a range of consumer goods commonly used by people. Adopting the most transparent mechanism under Rajasthan Transparency in Public Procurement (RTPP) rules, Future Consumer Enterprise Ltd. (FCEL), popularly known as Big Bazaar, was selected as the successful bidder. Rajasthan State Food and Civil Supplies Corporation, the willing fair price shop dealers and Future Consumer Enterprise Ltd., a Future Group company, signed a tripartite agreement at the Chief Minister's Office on August 20, 2015. This agreement aimed to create India's first truly modern public-private PDS.

With an eye on efficient service delivery and execution of the scheme, all the civil supplies managers, working in all 33 districts of Rajasthan, were made accountable and responsive for smooth implementation of the scheme in the irrespective districts.

Initially, 5,000 shops were identified out of the total 26,500 FPS; 1,000 stores each in Jaipur, Jodhpur and Udaipur divisions, and 500 stores each in Ajmer, Kota, Bharatpur and Bikaner divisions, for transformation into Annapurna Bhandar stores. However, it was later decided to transform about 20 percent of the FPSs of each district into Annapurna Bhandar stores, such that the total number of Annapurna Bhandar stores in the entire state totals to 5,000. Certain basic requirements and standards were set for Annapurna Bhandars to provide uniformity, such as:

- Shop must be owned by FPS dealer.
- Shop must be centrally located and at least on a 30-foot-wide road.
- Minimum area of shop must be 200 square feet.

FPS dealer must be willing, have a good track record of functioning and sound financial status.

FPS dealers were invited to opt voluntarily for these shops and some incentive was also provided for early birds. Preference was given to institutional dealers such as Gram Seva Sahkari Samitis (GSS) and Women Self Help Groups (SHGs), but in both cases, consent of the FPS dealers was taken to adopt this model.

A survey of people's preferences was conducted to have a fair idea about products to be supplied through these stores. Around 550 products of daily use were identified under 35 product categories such as edible oil, ghee, pulses, jaggery, spices, flours, pickles, sauces, personal care products such as hair oil, shampoo, talcum powder, creams and other consumer products for supply through these stores.

Exterior as well as interior architecture of the stores was designed in consultation with FCEL. A logo of Annapurna Bhandar was also finalized, from several templates, at the level of the honorable Chief Minister.

Pilot Models of Annapurna Bhandar Stores

Before implementing Annapurna Bhandar Yojana in the entire state, 5 pilot model Annapurna Bhandar stores were started in:

Thoor, Udaipur Civil Lines, Jaipur Kartarpura, Jaipur Rajapark, Jaipur Tamatiya, Dungarpur

Thoor, Udaipur

First pilot model of an Annapurna Bhandar store was launched by transforming a fair price shop, operated by Gram Sewa Samiti, in Thoor village of Udaipur district. The store was inaugurated on August 21, 2015 and made operational on all working days for 12 hours from 8:00 am to 8:00 pm. Within a period of 9 months, more than 240 different products worth Rs. 7.5 lakhs were sold with a profit of Rs. 8,500–9,000 per month to the dealer. People residing in nearby villages were additionally benefitted by this Annapurna Bhandar store.

A survey was conducted with the customers coming to the store and the response was evaluated on a 5-point scale. 94% of customers valued the new infrastructure of the Annapurna Bhandar store. 91% customers opined that the price of commodities available at Annapurna Bhandar stores is at least 5% less than that in the open market. 84% customers responded positively about the packaging, quality and product presentation as being good.

Civil Lines, Jaipur

Annapurna Bhandar store in Civil Lines, Jaipur was started by Mr. Sushil Kumar Jain on October 20, 2014. All the daily usage items like tea, spices, soaps, edible oil, lentils, etc., are available at the store. Almost 60 families buy goods from this store on a regular basis and an income of Rs. 3,000 is earned by the dealer on a monthly basis. According to the dealer, good quality items are available at the store at lesser price, leading to customer satisfaction with the scheme. People from nearby areas like Suraj Nagar, Shivaji Nagar and Bais Godown area were about the new store. However, more awareness generation activities are required to attract more customers towards Annapurna Bhandar.

Kartarpura, Jaipur

Annapurna Bhandar was started by Mr. Ashok Kumar Agrawal on October 20, 2014. Various grocery items like lentils, rice, edible oil, soaps, biscuits, namkeen, sauces, pickles and even toffees, chocolates are available at the store. By selling these goods, an additional income of Rs. 1,500 to 2,000 is earned by the dealer. As per the dealer, goods are available at prices less than MRP, but still sometimes customers demand to pay later (avail credit). Awareness about the scheme is required to be created at mass scale, so that the number of customers may be increased resulting in increased sales.

Raja Park, Jaipur

Annapurna Bhandar in Raja Park area of Jaipur was started by Mrs. Bharti Devi from December 1, 2014. Like other pilot model stores, all the daily usage items are available at the store. Around 50–60 families buy goods from her store on a regular basis. By this, Mrs. Bharti is able to earn an additional income up to Rs. 3,000 per month. According to her, Annapurna Bhandar Yojana is an ambitious government scheme and if it is implemented effectively and all the stores get continued proper support from the private partner, this scheme would be successful. All the people in her colony are well aware about the scheme and the store.

Large Area Multi-Purpose Society (LAMPS), Tamatiya

LAMPS, Tamatiya is situated on Dungarpur–Sagawara road and is about 30 km from Dungarpur. Unlike other LAMPS, this society deals in addition with general consumer items and cement trading. This society has special significance under Annapurna Bhandar Yojana, as its model had laid the foundation of the scheme. The annual gross turn over for consumer store goes up to Rs. 27 lakhs, for cement trading Rs. 21 lakhs, for PDS up to Rs. 11 lakhs and for seeds as well as fertilizers up to Rs. 33 lakhs. A mini bank is also operated in this LAMPS. The annual turn over by all these activities is around Rs. 1.5 crore. LAMPS have bank deposits of around Rs. 5 crores. The most significant feature of the society is that it is carrying out various activities under one roof and in one premise.

During the year 2013–14, goods worth Rs. 29,27,306 purchased from the private partner were sold for Rs. 31,04,730, there by yielding a gross profit of Rs. 1,77,424. After deducting all the incurred expenditures, net profit Rs. 69,424 was earned by the society.

Salient Features of the Scheme

Traditionally, 3 commodities were being supplied in the state through PDS, i.e., wheat, sugar and kerosene. These too are available for specific targeted eligible groups only. The idea was to provide better quality consumer goods in

addition to PDS item sat FPS at competitive and affordable prices for customers without any discrimination.

The private partner was responsible to spruce up the fair price shops in addition to providing a range of pre-decided consumer goods to FPS dealers on consignment basis. The goods thus supplied by the private partner are being sold by FPS dealers for at least 2% to 30% less than the MRP depending on the product. The private partner has made available a printed list of goods with its selling price to all the stores. This make sit easier for consumers to know about the available goods in the Annapurna Bhandar store and prices. At present, FPS dealers are getting a rebate of 2% to 30% on MRP, which is being distributed among FPS dealers and consumers in a 40:60 ratio. However, rebate may be increased by the supplier. Further, FPS dealers must pay for the goods supplied by private partner, within 10 days. For cash payments at the time of supply, an additional 2% discount is provided to the FPS dealers. The private partner will reimburse 1% of the invoice value of goods supplied to FPS in the form of administrative cost to the corporation on a monthly basis along with details of the supplies made during the month.

Annapurna Bhandar scheme has also provided employment directly to around 1,000 individuals in distribution centres cum logistic arrangements with FCEL. In addition, one to three persons were employed by each Annapurna Bhandar store owner either from his family or relatives. With a view to expand the domain of service delivery by Annapurna Bhandar stores and to benefit more and more people, the state government is working on supporting store owners by associating them with prominent government programmes like:

Pradhan Mantri Mudra Yojana: Mudra Yojana loan can be made available to Annapurna owners as working capital, which will help the dealer to purchase stocks to be sold at Annapurna. Even over draft facility can be availed by Annapurna owners. This scheme will help the dealer run his shop without the fear of shortage of funds. There are presently 3 categories in Mudra Yojanas named as:

- Shishu: Loan up to Rs.50,000.
- Kishore: Loan ranging between Rs.50,000 and Rs.5 lakhs.
- Tarun: Loan ranging between Rs.5 lakhs to Rs. 10 lakhs.

Annapurna dealers can get loans up to Rs. 10 lakhs maximum under Mudra Yojana as working capital loans for their business. Mr. Jitendra Kumar of Sumerpur tehsil in Pali district has been benefitted by this model.

E-mitra: E-mitra is an ambitious e-governance initiative of the Government of Rajasthan, which is being implemented in all the districts of Rajasthan using

PPP model for convenience and transparency to citizens in availing various services of government and private sectors under single roof at their doorsteps using an electronic platform. It has been proposed to setup E-mitra kiosks along with Annapurna Bhandar stores in the premises of FPS. This combination will serve the following purposes:

- It will increase the earnings of Annapurna dealers, as they will earn commission based on the number of transactions on E-mitra. The setup needed for E-mitra, viz., computer system, printer, scanner will also undertake online billing for Annapurna, thereby ensuring cost savings and better maintenance of records for Annapurna
- In rural areas, the concept of Annapurna is transforming the FPS into rural malls. Thus, setting up E-mitra kiosks at Annapurna will integrate service delivery to rural masses close to where they reside, along with good quality house hold products through Annapurna Bhandar stores; therefore, they won't need to run around in cities and government offices.

An Annapurna Bhandar store, operated by Mr. Kishan Singh, at Tasar Badi in Dhod tehsil of Sikar district, is implementing this model.

Pay Point Micro ATMs (Business Correspondent): In the Indian context, micro ATMs are modified point of sales terminals (cards wipe machines) through which an individual can remotely connect to bank's core banking system using the debit card. The human being acts as the cash cache for the ATMs. He collects deposits and feeds in data and pays out from his pocket and debits the account. Business correspondents are agents who represent banks in rural areas and use the micro ATMs to connect customers who are far away from bank branches. It has been proposed that Annapurna Bhandar stores may be linked with micro ATM facilities. Benefits of linking these two schemes could be as follows:

- Additional income for FPS dealer, as he will receive commission for the transactions which are carried out through micro ATMs.
- As PDS has its outreach in almost all villages in the state, setting up micro ATMs at the FPS will help to provide core banking services at people's doorsteps and help in catering to the banking needs of the rural masses, such as cash withdrawal, cash deposits, balance enquiry and remittances.

Results

Implementation of the Annapurna Bhandar scheme started in October 2015. First Annapurna Bhandar store was launched by the honorable Chief Minister on October 31, 2015 at Bhambhori village in Jaipur district. The goal to make 5,000 Annapurna Bhandar stores operational was achieved within a year, i.e., by the end of September 2016. Department of Food and Civil Supplies is

ensuring that around 150–350 quality branded product sunder 45 different categories are available to rural resident sat Annapurna Bhandars. This scheme has not only enabled villagers to purchase quality consumer items at reasonable prices, but has also enhanced the trust of rural masses in the public distribution system of the state. The product sat there vamped shops are being provided to the state people at less than the market price with no subsidy.

Annapurna Bhandar scheme has become apart of the daily life for the people living in rural parts of Rajasthan, as they are now able to choose various multi-brand products according to their choice and have easy access to good quality items at reasonable prices without having to commute long distances towards the cities. These stores are working as rural malls for the villagers and bringing a positive change in their daily lives by providing access to a better living standard.

This scheme has become a boon for many people, who may be unassisted, physically challenged and/or widows. These people have been successful in operating Annapurna Bhandar stores as entrepreneurs. In compliance with the instructions provided by Principal Secretaries of various departments and District Collectors, Annapurna Bhandar stores are getting monthly orders from various government hostels. FCEL, the private partner, has achieved the turn over of Rs. 43.32 crore for the year.

In the near future, it is proposed to make available the facilities of mini bank and seed and fertilizers at Annapurna Bhandar stores. The honorable Chief Minister described this agreement as a new era of PPP model started in the history of India's public distribution system, as these stores would act a smalls for the villages of Rajasthan.

Till Feb 2017, 4,736 silver coins were presented to the Annapurna Bhandar dealers in public functions as a token of appreciation for their efforts to promote and associate with Annapurna Bhandar scheme. It also enhanced their social self-esteem as well as visibility. Rajasthan State Food Civil Supplies Corporation has earned net revenue of 64 lakhs as 1% commission on sales at Annapurna Bhandars from FCEL, which is used for marketing and compensation for the damages or losses due to unforeseen circumstances.

Various states like Delhi, Haryana, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Uttar Pradesh, Andhra Pradesh and Karnataka have also shown interest in this model.

Conclusion

Annapurna Bhandar Yojana is a unique example of public private partnership in which the private partner (Future Consumer Enterprise Ltd.) bears significant risk as well as managerial responsibilities. In addition, the FPS dealers are being trained in retail management and latest management

practices by the private partner. No doubt, this is one of India's biggest entrepreneurship drives with more than 5,000 FPS dealers turning into entrepreneurs through the Annapurna Bhandar scheme.

The scheme not only provides non-PDS items and other consumable goods through the network of FPSs, but is also an ambitious project to modernize the public distribution system in the state. Besides providing facility to rural consumers, Annapurna Bhandar scheme is not only providing additional income to FPS dealers, but also improving their social esteem and combating corruption to some extent. If effectively utilized, the fair price shops under PDS can have the advantage of enormous foot falls. Since almost 1.5 crore families, more than 85% of the population of the state, come to FPS on regular basis for getting their entitled ration of wheat grain, sugar and kerosene, this would provide an opportunity to Annapurna Bhandar stores to motivate them to purchasing various other quality consumer goods at lesser prices.

In terms of rural marketing, Annapurna Bhandar Scheme has considered the 4 As of marketing mix, i.e., Acceptability, Availability, Affordability and Awareness, which indicate the success of the scheme. Goods which are being sold at stores have been decided after reviewing the preference of rural population and their consistent demand and sale shows the acceptability of the goods. The private partner is responsible to supply the goods to the stores in time, and these goods are being sold to the community at lesser price than MRP so that people are able to buy these goods, there by addressing the availability and affordability aspects, respectively. Since the Annapurna Bhandar stores are located along with FPS shops under one roof, people are aware about the scheme and products available at the stores.

This public private partnership model has created a win-win situation for all its stake holders, viz, public, FPS dealer, government and private partner.

Benefits to the Public

- Public gets quality products with less MRP than the market.
- Not only PDS beneficiaries, but the general population can also purchase products from the Annapurna Bhandar.
- Saving of transportation cost and time currently required to procure similar products from far away places.

Benefits to the FPS Dealer

- Annapurna Shops are open for the whole month instead of a week like the old FPS.
- FPS dealer gets an additional monthly income of Rs.5,000–10,000.

- The dealer does not face any financial loss on unsold stock. The private partner supplies the stock on refundable basis.
- FPS dealer is also eligible to avail benefits of different government schemes like Pradhan Mantri Mudra Yojana, E-mitra, Pay point micro ATMs, etc.
- The stigma of black marketer is now removed, and the FPS dealer is now being recognized as an entrepreneur.
- The scheme has generated employment for them and their family members.

Benefits to the Government

- Government has achieved good governance and transparency in its PDS system and gained recognition from the people for coming up with innovative solutions to address corruption and leakages.
- The concept of rural malls has been well accepted and appreciated by the public.

Benefits to the Private Partner

The private partner got an opportunity to expand its business beyond the urban malls. People coming to Annapurna Bhandars are now aware about the private partner and the quality of goods being provided by it. This has improved the irreognition among the public.

Success Stories of Annapurna Bhandar Yojana

Padanga, Ajmer

Annapurna bhandar store being operated by Gram Sewa Sahakari Samiti at Padanga village of Bhinai tehsil at Ajmer district has set an example among all other Annapurna Bhandar stores. It is being operated by Suresh Tiwari. Suresh explains all his customers that variety of useful and quality consumer goods are available at the store at lesser price than MRP. Purchasing various goods at a single store saves lot of time of the consumers. The significant feature of this store is that the facilities like mini bank, E-mitra, primary health center are also available. This store was launched on February 10, 2016 and till date goods worth Rs.30 lakhs have been sold. On an average, store sales reach up to Rs.15,000 to Rs.20,000 daily. This store has sold goods worth Rs.2,20,000 on September 9, 2016. As salient features of this store, CCTV cameras have been installed in it and it uses computer software received from “Apna Bazar” in Mumbai, by which computerized bills are generated for the consumers.



As good quality of consumer goods at lesser price are available in this Annapurna Bhandar store, villagers from various nearby villages like Arjunpura, Sayamala, Ramnagar, Devpura, Rampura, Rooppura, Amargadh, Motipura and Sadapura come to Paadanga to buy goods. Villagers of Padanga village have stopped purchasing consumer goods from other shops.

Nehru Nagar, Jaipur

Kamala Devi is operating an Annapurna Bhandar store at Nehru Nagar in Jaipur. After the death of her husband in 1986, she was alone to look after her children. After some years, her son was employed in a company, but he was also expelled later. In December 2015, she started Annapurna Bhandar and now she is very happy and satisfied. Many government employees from nearby Rajasthan Police Academy and other offices come to her store for buying grocery items. Various customers in her colony are now buying goods from her store only as they are aware that variety of multi-brand goods with better quality are available at a single store, thus it saves their time while purchasing.



Kamala Devi told that while operating FPS shop earlier, she could run the shop only for 15 days, but now she can run the store for all working days and earn additional income.

Annapurna Bhandar Yojana has given employment to her and her family members too. This scheme has provided her economic, social and emotional support.

Sumerpur, Pali

An Annapurna Bhandar store is being operated by Jitendra Kumar at Sumerpur tehsil of Pali district. This fair price shop was licensed to his father Mr. Meethalal Rawal. But after his sad demise in 2008, his family suffered from poor economic conditions. Later, this shop was transferred in the name of his wife, Smt. Kanchan Devi, in 2010. But due to her death in a road accident in 2014, her family grabbed into big trouble. Jitendra was the eldest son among 4 siblings, thus he was responsible to earn and look after his younger siblings. This fair price shop was the only way to earn his bread and butter. During that hard time, the Annapurna Bhandar scheme of the state government emerged as a ray of hope to Jitendra. By opening this store, Jitendra got permanent employment as well as he is now earning additional income. Jitendra is now very happy with Annapurna Bhandar store as due to this, his income has doubled and now he can complete his studies also. Jitendra started operating Annapurna Bhandar store on April 30, 2016 and can earn about Rs.3,000 to Rs.4,000 on daily basis.



Earlier his family had to rely on the commission earned by supplying only PDS items like wheat grain, sugar and kerosene, but now Annapurna Bhandar has become the source of his additional income also. As per Jitendra, by this scheme, better quality consumer goods are now available at village level also and in future this scheme would prove itself very beneficial to store dealers as well as consumers.

Begu, Chittorgarh

Ramesh Chandra Mewara is a fair price shop dealer in ward numbers 6 and 7 of Begu municipality area in Chittorgarh district. It is located around 72 kms away from district headquarter. Although, being a municipality area, essential facilities are available here, however the availability of quality goods is a problem. Ramesh Chandra challenged and is already running E-mitra kiosk, but when he heard about is physically the ambitious scheme of Annapurna Bhandar, he eagerly agreed to transform his fair price shop into Annapurna Bhandar store. Ramesh inaugurated his Annapurna Bhandar on June 3, 2016. Since inauguration, he has sold the goods more than worth Rs.5 lakhs. Every customer, to whom he sold the goods, is happy and satisfied with the quality of the items. Due to heavy rainfall in August month, resulting in flood, the flood water got filled in Annapurna Bhandar store and ruined the PDS items, other items and computer system. This caused a a loss of a few lakhs rupees to Ramesh Chandra.



With support of Rajasthan State Food and Civil Supplies Corporation Ltd., a sum of Rs.10 lakhs has been approved to Ramesh Chandra under Pradhan Mantri Mudra Yojana for maintenance, coloring and revamping of infrastructure. With this support, the damage by the flood has been compensated and a confidence has been built up in Ramesh Chandra about Annapurna Bhandar scheme. Ramesh agrees that alongwith ration distribution through PoS machine, fair price shop into Annapurna Bhandar was his correct the transformation of decision.

Naugaanva, Alwar

This story is based on the trust of consumers on Annapurna Bhandar scheme. An Annapurna Bhandar is being operated by Girdhari, a fair price shop dealer, in Naugaanva village of Alwar district. Within a period of one and a half month, Girdhari has sold the goods worth Rs. 11.50 lakhs and has earned

additional income of Rs.26,000. Earlier, Girdhari was able to earn only Rs.6,300, but now Girdhari is able to sell quality goods worth Rs.25,000 on daily basis.



After purchasing various products like wheat flour, tea, soap, edible oil, Saras ghee, rice and besan, Bisandas Ahuja from Rawandi village, Tyagi Baba of Dadabari Ashram, Noordin from Hazipur, Mahesh from Naugaanva, Ajeet, Padam Saini and Ramesh told that they are grateful to the state government as Annapurna Bhandar store is opened in their village. As good quality consumer items are available at Annapurna Bhandar at lesser price, this has created competition in the market. Customers are getting attracted towards Annapurna Bhandar store.

Ward No.18, Sikar Ramniranjan Sharma, the fair shop dealer in ward no.18 of price Sikar city, is operating Annapurna Bhandar since August 11, 2016. Monthly sales of the store have reached to Rs. 1,50,000 with a daily sale of approximately Rs. 5000, which is increasing continuously. Company is also providing discounts in various products which increase our benefit. As his Annapurna Bhandar is situated nearby company godown, it is easier for Ramniranjan to go to the godown and get the best selling commodities Ramniranjan can earn profit of around Rs.12,000 per month. As good quality items are available at Annapurna Bhandar at lesser price, continuous increment in the sales has been noticed. People prefer buying goods from his Annapurna Bhandar store only. Those people who come to get their entitled ration, they also purchase daily used consumer items and create awareness about the store among their friends and relatives. With this, many other people have also started coming to his store for buying consumer goods.

This store is also supplying Raj brand products to the consumer on lesser prices. Ramniranjan told that by operating Annapurna Bhandar store, the economic condition of his family has improved and he is very satisfied.

Muralipura, Jaipur

Annapurna Bhandar in Muralipura area of Jaipur city was inaugurated on January 26, 2016. Mr. Om Prakash Chaudhary is operating this store. Although he is physically challenged due to polio, this initiative has given him financial and emotional strength. Om Prakash wanted to start a new work to overcome his stress. But at last, he had to satisfy himself by opening a fair price shop only. At present, Om Prakash has been motivated by this scheme and is very satisfied. He has determined his will power and is now living his life with self-esteem. Till date, he is able to sell goods more than worth Rs.1.50 lakhs. His physically challenged brother, Ram Babu, also supports him in his daily work. Both physically challenged brothers are living with happiness.



Commodities of good quality and multiple brands are available in his store, which has made his store distinguished in Muralipura are a market. Om Prakash expressed his gratitude to the state Government of Rajasthan for implementing such a marvelous scheme for supporting people like him.



Performance of Planning Boards in India: Evidence from Southern States

Deepa Kylasam Iyer, M.Phil. Candidate (Fall 2017), Centre for
Development Studies, University of Cambridge, United Kingdom
Tanya Agrawal, Public Health Professional, New Delhi
Francis Kuriakose, Economics for Development Department,
International Institute of Social Studies, The Hague, Netherlands

Introduction

There is a general sense of 'plan weariness' in many countries today. Economists of different doctrinal persuasions seem to agree that planning as experimented in several economies has not been a success (Friedman, 1962; Nozick, 1974). Economic planning requires structural changes that enable adjustment to changing external and internal factors. According to economists of neo-liberal persuasion, structural changes of the right magnitude and direction at the right time in the economy are not something state planning has succeeded in accomplishing (Friedman, 1962; Hayek, 1944; Munck, 2005). Therefore, state planning is thought of as an inefficient way of allocating stocks of productive factors among competitive users. The advent of opening the economy to global market forces has instead brought in 'economic reforms' as the key idea in development studies, relegating state planning to a secondary status. In this context, it is relevant to examine development planning in the Indian context because India began its post independent decade on the promise of centralised state planning for development.

Historically, Indian planning was a carefully thought out exercise. After gaining independence from the British colonial rule in 1947, planning was viewed as a positive instrument that enabled three important objectives: (i) avoiding the unnecessary rigours of industrial transition that the rural masses of India was likely to experience, (ii) resolving conflict of resources distribution among sub-national governments in India and (iii) initiating and managing structural changes that the economy demanded at the time to spur economic growth (Chakravarty, 1987). Specifically, India was deeply concerned with what was believed to be a principal constraint on its economic growth- the shortage of capital stock formation. The objectives, targets and the implementation process of state planning, primarily led by the first Prime Minister Jawaharlal Nehru, were the lively products of this rationale. Indian planning in its initial two decades (1950–1970) also benefitted from the rise of development economics as an academic discipline. This historical coincidence resulted in a rich two-way transaction-the emerging ideas of development

economics influenced the Indian case and Indian planning experience also illuminated the theory of development planning.

Institutionally, India had recognised three levels of planning—the central level through the planning commission, the sub-national (here after state) level through autonomous planning boards and the district level through bureaucrats. At the central level, plans were formulated at the ministerial level within puts from the departments attached to the ministries that departments preside over. The five-year plans and annual plans were part of this central level of planning. To resolve disputes at the inter-state level, there was a National Development Council that was headed by the Prime Minister. State-wise demands for budgetary allocation were presented to another institution called the Planning Commission that then recommended the allocation to the ministry of finance based on various prerogatives like backwardness, size of the state, regional balance of resource allocation and merits of the demand. There were a number of centrally sponsored schemes that were directly allotted under the central ministries in order to be implemented at the sub-national level. At the state level, the state planning boards were in charge of preparing annual plans, formulating plan priorities based on five year plans and setting development projects for the state. Here also, the allocation of resources was favoured based on regional parity and priority. These plan projects were then implemented by the district level bureaucrats.

Two important transformations have happened in the institutional structure of development planning in India both from the bottom and at the top since Nehru's times. One important transformation arrived with the 73rd amendment of the Indian Constitution that devolved power to the local government called the panchayat at a sub-district level. This amendment mandated that the sub-national government stake certain legislative measures to revitalize local governments through periodic election, representative reservation for women and people of the scheduled castes and tribes as well as devolution of government responsibilities. Today, development planning is as much influenced by the local demands as it is by centrally sponsored projects. Indeed, local democracy is seen as more egalitarian to direct participation from lower castes and genders, as a stepping stone toward greater democratic participation as well as an agent for social change (Drèze and Sen, 2012). However, at the panchayat level, local administration has very low capacity to tax population and inadequate infrastructure to implement projects. These cond transformation was the dismantling of the Planning Commission at the top. In 2015, the Planning Commission was replaced by the National Institute of Transforming India (NITI Aayog). Examining the role of state planning boards in relation to the changing national planning scenario is relevant in this context.

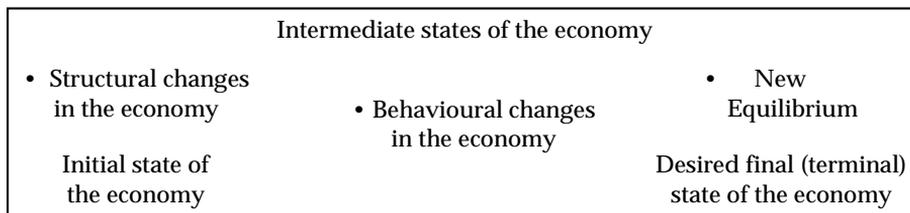
This paper examines the performance of planning boards of southern states of India by evaluating its functional parameters provided by bureaucrats who work with these institutions. The states examined in the study are Kerala,

Tamil Nadu, Karnataka, Puducherry and undivided Andhra Pradesh. Functional parameters of planning board performance are given by variables like degree of autonomy from state government, clear mandate of function, frequency of meetings, presence of external expert members and involvement of local government. Elite interviews with bureaucrats at the level of member secretary are used along with secondary data information about the planning boards. The paper argues that state planning boards with higher degree of autonomy and higher involvement of local governments are better placed to function well in development planning.

Development Planning and Its Theoretical Evolution

Planning in a generic sense leads to the examination of alternative courses of action while making decisions. It takes into account the directional clarity of an organization, competing goals for limited resources, coping with unexpected shifts in environment and bringing together shared ideas of the future (Denhardt and Denhardt, 2009:143). Analytically, the concept of development planning can be distinguished into two forms-as a form of ‘instrumental inference’ to attain the goals of development asset by the planner and as an alternative to market mechanism through ‘command and fulfillment’ (Chakravarty, 1987). The former is an active role that is usually backed by the state and the latter is a proxy role where the primary function of allocating resources is given to the markets. In the Indian case, for the first two decades, planning was viewed more in the former sense. Instrumental inference is a concept that is borrowed from institutional economics. In a study on instrumental inference in institutional economics, Lowe (1977) questions the demand-supply axiom of traditional economics, proposing an alternative paradigm of understanding the political processes that does not entirely rely on price mechanics. From this vantage point, he argues that instrumental inference of an institution brings to light the existence of desired states and a number of paths that lead to it. Planning consists of choosing of one or more pathways which can transform the initial states into desired terminal states (refer Figure1). This process is achieved in two broad stages-initially, by inducing structural adjustments in the institutional system and eventually by establishing behavioural patterns which will set the system on goal-adequate trajectories (Chakravarty, 1987:42).

Figure 1
Lowe’s Model of Instrumental Inference



Source: Authors’ compilation based on Lowe’s model.

Analysing Indian planning processes the rough Lowe's model, a few inferences can be made.

While Indian planning has been largely successful in setting a stable structure through structural adjustment, it has failed in fostering goal-adequate behavioural patterns. Why is this so? Chakravarty (1987) examines this question and conjectures three broad reasons: (i) the presence of rent maximizing behaviour in place of directly productive activities in the economy, (ii) the absence of learning effect and (iii) the absence of sufficient information. All the three problems have been a result of either structural or behavioural factors. Kruger (1974) and Bardhan (1984) have examined there as ons for rent maximizing behaviour.

Krueger's argument (Krueger, functional restrictions from a structures. Bardhan (1984) has 1974) on rent maximising behaviour assumes that 'non-regulatory state' would systematically distort incentive elucidated this point further by examining subsidies as a category of intervention and its effect on growth in India. These cond problem, absence of learning effect, has also been seen in India. Learning effect, i.e., government intervention that encourages learning by doing has not been maximized in the Indian context. The third problem is that of a symmetric information. The information problem in the Indian economy creates persistent in ability to assess the social value of a technological transfer. All the three problems can be rectified by planning using planning as a tool.

The discord between as a theoretical decision making exercise and a practical operating exercise has led to considerable friction between the objectives and strategies of planning itself as well as change and continuity from one plan to another. How does a plan model become a development plan? A development plan is an operating document that not only aims for a desired state of affairs and indicates directional changes, as a plan model should theoretically, it also must pay attention to 'feasibility' on implementation. The problem of implementation is determined by the socio-economic landscape of the location and the informal constraints that planners face on the ground. From the perspective of the planning authorities, there are many implementation constraints- (i) in accessibility to information or in efficiency in gathering data, (ii) time lag between plan design and implementation and (iii) in adequacy of capacity (manpower and motivation) to implement the project. Lipksy (1980) examines bureaucrats as decision makers functioning inside institutions. What emerges as agency in performance in institutions, Lipsky argues, is a result of two distinct circumstances. Bureaucrats have limited time and information while making public policy and implementing them. Therefore, beyond rules and regulations, what emerges as performance is the outcome of public policy devised as a result of essentially a political process by the institutions as well as individual improvisation at the bureaucratic level. The

perception of bureaucrats is both part of the structure and functional aspect of any institution. This paper analyses planning board performance from this bureaucratic institutional perspective.

The traditional challenges of limited time and information faced by the planning authorities have been compounded by the increasing number and role of private players in formulating plans in India. The changing global environment that promoted globalization has advocated increasing openness of Indian economy to global interferences. The presence of international players and private entities has led to distinction between the ways both function independently. For example, publicly owned agencies work on non-price signals like government orders and private lyowned agencies work on profit-maximization models. Both public and private institutions also have different strategic and parametric behaviour patterns while planning.

In this context, decentralisation of development planning that includes local level representative institutions in the formulation and implementation of development plans is to be seen as a counter mechanism to the increasing role of extra-state players in planning. Decentralisation is meant to facilitate greater efficiency of utilisation and equity in distribution of benefits from development. In the case of public institutions, decentralisation coupled with 'debureaucratisation' is advocated for autonomy of decision making and outcome-based performance. The process of decentralisation in this context is envisaged not to obviate the need for centralised planning but to strengthen the planning process itself by relieving higher levels of planning from decision making and strengthening allocative decision making capabilities of lower level planning machinery (Rao, 1989).

Since decentralised planning involves devolution of resources and responsibilities to sub-state level (district, block and panchayat), the politics of development planning becomes relevant. The way state planning board functions becomes crucial in this context because these are institutions that negotiate the interests of the locality to the pressures of centralising forces in planning, be it the state or the market. These two forces-external global players and decentralised local players-thus threaten the traditional role played by the bureaucrat. It is in this context that this paper examines performance of planning boards.

Functional Mandate of Planning Institutions

Planning boards in each state in India are the autonomous bodies constituted to advise the state government in matters pertaining to planning and overall guidance in the formulation of annual and five-year plans. The role of a planning board in a state was initially to channelize available resources in sector-specific and regionally equitable manner for maximum efficiency and productivity. The basic structure of the planning board consists of the state chief minister as the chair person, a deputy chairperson and a member

secretary. There are official and non-official members of the board. The official members include the minister of planning, secretaries from inter-related departments like finance, development and others as specified. This paper examines the planning boards in five states of southern India-Karnataka, Andhra Pradesh, Tamil Nadu, Kerala and Puducherry.

The understanding of the role and responsibilities of planning board has undergone changes since opening the Indian economy to global markets and state-induced structural adjustment. For instance, in Karnataka, the state planning board was established in 1993 to advise the government on matters relating to planning. Further objectives also included suggesting policies for optimum utilisation of natural and human resources, reducing regional imbalances, improving the investment climate, sponsoring research studies, recommending measures to improve decentralisation and reviewing implementation of plans. These traditional functions have undergone modification in recent times. Some of the new responsibilities envisaged include 'acting like a think-tank charting out development process for the state, and integrating the entire gamut of activities from plan formulation, implementation, monitoring and evaluation'. The planning boards also are meant to have powers of overview on the schemes of other departments. This functional mandate requires infrastructural and institutional restructuring including independence and autonomy of the planning board, inviting multi disciplinary specialists from various fields to head the departments and detaching the state planning board from the administrative control of state planning department.

Similarly, undivided Andhra Pradesh, the second state understudy, has an interesting history on the evolution of its 'planning society'. As part of disaster management strategy, the state of Andhra Pradesh restructured its stated is as termitigation society as state development planning society after ten years of functioning to assist the planning department. As a development planning unit, this institution initiates expert-led studies, collects data from different departments, analyses inter-departmental and sector-wise planning activities, comes out with focus are as and assists in preparing action plans. Other objectives include generating alternative innovative strategies, conducting gap analysis, carrying out pilot projects, generating vulnerability mapping and building accurate disaster warning.

The third case is Kerala whose state planning board was established in 1967 to assist the state government in formulating a development plan based on scientific assessment of resources and a comprehensive economic review of the state every year. Eight divisions of the planning board are on plan coordination, agriculture, evaluation, social service, industry and infrastructure, decentralised planning, perspective planning and information and technology. In addition, there is a project financing cell to examine feasibility of outside funding including public-private participation of projects.

The fourth case study of Tamil Nadu state planning commission was setup in 1971 with functional mandate that included preparing five-year and annual

plans, undertaking mid-term review of five-year plan, evaluating major plan schemes, monitoring development and undertaking special studies. The state planning commission also implements and monitors state balanced growth fund and coordinates the functions of the district planning cells. In the annual plans, state planning commission receives proposals from secretarial departments that prioritise development expenditure. There have been two major developments relating to state development planning. The first is the preparation of human development report focusing on the district as a unit of analysis, bringing to light intra-district disparity and challenges in human development attainment. This has also enabled the state to identify backward areas with respect to human development parameters like income, poverty, employment, health, education and gender. Special funds for focused intervention, preparation of perspective plan and annual action plan have been the priority. Resource institutions have been identified in each district to prepare perspective plans, annual plans and projects to address backwardness with the participation of district level officials and panchayat representatives. Two specialised bodies like empowered committee to make suggestions and state level review committee to introduce monitoring including field visit to backward are as a represent.

The fifth case study is that of Puducherry that has a special status as Union Territory. Union territories are administrative units in India that are under the direct supervision of the Central Government. Although union territories have governance structure with the Chief Minister and Lieutenant Governor, in matters of development planning, they approach the Ministry of Home Affairs and not the Planning Commission unlike their state counter parts. The budgetary allocation is made from the Ministry of Home Affairs but the process of preparing documentation and implementing planning largely remains the same as states.

Analysis of Structural and Functional Perceptions

The study focused on the five state planning boards in southern India with respect to the autonomy in its structure and function, as experienced by the bureaucrats who worked with these institutions in a senior capacity (member secretary level). The method used to obtain information was through elite interviews. The interviews focused on parameters that gave information on the variable 'effectiveness of structure' and that gave information on the variable 'effectiveness of function'. The variable effectiveness of structure had parameters such as presence of technical members, perspective planning, perception of functional mandate, perception of independent evaluation and real-time monitoring. The variable effectiveness of function had parameters like method of appointment of its members, tenure security, frequencies of internal and annual meeting, freedom in setting agenda, perception of the government accepting its advice, perception of political interference, as well as perception of ideas of reforming the institution.

The findings of the study indicate wide differences in the perception of effectiveness of structure and function of the respective planning institutions. On the structural front, defined boundaries of one's own function were significantly different. For instance, in Kerala, planning board was clear that it had no overlap of jurisdiction or dichotomous jurisdiction. Its functions as perceived by its bureaucrats included allocative function and developmental function. Allocative function was meant to convey distribution of resources and developmental function was defined as advisory in policy forum. The planning board also had monitoring duties that it performed through monthly departmental orders sent to the various departments articulating how well plan objectives were met and informing the Chief Minister. In Tamil Nadu, its state planning commission specified functions that included plan related workshops, evaluation of reports, dissemination of information and implementation. On the other hand, some state planning boards experienced acute jurisdictional overlap with state planning department. In their functional mandate, the bureaucrats described that in addition to preparing plan documents for five year and annual plan, they also formulated terms of reference for specific projects and preparation of result documents. One interesting outcome was that some bureaucrats perceived the planning boards as a 'think-tank' of the Chief Minister. The idea of 'think-tank' to generate ideas for good governance was commonly held in states which incidentally has greater investment by private players while others reflected their roles along traditional lines. The idea about long term plan called 'perspective plan' was understood and implemented only by Kerala State Planning Board. The perspective plan was for the period 2010-2030 with 15 crores allotted for fifteen development sector projects and 10 crores for information dissemination. All the other planning boards discussed vision document while discussing perspective plans.

On the presence of technical members, one state planning board had widely invited experts to head each of its departments. For instance, in Kerala for the discussion of a subject, the state planning board has invited two full-time and two part-time experts. This also facilitated greater acceptance rate of its advice by the government based on the criteria of expertise and impartiality. Tamil Nadu often invited experts to perform evaluation tasks. There were others who felt the absence of expert and technical advice. On monitoring and evaluation, some states had real-time monitoring of plan including digitised mapping of physical assets in addition to financial assets but had no external evaluation. Tamil Nadu and Andhra Pradesh invited external departments and agencies to perform evaluation process, making it more robust. However, their monitoring was only post-facto.

On the parameters that determined effectiveness of function, all the planning boards saw appointments and tenure as the matters of political will. While some boards felt that their advices were largely heeded by the political leadership on merits of expertise and impartiality, the other states admitted that the degree of proximity of political class to senior bureaucracy was

instrumental in seeing a proposal through. Demands of greater allocation for popular programs and transfers were seen as routine affair with nearly all the board members using the term. The planning boards felt that some degree of political interference was inevitable, but they were with the political class if the proposal was taken in 'public interest'.

On the frequency of meeting, internal meeting happened nearly on daily basis in all the planning boards. Full board meeting that included the Chief Minister was held as frequent as once in two months in some states like Kerala and as few as once in a year in others like Karnataka.

Findings and Discussion

From the discussion of effectiveness of structures and functions of the planning boards in southern states of India, parameters for efficient performance that are both structural and functional emerge. In the structural aspect of planning board as institution, autonomy of function and availability and accessibility of expertise are important for 'depoliticisation'. For example, states that included technical members to head each of its departments and provided part-time as well as full-time members as subject experts experienced greater acceptance of its suggestions by the government.

One idea that emerged was viewing planning board as the think-tank of the government. This is a development that needs to be examined. States that depend on infrastructure and private investment have also begun thinking of government machinery in terms of corporate-like units that are efficient and professional. Restructuring public funded institutions along the line of firms is one of the options that are being actively pursued. The second idea of reform is to retain the current structure of the boards with increasing autonomy from the government. This would involve separating the boards from jurisdictional overlap with any government department and delegating evaluation function to an external agency (refer Table1). Both the models can be differentiated on five characteristic features-proximity to political class, bureaucratic discretion, involvement of local government, functional autonomy and structural differentiation. Accordingly, there are two ways in which planning boards perceive their functions. The think-tank model of planning board envisages a higher proximity with political class with low levels of participation from other stake holders like bureaucrats and local government officials. Structural differentiation of the institution that separates the role of politician, bureaucrats, expert and local government is very high. At the same time, functional autonomy and discretion of bureaucratic class is low. In the second model that is more traditional, planning board functions as a result of interaction between demands of politician, bureaucrat, expert and local government. Their functional structural differentiation is low and resolving conflict by negotiation is high. Table1 summarises the characteristics of these two models.

Table 1
Emerging models of development of planning boards.

| Characteristics | Type I: Think-tank model | Type II: Traditional model |
|---------------------------------|--------------------------|----------------------------|
| Proximity to political class | High | Low |
| Bureaucratic discretion | Low | High |
| Involvement of local government | Low | High |
| Functional autonomy | Low | High |
| Structural differentiation | High | Low |

Source: Authors' compilation.

Clarity in the perception of its own functional mandate that included allocative and development functions helped in reducing conflicts with the political class. While all the planning boards acknowledged their appointment and tenure security as the matters of political decision implementation of plan projects was better when development plan priority was not based on political interest focusing on electoral gains. Similarly, monitoring that included real-time monitoring with local participation and tabulating physical assets alongwith financial assets works comparatively better than post-facto monitoring. Planning boards that delegated the task of evaluation to an external agency seem to perform better in setting objectives in the next plan cycles. Intra-departmental reporting of progress periodically as practiced in some states ensured real-time self-evaluation.

Planning boards that viewed their mandate in advisory capacity and felt less interference from the government in setting the agenda also fared better in performing. These were also the boards that felt they were more open to innovation and change. All the planning boards agreed to various degrees that they had scope to improve their performance, but the trajectory of reform showed two distinct path ways.

Conclusion

The area of planning especially development planning has undergone significant changes from the Nehru via nera to the opening of the economy to global forces. The rationale and objectives of planning, the role of the state and markets have taken pre-eminence. In the political framework of federalism of the Indian kind, a delicate balance between the centre and the states is mandatory to channelize resources taking into consideration regional disparity and local demands. Planning boards in this scenario need to revitalize their roles to fulfil their functional mandate in development planning in the near future. The direction that these planning institutions might opt for remains to be of academic interest.

References

- Bardhan, P.K. 1984. *The Political Economy of Development in India*, New Delhi: Oxford.
- Chakravarty, S. 1987. *Development Planning: The Indian Experience*, New Delhi: Oxford India Paperbacks.
- Denhardt, R. B. and Denhardt, J. V. 2009. *Public Administration*, New Delhi: Cengage Learning.
- Drèze, J. and Sen, A. 2012. *India: Development and Participation*, New Delhi: Oxford India Paperbacks.
- Friedman, M. 1962. *Capitalism and Freedom*. Chicago: University of Chicago Press.
- Hayek, F.A. 1945. *The Road to Serfdom*. London: Routledge.
- Krueger, A. O. 1974. "The Political Economy of Rent Seeking Activities", *American Economic Review*, Vol. 64, pp. 291–303.
- Lowe, A. 1977. *On Economic Knowledge*. New York: M.E. Sharpe Inc.
- Lipsky, M. 1980. *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York: Russell Sage Foundation.
- Munck, R. 2005. "Neoliberalism and Politics, and the Politics of Neoliberalism", in Alfredo Saad-Filho and Deborah Johnston: *Neoliberalism—A Critical Reader*. London: Pluto Press.
- Nozick, R. 1974. *Anarchy, State and Utopia*. Oxford: Blackwell.
- Oommen, M. A. 2006. "Fiscal Decentralisation to the Sub-State Level Governments", *Economic & Political Weekly*, Vol. 41, No. 10, pp. 897–903.



Forestry and Determinants of Timber Supply in India

Dr. Mononita Kundu Das, Ex-Professor of Law, Lal Bahadur Shastri
National Academy of Administration, Mussoorie, Uttarakhand, India

Introduction

In India, though 85 percent of forests are under government control, they are considered out of bounds to commercial production of timber or hardly utilized to their sustainable production potential. The government owns more than 58 million ha of the 68.4 million ha forest cover in the country. Yet, according to the Forest Sector Report 2010,ⁱ government forests produce just 2.38 million cubic metres (cum) of timber a year. The remaining 18.7 million ha of private forests, plantations as well as tree cover yield 44.3 million cum of timber annually. This is 20 times the government production. Forest officials attribute such low production of timber to the poor productivity of Indian forests and to the policy of managing forests for ecological values and not for commercial gains. Most of our forests have long gestation periods, and there are anthropogenic pressures of grazing and fuel wood collection. All this affects productivity. Moreover, the forest department looks at forests from the point of view of conservation. The production aspect is hardly considered.ⁱⁱ According to the Forest Survey of India, productivity of Indian forest is 0.7 cum/ha/year compared to the world average 2.1 cum/ha/year. Even at this productivity and going by a UN Food and Agriculture Organization report that 17.1 million ha of the government managed forest in India is assigned for timber production; the forests can produce over 11 million cum timber, but this does not happen.

It is a mis representation of facts to say that the productivity of Indian forests is low; this is based on analysis of timber trade and policy. India is a tropical country and our forests areas productive as any other tropical forest. The low productivity is due to unsustainable management and failure to check illegal trade. At least 20–30 percent of the timber in the open market comes from illegal sources. This is never reported because of vested interests.

About 25 million cum of wood was produced from unrecorded sources in India.ⁱⁱⁱ Sustainable production, on the other hand, does not seem to be on the agenda of forest officials. A 2010 report of the International Tropical Timber Organization (in short ITTO) shows less than 10 million ha of forest managed

ⁱDehradun, India, Indian Council of Forestry Research and Education [ICFRE], 2010.

ⁱⁱOfficial with the Forest Survey of India [FSI], 2010.

ⁱⁱⁱInternational Tropical Timber Organization [ITTO], 2006.

by the government for timber production was under working plans, some as old as 30 years. This is despite a Supreme Court ruling that forests cannot be harvested without working plans. Analysts say forest departments have started taking working plans seriously only in the last three to four years after the 13th Finance Commission made it a must for states to avail forestry grants.

Import booms, just for now. As the country fails to meet the demand for timber from its forest, it has relied heavily on import from other tropical countries. Despite economic slow down, the Kandla port situated at Kandla of Gujarat in India, which receives 70 percent of timber imported into the country, has registered a double digit growth. Last year, the port received 4.13 million cum of logs as against 3.73 million cum the year before. The imports are expected to exceed 5 million cum this year. For India, the figure can reach upto 8 million cum.

In the 1990s, the government reduced import duty on timber to complement its policy of discouraging commercial harvest of domestic forests. Between 1994 and 2006, timber imports went up by 16 times, and India became a major log market in Asia. Malaysia, which used to send most of its log shipments to China and Japan till five years ago, now targets India as its main market. Myanmar sends more than 80 percent of its exported timber to India. Analysts are concerned about this growing dependence on timber import. Over 90 percent of imported timber is tropical hard wood, whose availability is declining at an alarming rate due to deforestation.^{iv}

Malaysia is under pressure to curb illegal felling, Myanmar has decided to ban timber exports from next year. With import demand doubling by 2020 and tripling by 2030, India will have to produce more timber domestically. There is mounting pressure from international conservation groups on countries in critical forest zones to certify their forest for sustainable management. Forestry trade analysts say this will increase prices of imported wood phenomenally, making the trade unviable. The country must strike a balance between production and import to meet its demand and at the same time ensuring growth of its forests.

Lok Vaniki Scheme - Madhya Pradesh, India

As the demand-supply gap for timber widens in India, it is time to exploit the potential of private plantations and government managed forests in a sustainable manner. In 1999, the government introduced Lok Vaniki and allowed people to harvest their forests, though as per government approved plan.

The scheme held double benefits. Firstly, it motivated private forest owners to plan long-term forest management instead of shifting to agriculture and secondly it boosted sustainable production of timber. In 2001, the government

^{iv}Leslie, Brian. Forestry Innovation Investment, British Columbia.

enacted the Madhya Pradesh Lok Vaniki Act and laid down procedures for the scheme. It also created an advisory body of chartered foresters, mostly comprising retired foresters, to help private forest owners prepare working plans for harvesting forest sustainably. The scheme was an instant hit. By 2005, the government had approved 613 working plans.^v

But, between 2008 and 2011, the government has introduced various amendments to the Lok Vaniki rules, which have made the process of getting felling approval cumbersome. For instance, the amended rules call for a joint survey of the forest patch by at least six officials from forest and revenue departments before approving the working plan. The rules also require the forest owners to provide GPS maps for their patches alongwith the revenue map while submitting working plans. It is almost impossible to get six officials of two departments at one place at one time. Besides, there is always some discrepancy between the measurement of the area in old revenue records and when done through GPS. The forest department has rejected hundreds of working plans only because of this discrepancy. It has approved only 50 working plans since the amendment of the rules. Several people who were planning to join the scheme have changed their mind. The unreasonable conditions on approval of working plans have defeated the purpose of the scheme. Infact, it is easier now to get a permission of felling under the Madhya Pradesh Land Revenue Code. It was difficult to secure a district collector's permission for the law, which guided felling of trees on private land prior to the enactment of the Lok Vaniki Act.

In 2007, the rules were amended to replace collector's permission with the permission of tehsildar, who is are venue administrative officer in India. Due to restrictions on selling, people are selling it in the black market or using the timber for personal consumption. The pressure for agricultural land is increasing. Only two years ago, the Madhya Pradesh forest department had received the international Green Globe Foundation Award for outstanding work in environment sector, which includes implementation of Lok Vaniki. The Lok Vaniki rules were amended to prevent abuse of the scheme. The forest department makes the scheme unviable. The department was not comfortable with the idea that people were managing forests well. Forest officials were in secure about losing control over timber. They are interested in getting awards for the scheme but are hardly concerned about its implementation.

Private forestry across the country faces the same fate as Lok Vaniki. In 1988, the Centre revised the National Forest Policy to discourage sourcing of timber from government-managed forests and directed wood based industries to raise their raw material on private land in co-operation with farmers. This gave impetus to agro-forestry. But it did not sustain for long. Most farmers in central and western India took to growing short rotation non-native trees like eucalyptus and poplar. But due to lack of scientific management and in the

^vFood and Agriculture Organization, Indian Council of Forestry Research and Education, (2010).

absence of market linkages, the plantations failed to give farmers the expected yield or price. The market of low value timber crashed in the early 1990s. It later picked up in a few states like Haryana, Punjab and Uttar Pradesh with the introduction of the plywood industry. Farmers still complain of receiving low price for their produce. For instance, Haryana introduced minimum support price (MSP) for short-rotation timber following complaints that the plywood industry had formed syndicates with timber agents to keep the price low. The MSP, however, remains equal to or below the market rate. During the Ninth Five Year Plan, the Centre planned to bring an additional 28 million ha under agro-forestry. But even after the completion of 11th Five Year Plan, the area under agro-forestry is estimated to be about 8 million ha. Though long rotation timber trees like teak ensure assured profits, farmers are reluctant to grow the trees due to complex regulations. While most of the states have deregulated felling and transport of short rotation timber species, long rotation timber tree requires permission for its harvesting, commercial use, personal use and transporting. The regulations aim to prevent illegal logging in nearby forests. But people in need end up selling their trees to agents at a distress price. This discourages farmers from growing timber species and puts extra regulatory burden on authorities.

In 2011, the Ministry of Environment and Forests, in short MoEF, constituted a committee to study the felling and transit regulations for trees grown on private land. The draft report recommends short-rotation timber species be exempted from felling and transit permits across the country, and suggests regulations for felling long-rotation timber by gram sabha, which is a form of local self-government in India, under supervision of the forest department. The draft report notes that there is a need for a simple, uniform mechanism to regulate or deregulate transit rules of forest produce within states and in a region. The need for such reforms had led to the enactment of the Madhya Pradesh Lok Vaniki Act. Infact, one of the terms of references of the committee was to review the Act and explore the possibility of replicating the model in other states. But it failed to suggest measures to revive the scheme and expand its scope at national level. In 2007, if the 100,000 ha of private forests lying unutilized in the state were brought under Lok Vaniki, the state's timber production would have been double.^{vi} Exploiting this potential of private forestry to the fullest becomes essential considering that the country has been grappling with huge demand and supply gap in timber.

India has about 16% of the world's population. The geographical area accounts for 2.47% and however, the forest area is only 1.8% of the world's forest. A huge human population, coupled with more than 500 million of live stock, exerts immense pressure on its natural resources, including forests. Natural forests cannot fulfill the timber and timber product demand, which is increasing due to the increase in the living standards. Naturally people have to meet their demands partly from the trees outside the government forests and

^{vi}Dixit, M. (2007). Report was published in Indian Forester, India.

partly by importing wood. A sizable number of trees grown outside the legally constituted forest areas, such as boundaries of agricultural fields, rivers, roads, canal banks and block plantations over non-forest lands are generally ignored while reporting production statistics. A substantial proportion of the increasing demand for timber is met by this source, which is neither reported nor recorded in the country.

Timber Supply in India

Timber has been the most important and valuable product of the forests. The supply of timber is determined by several factors, including the forest conservation measures. The National Forest Policy 1988 has influenced the method and systems in production, trade and consumption of timber in India. Some of the key policy measures that have determined timber trade and use are:

- Liberalization of timber imports.
- Restriction on export of unprocessed wood.
- Community participation in forest management.
- Promotion of tree plantations on private and community lands.
- Forest management for ecosystem services and not for extracting timber and revenue generation.
- Forest based industries required to raise own plantations through farm forestry or agro forestry.
- Restrictions on issuing licenses for new forest based industries.
- Promotion of timber substitutes.
- Reuse and recycling of paper and timber products promoted.

These measures are in addition to restrictions on logging and transit permits, measures under Indian Forest Act, 1927 and other legislations and notifications by the central and state governments. But, timber supply is not affected as a result of forest conservation measures. Domestic timber production can be increased substantially if the opportunities offered by the policy are effectively used by the forest based industry in India. Timber productivity, which is one of the key determinants of its sustained supply, is very low in India. Presently, no forests in India are certified for responsible scientific practices in forestry. Certification encourages tree planting in production forests and private and community areas. Timber from certified forests finds greater acceptability in the world's leading timber markets, where demand for certification is increasingly gaining ground. There is a need to promote responsible wood trade through certification of both domestic production as well as imports to ensure sustainability of timber harvesting.

In spite of significant gains from plantations, India is likely to face severe shortage of timber supply from both domestic and international sources. The productivity of timber in India is 0.7 cum/ha/year compared to the world average of 2.1 cum/ha/year. Sustainable timber extraction from the forests averages 0.5 cum per hectare per year.^{vii} The domestic supply of timber is

^{vii} Forest Survey of India [FSI] (2011).

mainly from plantations. In absence of suitable boost for suitable domestic production, the country heavily depends on imports. The unavailability of land in large tracts is a constraint for private sector investment in large plantations in India. These constraints are largely due to the Land Ceiling Act and other restrictions on land use policies.

The following explanatory model can be used to analyze the determinants of timber supply in India:

$$Q_s = f(X_i) + U$$

Where,

Q_s = Supply of timber.

X_i = Explanatory variables determining the supply (i.e., X_1, X_2, \dots, X_n).

U = Error term.

Supply of timber (Q_s) = Production of timber from domestic sources + imports – exports.

The key variables which may be used in the estimation of determinants in timber supply in India are given in Table 1 below:

| | |
|-----------|--|
| DP | Domestic production round wood (millioncum) |
| IMP_RW | Import round wood (millioncum) |
| EX_RW | Export of round wood (millioncum) |
| FC | Forest cover (sq km) |
| GDP_GR | GDP growth rate (percent) |
| POP | Population (million) |
| WPI_all | Whole sale price index-all commodities |
| INPRO_all | Index of industrial production of wood |
| Q_s | Supply of timber (domestic production + import – export) (million cum) |

Table 1: Model to analyze the determinants of timber supply in India.^{viii}

Indian and Global Market Assessment of Timber-Case Study Teak

Teak^{ix} is recognized for its physical and aesthetic qualities as one of the most important and valuable hard woods in the world.^x Although it takes only a marginal position in the volume of world timber production and trade, teak together with mahogany,^{xi} red cedar^{xii} and Indian rose wood^{xiii} are the tropical

^{viii} Manoharan, T.R. (2011). Supply Determinants of Timber Trade in India, WWF Report, India.

^{ix} Scientific name: *Tectona grandis* Linn.f.

^x Keogh, R.M. (2009). Working Paper Series, The future of teak and the high-grade tropical hard wood sector, FAO Planted Forests and Trees Working Paper Series FP/44, Rome; Tewari, D.N. (1992), a monograph on teak (*Tectona grandis* Linn.f.), International Book Distributors, DehraDun, India.

^{xi} Scientific name: *Swietenia macrophylla*.

^{xii} Scientific name: *Cedrela odorata*.

^{xiii} Scientific name: *Dalbergia sissoo*.

hardwoods most in demand for the luxury market and for heavy duty applications. Teak is used for ship building and yacht furnishing, heavy duty construction and railways, high-class furniture, decorative building components, veneers, flooring and utility poles for transmission lines. In 1896, Diatrach Brand is, the first Director General of Forests in India, attributed the high market value of teak to its excellent durability in tropical climates and its resistance to termite attack and fungi, and praised teak as it is easily worked, does not warp or split, takes a beautiful polish, and can be floated at harvest in contrast to many other heavy hardwoods of comparable quality.^{xiv} For many tropical countries, teak represents the best opportunity to produce quality timber and is thus of major importance to their forestry economies.^{xv} In recent years, the establishment and management of planted teak forests have attracted large investments from the corporate sector in Latin America, Africa and Asia.

Natural teak forests occur in only four countries in the world: India, Lao PDR, Myanmar and Thailand. Sites suitable for vigorous teak growth are confined to tropical zones around the equator below 1000 metre altitude, with annual rainfall in excess of 1500mm, and fertile, deep and well drained soils. The ancient kings of Myanmar and Thailand considered teak to be a royal tree and placed it under stringent royal proclamation and protection. In the 19th century, India was the world's leading teak producer. Under the British colonial government, large quantities of teak were exported to Europe, mainly for ship building and luxury furniture. After India's independence in 1947, forest resources became increasingly threatened, until India's central government decided to ban teak logging altogether since 1980. India's timber production thus dropped sharply and was replaced by mass imports. Today, the Indian teak industry is highly dependent on imports from Myanmar, West Africa and Latin America.

Since the 1980s, supplies of teak wood from natural forests have started to dwindle and teak has been grown increasingly in planted forests throughout tropical Asia, Africa, Latin America and Oceania. Having been introduced in Java, Indonesia, probably between four hundred to six hundred years ago, the challenges to grow and sustain planted teak forests are better understood there than in most other tropical hardwoods.^{xvi} Indonesia has established extensive teak plantations managed by the state forest enterprise Perhutani, and many tropical countries have followed suit under public, corporate and private ownership including farmers from the agricultural community. In southern

^{xiv} Brandis, D. (1896). *The Burma Teak Forests*. Reprint from *Garden and Forest*, Vol.IX, 1896; special edition of *Asia-Pacific Forest Industries*, (1992) Kuala Lumpur.

^{xv} Keogh, R. M. (1996). *Teak 2000: a consortium support for greatly increasing the contribution of quality tropical hardwood plantations to sustainable development*, International Institute for Environment and Development (IIED), London, UK.

^{xvi} Pandey, D. and Brown, C. (2000). *Teak: a global overview, an overview of global teak resources and issues affecting their future outlook.*, vol.51, pp.3-13, Unasylva 201.

India,^{xvii} this has caused considerable changes in rural landscapes, where teak plantations are often found in the middle of arable lands.^{xviii}

FAO and its member states soon became aware of the growing significance of teak on a global scale. Upon recommendation of the Seventh Session of the FAO Conference held in 1953, a Teak Sub-Commission was established as a subsidiary of the Asia Pacific Forestry Commission (APFC). It held its first session in Bangkok in February 1956 with 36 representatives from 11 member countries. These cond session took place in Bandung ,Indonesia, in June 1957. The Teak Sub-Commission comprised two technical working parties, one on ecology, seeds, silviculture and protection, and one on management, utilization, marketing, grading, statistics and trade.^{xix} Additionally, an independent study group on teak grading rules was established under the direct supervision of a permanent committee. The Teak Sub-Commission noted that the exchange of information on the production and trade in teak could be of mutual advantage to both the importing and exporting countries and suggested that such information be submitted by teak growing countries on a half yearly basis.^{xx} Unfortunately the work of the Teak Sub-Commission stalled in the early 1960s. The 11th session of the FAO Conference in 1961 transformed the Teak Sub-Commissionin to a joint body of the Asia-Pacific Forestry Commission (APFC) and African Forestry Commission (AFC), but it did not in fact materialize. The FAO Council, in October 1966, decided that the work of the Teak Sub-Commission be incorporated into the former Committee on Forest Development in the tropics. The Teak Sub-Commission held its last session in Rome in 1967 and since then has been defunct.^{xxi}

From 1975 to 2000 a number of attempts have been made to measure the extent of teak forests in the world. Even though the results of these surveys are hardly comparable, it can be concluded from previous assessments that the total area of natural teak forests was about 29 million ha and the area of planted teak forest shows an increasing trend over the period from 1.3 to 5.7 million ha.

Myanmar, India and Indonesia are the teak ‘heavy weights’ at the global level and hold by far the bulk of the world’s teak resources. In Africa, Nigeria, the Ivory Coast and Ghana have grown in significance as have the smaller countries in Central America and the Caribbean, such as Costa Rica, Panama, El Salvador and Trinidad and Tobago.

Further more, teak was apparently of no particular significance in South America until 2000; ever since then some South American countries such as

^{xvii} Karnataka, Kerala and Tamil Nadu, States in India.

^{xviii} Demenois, J., Heurtaux, A., Depommier, D., Patil, S.(2005). Filièreet development dutecken Indedu Sud: quell avenir pourles plantations privées? Boiset forêts destropiques 286(4): pp.41–53.

^{xix}FAO (1968). Teak Sub-commission, Unasylva 89,22(2).

^{xx}FAO (1956). Report of the first session of the Teak Sub-Commission. February 9-18, Bangkok, Thailand,

^{xxi}FAO(1968). FAO Teak Sub-commission. Unasylva 89,22(2).

Brazil, Ecuador and Columbia have reported that the areas under planted teak are increasing.^{xxii}

In 2010, the area of natural teak forest in India, Lao PDR, Myanmar and Thailand combined was estimated at 29.035 million ha, almost half of it growing in Myanmar. That country is well known for its classical selection system for the management of natural teak forests, which was formulated in the late 1800s and is still in force.^{xxiii} Most of its natural teak forests have productive functions (26.3 million ha or 91%), while substantial teak forests with protective functions only cover 2.6 million ha. Myanmar is also the only country of relevance to producing teak from natural forests for the international market; India, Lao PDR and Thailand all have logging or log export bans in place. If the area data of the 010 assessment are compared with those published by Tewari in 1992, it appears that natural teak forests have reduced by 385,000 ha globally (- 1.3%). Substantial declines are particularly notable in India (2.1 million ha), Myanmar (1.1 million ha) and Lao PDR (68.5 thousand ha). In Thailand, a complete ban on logging in natural forests was introduced in 1989 which may have contributed to the recovery of natural teak forests; they are reported to have increased by 2.9 million ha. Thailand is said once to have had 16 million ha of natural teak forests (see Table 2).

| Country | 1976/1979 (1000 ha) | 2010 (1000 ha) | | |
|----------|------------------------|----------------|------------|-------|
| | | Production | Protection | Total |
| India | 8900 | 6810* | 0 | 6810 |
| LaoPDR | 70 | 0 | 1.5 | 1.5 |
| Myanmar | 14600 | 10820 | 2659 | 13479 |
| Thailand | 5850 | 8744 | 0 | 8744 |
| Total | 29420 | 26374 | 2661 | 29035 |

*3.54 m ha (share of teak >25%) + 3.27 m ha (share of teak <25%).

Table 2: Area of natural teak forests by country, 1976/1979 and 2010.^{xxiv}

In 2010, the global area of planted teak forests reported from 38 countries was estimated at 4.346 million ha, of which 83% grew in Asia, 11% in Africa, 6% in tropical America and less than 1% in Oceania. In order to calculate the regional totals, the country reports missing from eight countries (3 in Africa, 2 in Asia, 2 in Oceania and 1 in South America) were complemented by data from the Forest Resources Assessment 1990/1995.^{xxv} Taking into account the data missing from 22 teak-growing countries, these figures certainly under

^{xxii} Kollert, W. & Cherubini, L. (2012). Teak resources and market assessment, (2010), FAO Planted Forests and Trees Working Paper, FP/47/E, Rome, Italy.

^{xxiii} FAO (2001). Global Forest Resources Assessment (2000) Main report, FAO Forestry Paper 140, Rome, Italy.

^{xxiv} Steber, B. (1998). International marketing of teak, Singapore.

^{xxv} FAO (1995). Forest resources assessment 1990: tropical forest plantation resources. FAO Forestry Paper 128, Rome, Italy.

estimate the actual planted teak forests in the world. It appears, however, that Asia continues to dominate the production of teak, as it holds more than 95% of the world’s natural and planted teak resources, and more than 80% of the world’s planted teak resources. The three teak heavy weights are India with 1.667 million ha of planted teak forests (38% of the total), Indonesia with 1.269 million ha (29%) and Myanmar with 390,000 ha (9%). In 1998, the teak area in India was reported to be 7 million ha of natural forests and 1.5 million ha planted forests,^{xxvi} estimates which match well with the figures reported for 2010. Indonesia’s teak plantations in 2005 were reported to comprise only 200,000 ha, which appears to be a gross under estimate.^{xxvii}

Countries of tropical Africa report about 470,000 ha planted teak forests (11% of the total), of which Ghana (214,000 ha), Nigeria (146,000 ha) and Benin (26,000 ha) have the largest areas. The Ivory Coast did not report, but Maldonado and Louppe (2000) reported from SODEFOR,^{xxviii} that teak was the main plantation species in the Ivory Coast, covering almost 52,000 ha in 1998 and accounting for half of the country’s forest plantations. Countries of tropical America (Caribbean, Central and South America) have established 270,000 ha (6%) planted teak forests, of which Brazil (65,000 ha), Panama (55,000 ha), Ecuador (45,000 ha), Costa Rica (31,500 ha) and Guatemala (28,000 ha) have significant shares. For the Global Forest Resources Assessment 2010 Brazil in its country report reported a planted teak forest area of 67,072 ha (FAO2009), which matches with the area reported in the TRMA 2010. The ten countries with the largest area of planted teak forests, which cover 93% of the reported area, are shown in Figure1.

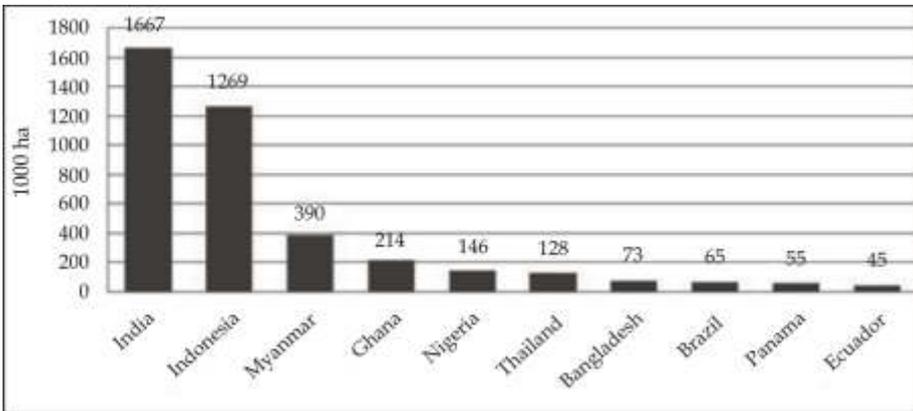


Figure 1: Ten countries with the largest area of planted teak forests (1000 ha)^{xxix}
 (Note: the figure for Bangladesh is taken from FAO 1995).

^{xxvi} Subramanian, K., Mandal, A.K., Rambabu, N., Chundamannil, M., Nagarajan, B. (1999). Site, technology and productivity of teak plantations in India. Technical Bulletin. Institute of Forest Genetics and Tree breeding, Coimbatore, Tamil Nadu, India.

^{xxvii} Guizol, P., Roda, J.-M., Muhtaman, D.R., Laburthe, P., Fauveaud, S., Antona, M. (2005). Leteck javanais, entresur exploitation et embargo. Boiset forêts destropiques, 2005, no284(2), p.11-21.

^{xxviii} SODEFOR (Société de développement des forêts). (1998). Développement du clonage de teck et création de plantations industrielles, ITTO.

^{xxix} FAO, 2009.

The frequency of planted teak in the forest landscape of each teak growing country can be illustrated by the ratio of the planted teak area to the total land area. It shows that Trinidad and Tobago, Ghana and Panama have the highest proportion of planted teak forest in the landscape, ranging from 7.4 and 17.5 per million (%)^{xxx} of the land area (see Figure 2).

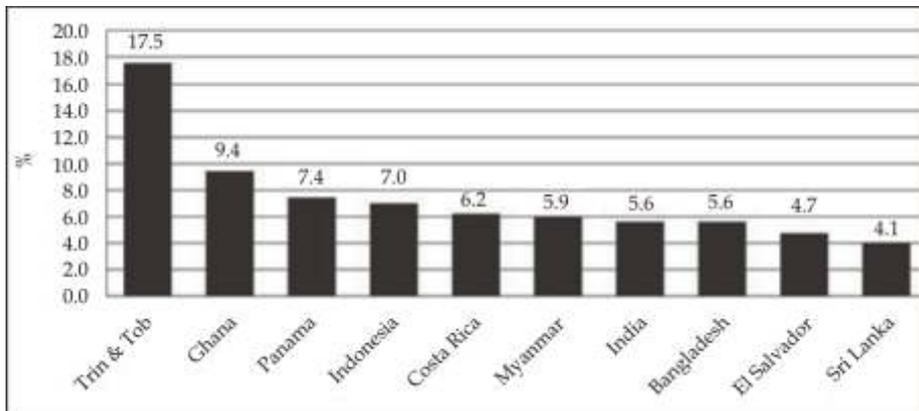


Figure 2: Ten countries with the highest teak coverage in the landscape (%).^{xxxi}

The data presented in the TRMA 2010 suggest that planted teak forests have increased globally, compared with previous surveys. In 1976/1979, the global area of planted teak forests was estimated at 1.3 million ha. Food and Agriculture Organization of the United States', in short FAO, Forest Resources Assessment 1990/1995 reported an area of 2.3 million ha, while the TRMA 2010 estimates a minimum area of 4.3 million ha. Figure 3 graphically displays the area change in planted teak forests in some countries within a period of 15 years from 1995 to 2010. In this graph, the figure placed on top of the bars indicates the increase of the planted teak area since 1995 in each particular country. For example, in Ecuador, the planted teak area of 2010 is 45 times the area reported for 1995, while in Ghana it is 21.8 times (see Figure 3). In this context, it is interesting to note that Brazil does not appear at all in the previous teak resources assessments of 1976, 1979 and 1995, the main plantation species in Brazil then being pines and eucalypts. Brazil has reported a planted teak area of 65,000 ha to the TRMA 2010, which has been confirmed by the report of the Brazilian Association of Forest Plantation Producers (ABRAF) to ITTO (ITTO, 2010 b). Currently, the federal state of Mato Grosso in central Brazil has the largest teak plantations, although the country has several geographic regions with climate and soil conditions suitable for teak.

^{xxx} 1 per million is a tenth of a percent or one part per thousand.

^{xxxi} ITTO 2010 b.

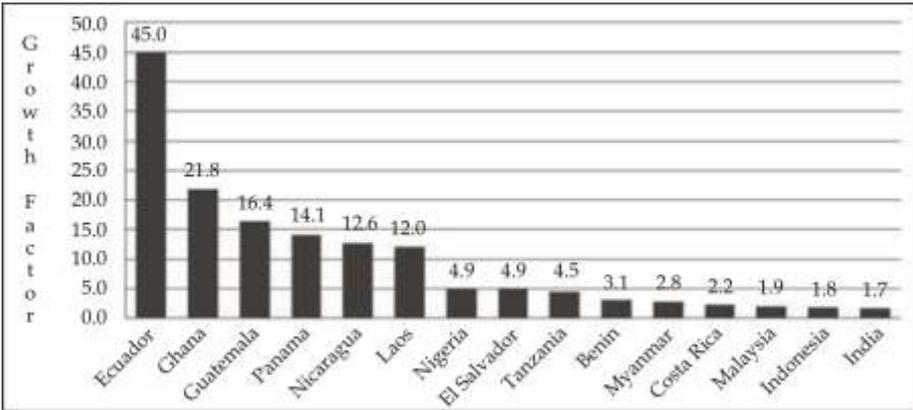


Figure 3: Area change in planted teak forests from 1995 to 2010. ^{xxxii}

Planted teak forests are predominantly young. Their age class distribution shows a very similar pattern in all 33 countries that have reported on this parameter, which is presented for all countries combined in Figure 4. Almost 77% of planted teak forests fall within the age class from 0 to 20 years, and 18% in the age class from 21 to 40 years. Only 5% of the planted teak forests are older than 40 years. The only exception to this pattern is Trinidad and Tobago, where 70% of the planted teak forests are older than 40 years, and Thailand and Myanmar, which both feature a higher share of stands from 21–40 years 61% and 30%, respectively (see Figure 4).

The prevailing age class distribution is an indication of increased efforts to establish and manage planted teak forests in the past 20 years and this pattern is very likely to persist in the future. The current enthusiasm by many corporate and private investors for planted teak will tend to shorten rotation periods and thus allow higher rates of return leading to a significant increase in the supply of small-dimension logs.

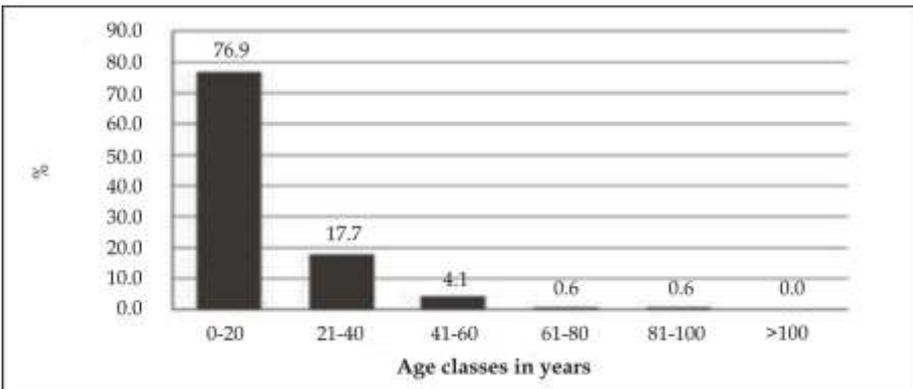


Figure 4: Age class distribution of planted teak forests. ^{xxxiii}

^{xxxii} ITTO 2010 b

^{xxxiii} ITTO 2010.

In Africa (70%), Asia (72%) and the Caribbean (65%) most planted teak forests are owned by government entities, generally the forestry or agricultural. In India, until the late 1960s, the state forestry departments were the sole agencies establishing and managing planted teak forests. Commercial teak plantations were grown for the first time in 1968 by the Maharashtra Development Board, a limited public sector company. Subsequently, other forest development corporations in other Indian states followed suit. From 1990 onwards, a growing number of private companies and farmers realized the value of teak and invested in plantations and agro-forestry production systems. As a result, the share of planted teak forests owned by private companies and small holders in India is increasing.

In Central and South America, the situation is different from the other regions. Here, state governments only own between 1% and 12% of planted teak forests, while the private sector combined holds 88% (57 + 31) in Central America and 99% (65 + 34) in South America.

Corporate owners by far own most of the resource (see Figure 5).^{xxxiv} Teak is not currently a priority species in community forestry, although there are a number of cases of small holder teak plantations which have contributed to the improvement of rural livelihoods in Latin America. Unfortunately, the forestry departments in many countries do not assume an active role in teak cultivation or provide a forestry extension service to small holders who have embarked on teak cultivation.

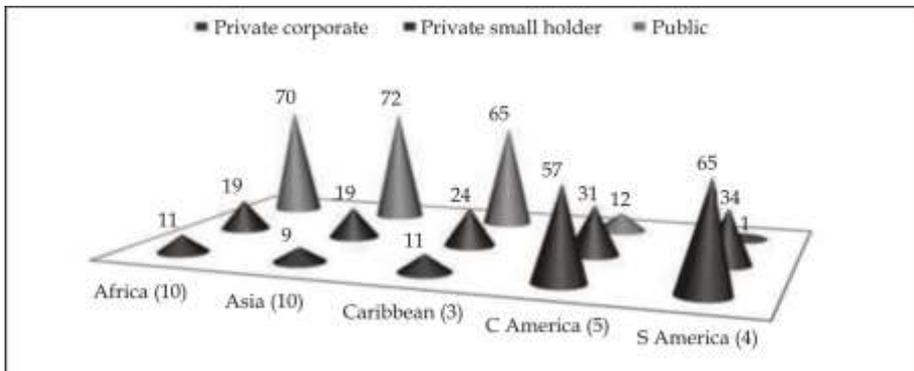


Figure 5: Ownership (%) of planted teak forests by region.^{xxxv} (Number of reporting countries in brackets)

The average growth in most of the world's teak plantations is low and probably under 5m³/ha/year with the exception of some high-intensity investment schemes. Besides, it appears that the productivity of older plantations and plantations that are in their second or third rotations may

^{xxxiv} Kent, J. and Rodríguez, J. (2011). Análisis del marco político, obstáculos estructurales, by barrer as definanciamien to paralas in version esdetecaen América Latina. Presentation held at the Conferencia Mundial de Teca, San José, Costa Rica, 31 Oct to 2 Nov 2011.

^{xxxv} ITTO, 2010.

decline, particularly on poor sites. In this context, it should be noted however that growth rates are also a matter of entrepreneurial objectives. A yield of $5\text{m}^3/\text{ha}/\text{year}$ might be perceived to be perfectly acceptable for community planting, whereas for international investors this would be considered extremely low.^{xxxvi} Rotation periods are rather short and span in most cases for 20 to 30 years. This only allows for the production of small dimension logs, which are not in demand in the international market. Yet, this lesser quality teak is suitable as a multi-purpose timber for less demanding building purposes, furniture, flooring, reconstituted wood products, wood fuel and utility poles for transmission lines. Good quality logs for high end uses, which have special technical and aesthetic properties, can only be produced in longer rotations. In India rotation periods in natural moist deciduous forests vary between 50 and 150 years.^{xxxvii} Log removals from planted teak forests were reported from 26 countries. Asia, as expected, reported the highest log volume removed at $523,000\text{ m}^3$, of which 87% ($453,613\text{ m}^3$) was from Indonesia and another 10% ($53,472\text{ m}^3$) from Thailand. India did not report on log removals. In Africa significant log removals are reported from Benin ($64,460\text{ m}^3$) and the United Republic of Tanzania ($60,000\text{ m}^3$); in Central America from Costa Rica ($74,153\text{ m}^3$) and El Salvador ($54,259\text{ m}^3$). In South America, removals were reported from Ecuador ($73,630\text{ m}^3$) and Brazil ($67,282\text{ m}^3$). A considerable volume of low-dimension teak logs is produced from thinnings in planted forests for use as utility posts and poles. This, however, is in general not recorded and does not appear in national statistics.

| Region (No. of reporting countries in bracket) | Log removals 2010 m^3 |
|--|--------------------------------|
| Africa (7) | 141,146 |
| Asia (5) | 522,710 |
| Caribbean (3) | 13,367 |
| Central America (5) | 128,478 |
| Oceania (2) | 0 |
| South America (4) | 140,912 |
| World (26) | 946,613 |

Table 3 : Log removals from planted teak forests by region 2010. ^{xxxviii}

The production of mature teak is restricted to the traditional producers Myanmar, India and Indonesia, all of these produce some large dimension logs from planted forests. Myanmar reported removals of $538,340\text{ m}^3$ teak logs from natural forests in 2010, which is above the estimated Annual Allowable

^{xxxvi} Coillte Consult. (2006). Teak market, Central America focus, Consultancy Report.

^{xxxvii} Tewari, D.N. (1992). A monograph on teak (*Tectonagrandis* Linn. f.) International Book Distributors, Dehradun, India.

^{xxxviii} ITTO, 2010.

Cut of approximately 420,000m³ (Myint, 2010). It can be a forecast that the production of teak logs from natural forests in Myanmar will reach its sustainable limit at sometime in the fairly near future and that there will then be a continuing decline in the volume and quality of natural teak.

There are very few estimates of the total commercial teak volume harvested globally from natural and planted teak forests. The global teak production of at most 1 to 1.5 million m³ per year is estimated from planted forests.^{xxxix} Based on more recent figures reported for TRMA 2010, we can reasonably estimate that a volume of approximately 0.5 million m³ may be harvested in natural forests and 1.5 to 2 million m³ in planted forests if all teak producing countries are accounted for. Hence, the world's teak supply from natural and planted forests adds up to 2 to 2.5 million m³ yearly, of which at least 60% is cut in India, Indonesia and Myanmar. This estimate must be further adjusted upwards to allow for illegal logging in natural forests and unrecorded harvesting by small farmers and local communities. In 2010, the total production of tropical industrial round wood in ITTO producer countries was reported to be 138.4 million m³ (ITTO, 2010 a). The estimated market share of teak logs in total tropical round wood volume production thus is short of 2% only. In value terms, a much higher share can be forecast but there are no data to support this suggestion.

The reporting countries found it difficult to report quantitative figures on the international trade in teak round wood and sawn timber. The data and information provided in questionnaires and written communication were, however, useful in supporting a qualitative evaluation of the prevailing trade flows, complemented by references in the literature. From these sources, it becomes apparent that the teak market has been and will continue to be governed by trends in the Asian market. Asia holds more than 90% of the world's teak resources and India alone manages 38% of the world's planted teak forests. The growth in international demand for general utility teak has broadened the traditional teak supply base from natural forests in Asia to include fast-grown, small-diameter plantation logs from Africa and Latin America.

Teak is a well-known and preferred species in India with demand sustained by strong construction activity and economic growth.^{xl} The country reports and written communications suggest and that the major teak trade flows worldwide are directed towards India, while its own considerable teak production is processed within the country. Eleven out of fourteen reporting

^{xxxix} Katwal, R.P.S., (2005). Teak in India: Status, Prospects and Perspectives. In: Bhat, K.M., Nair, K.K.N., Bhat, K.V., Muralidharan, E.M. and Sharma, J.K (eds.). Proceedings of the International Conference on Quality Timber Products of Teak from Sustainable Forest Management. Kerala Forest Research Institute, Peechi, India, 2nd-5th Dec 2003, pp.1-18.

^{xl} ITTO (2010a). Annual review and assessment of the world timber situation, Yokohama, Japan.

countries name India as the world's main importer, absorbing 70% to 100% of global teak exports, including shipments of plantation logs and sawn timber from Africa and Latin America. The market competition from Africa and Latin America has affected to some extent the traditional producers of teak from natural forests in Myanmar, who have lost Indian customers to new market entrants.^{xli}

The demand for teak in India has increased several-fold during the past five decades. This strong in-country demand makes India the biggest consumer of plantation grown teak in the world and a down turn in the Indian market would result in a drastic impact on the total market for small-dimension teak world wide.^{xlii}

Other significant teak importers are China and various EU countries such as Germany, Italy and Switzerland and the USA, the latter sourcing teak timber mainly from Africa and Latin America. Myanmar and Indonesia look set to maintain their monopoly on premium-quality products in the high-end luxury market. Growth in this market however is limited by supply, as plantation-grown teak does not yet have a high-quality image on the international market, and it is questionable whether it will ever reach such quality standards given the trend to shorter rotation periods. In 2009, Indian importers have reported shortages of Myanmar teak and were seeking alternative supplies, which included plantation teak logs from Ghana, Benin, Sudan and the United Republic of Tanzania.

In Africa, significant exporters are Ghana, Benin, Togo (both logs and sawn timber) and the United Republic of Tanzania (sawn timber), but quality tends to be low. Ghana has a log export ban in place but it excludes plantation logs and the country appears to be a large exporter of chemically-treated teak poles for power supply and telecommunication lines.^{xliii}

The Ivory Coast, which did not report to the TRMA 2010, was earlier reported to be among the most important teak exporters in Africa,^{xliiv} and exports of teak from the Ivory Coast destined to satisfy demand in India accelerated from a trickle to over 120,000 m³ by 1997. Teak exploitation in the Ivory Coast may have already exceeded the sustainable capacity of the country's resource base. India has become the Ivory Coast's almost exclusive customer, accounting for 99% of exported Ivorian teak logs.

^{xli} TEAKNET (1998). Natural grown teak versus plantation grown teak, TEAKNET Newsletter No.10. Yangon, Myanmar.

^{xlii} Somaiya, R.T. (2005). Teak trade in India. Quality Timber Products of Teak from Sustainable Forest Management. Proceedings of the International Conference: 2-5 December 2003. Kerala Forest Research Institute, Peechi, India.

^{xliii} WaKa Forest Investment Services AG. (2009). Teak in Ghana. Outline of a forest investment proposal, Winterthur, Switzerland.

^{xliiv} Maldonado, G. and Louppe, D. (2000). Challenges of Teak in Côté d'Ivoire. *Unasylva* 201, Vol. 51: 36-44.

In Latin America, Ecuador, El Salvador (sawn timber) and Brazil (round wood) are important teak exporters, but there was no information available from Costa Rica and Panama. Only a few countries in Africa and Latin America process teak logs to semi-finished or finished products prior to export. Most traders tend to export round wood to feed the Indian demand for teak. In India, local wood processing mills apply artisanal manufacturing procedures, work at lower costs, and are technically and organizationally well-suited to working with small-diameter logs. Under these circumstances, teak growers in Latin America claim that the export of teak to India as round wood yields a higher return than the processing and export of finished or semi-finished products.^{xlv}

Considering the declining supply from natural teak forests, the long-term prospects for plantation-grown teak appear promising, and demand is likely to increase. Much information on teak prices, in particular from short-rotation plantations, is found in the literature and on the internet, but it is rather difficult to interpret it due to a lack of background information and necessary detail. They are mostly based on a case by case basis, and there are no systematic or consistent grading rules with corresponding values for particular products. Available teak prices correspond to a mix of heterogeneous material from different countries that represent wood harvested from plantations with different silviculture treatments and timber quality. Some of these data qualify as wishful thinking rather than a reflection of actual values. Forth is reason, much controversy has been generated in several countries by the promotion of teak plantation investments based on fabulous growth and yield projections and unrealistic pricing scenarios, which have provided opportunities to exaggerate rates of return and deceive even cautious investors.

Natural teak forests area precious resource and good quality teak is selling at comparatively high prices. In the July 1995 issue of the National Geographic magazine, it was reported that some teak trees from natural forests can be of worth USD 20,000.^{xlvi} Quality in teak is determined by factors such as dimensions, bole shape (roundness and straightness), heart wood/ sapwood ratio, regularity of annual rings, number of knots, colour and texture. Another important factor is the soundness of the tree core; badly managed plantations or teak on poor sites of ten exhibit heart rot at ground level, the most valuable segment of the tree. Many of these factors are linked with age and tree size. The supply from old-growth natural teak forests is declining and the quality of naturally-grown teak has deteriorated. Plantation teak improves where good

^{xlv} Camacho, P. (2011). Oral communication at the Conferencia Mundial de Teca, San José, Costa Rica, 31 Oct to 2 Nov 2011.

^{xlvi} Swerdlow, J.L. (July 1995). Burma, the richest of poor countries. National Geographic 188, 1:70-97.

management practices are applied, and it can be expected that there will be an increasing overlap in terms of 'quality' between natural and plantation grown teak in future years. Myanmar, for example, has four grades of veneer logs and three grades of saw logs. By 1998, first and second veneer grades were no longer available for export at depots in Yangon. By 2000, third and fourth veneer grades were 1% and 10%, respectively, of the volumes available at the beginning of the 1990s. It was reported that the share of top quality A-grade teak in Indian timber auctions has declined steadily for many years.^{xlvii} Logs from planted teak forests are typically smaller in size and will hardly ever reach the dimensions grown in old-growth natural forests. As a result, they do not have the same technical characteristics of natural teak and do not reach such high prices. The standard range of products obtainable from planted teak forests that are harvested at young age are short boards, scantlings and mouldings. They will be 5 to 15 cm in width and up to 3 m length, and most of them have a distinct colour pattern marked by the dark-brown core and the yellowish sapwood. But they are very suitable for the manufacturing of furniture, parquet flooring, picture frames, boat parts, gift items and carvings.

Conclusion

The global timber market employs more than 13 million people and is the largest industrial segment. Timber products are environmentally superior to other variants made of metals, plastics and cement as these are recyclable, energy efficient and reduce green-house gases. However, unsustainable extraction and illegal trade in timber have resulted in the loss of forests and biodiversity in many countries. Presently, the world's forests are depleting at the rate of 16 million per annum. The rate is high in Latin America and South East Asia where timber is extracted legally and illegally to meet the needs of global timber markets. In order to address their reversibility of forest ecosystems and uncertainty in supply of wood as well as non-wood forest products and services, many countries have enforced conservation measures that regulate extraction and use of forest produce. At present no one knows how much industrial timber consumption worldwide is actually sustainable. Illegal logging and over extraction are occurring in some 70 countries, and account for approximately half of all traded timber production in tropical forests. Demand for paper, plywood and other wood products are expected to continue to rise, driven by growing and increasingly affluent populations around the world. While this demand will be met in part through sustainable sources and industrial efficiency, the pressure on natural forests world wide, particularly in developing countries, will also continue to rise.

^{xlvii} Balooni, K. (Nov.2011). Analysis of policy frame work, structural obstacles and financing barriers in the Asian teak market. Presentation held at the Conferencia Mundial de Teca, San José, Costa Rica.

Globalization has brought companies expanded access to raw and manufactured materials from around the world. Although this global sourcing increases business opportunities, it can also increase supply chain and reputation risks for companies. This is especially true in the global forest products industry. The size and complexity of supply chains within these markets make companies vulnerable to the risks associated with unknown and potentially illegal wood sources. Given the challenges of trace ability and verification, companies can unknowingly find themselves purchasing illegal or irresponsibly harvested forest products, which can cause economic, social, and environmental harm.

India is among the world's largest economies. The country recognizes the need for high growth rate in order to improve quality of life of its more than a billion population, a significant portion of which is still poor and marginalized. Forestry in India is the second largest land use after agriculture. But its contribution to the national economy is under estimated even in 2017, even though about 275 million poor people in India depend on forests to meet their livelihood as well as timber needs.



Funding for Start-Up Entrepreneurship in India Qualitative Assessment and Way Forward

Govind Mohan, IAS, Joint Secretary, Department of Economic Affairs

Executive Summary

1. The Government of India (GoI), through the Start-Up India (SUI) initiative, aims at providing support to entrepreneurship, so as to enable business to overcome the perceived market failures that affect business creation, as well as to reap the benefits of the positive spill-overs emerging from business dynamics on economic growth and job creation. One of the major components of the SUI initiative is mobilization of finance, given that funding of start-ups has been considered as an important challenge hindering the progress of the Indian start-up sector. The present paper analyses the impact that the funding provisions of the SUI initiative are having on addressing the financing challenges faced by the Indian start-up players. Further, it also makes an attempt to understand and draw lessons from the experiences of nations who have developed a thriving start-up ecosystem backed by government support. The analysis of the paper indicates that the financing model envisaged in the Start-Up India programme has not had much traction and therefore needs a reformulation. Drawing inspiration from international experience, the paper suggests that rather than the present model of the government providing a fraction of financing needs of the start-ups, it would be more ideal and effective if the government adopts a more enabling and catalytic role for enhancing the capital flow into the start-up space. This can be done through various policy initiatives, such as provision of government guarantees to venture capitalists, and by undertaking investments in all entities that contribute to the innovation ecosystem of an economy, starting from school curriculum to incubation centres in academic institutions to public and private R&D labs to start-up entrepreneurs. The backward and forward linkages of such an approach have huge potential for positive spill-overs to the Indian economy.

Introduction

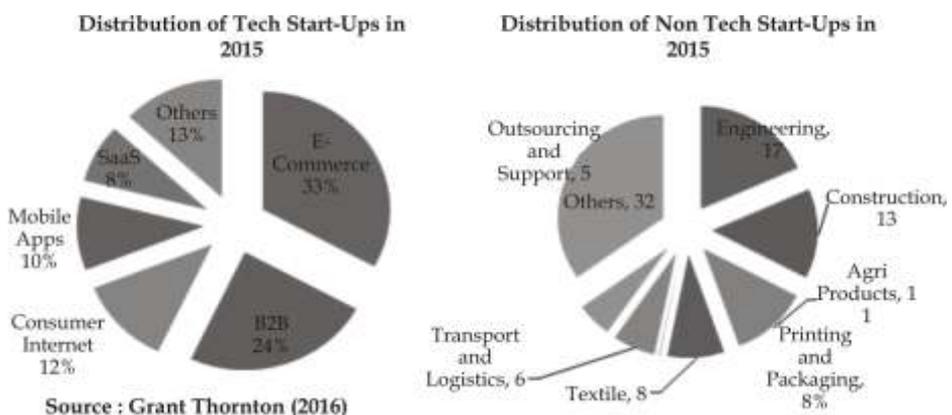
2. Entrepreneurship has always been an integral driver of economic growth. Tapping the entrepreneurial capital of a nation and exploiting its growth potential are the outcomes of an ecosystem that is sympathetic to the ups and downs of entrepreneurial activity and at the same time does not curtail or

dampen the risk appetite of a prospective entrepreneur. This is the broad paradigm constituting the ecosystem for entrepreneurship even though the specificities of this ecosystem may be contextual to each nation.

3. There has been an increased focus in recent times on the ecosystem for entrepreneurship in global policy circles and this emanates from the mushrooming of start-ups all across the world and especially in emerging market economies. Rapid developments in communications technology, falling transportation cost, free flow of trade and services and increased global inter-connectedness have provided opportunities for the domestic firms in emerging countries to compete with foreign players by developing new ideas and innovations. Governments in emerging countries are realising the importance of entrepreneurship in providing these new ideas and innovation capabilities. This has resulted in them starting to support entrepreneurs as the engine of new economic growth story (Zaki & Rashid, 2016). An ecosystem for entrepreneurship is an integral component of the economic reform story of any emerging market in present times.

The Indian Start-Up Story

4. Indian start-up sector has seen tremendous growth in last few years. The country now boasts of a number of unicorns,¹ such as Flipkart, Paytm, Ola, Mu Sigma, Snapdeal, etc. (Quartz India, 2017). The success of these unicorns has motivated several first generation entrepreneurs to leave their well-paying jobs and pursue eclectic business ideas and interests. To an extent, these start-ups have also helped in creating new jobs. It is reported that start-ups created 80,000–85,000 jobs in 2015 (Government of India, 2016). Till date, the sector has been mainly supported by private capital from angel investors, seed funds and venture capitalists who have invested billions of dollars in Indian start-ups. In the first quarter of 2017, these investors injected USD 4.27 billion in Indian start-ups (Kumar, 2017).



¹ The term “unicorn” is used for start-ups, which are valued at more than USD 1 billion.

Government Support in the Indian Start-Up Landscape

5. In 2016, the GoI launched Start-Up India (SUI) initiative with the ambition of building a strong ecosystem for nurturing innovation and start-ups in the country. The initiative² encompassed a slew of measures to address the various challenges faced by the start-ups, with a view to provide a facilitative environment, such as:

- Self-certification based compliance system to reduce regulatory burden;
- Relaxed norms for public procurement to put start-ups on equal platform with well-established companies;
- Funding support through credit guarantee scheme and announcement of Rs 10,000 crore fund of funds;
- Tax exemption for three years;
- Legal support for fast tracking patent examination;
- Faster exits under Insolvency and Bankruptcy Act, 2015;
- Income-tax exemption for three years and tax exemption on capital gains;
- Setting-up incubation facilities and business innovation centres at national institutes.

6. The dynamic policy stance clearly demonstrates GoI's commitment and intent to support next generation of high growth firms. From the broad parameters of the SUI initiative of GoI, it is evident that one of the thrust areas has been on mobilizing finances for start-ups. Funding is considered to be the biggest and immediate challenge in the start-up sector. The Fund of Funds and the Credit Guarantee Scheme were envisaged to address this challenge.

Fund of Funds and Credit Guarantee Scheme for Start-Ups

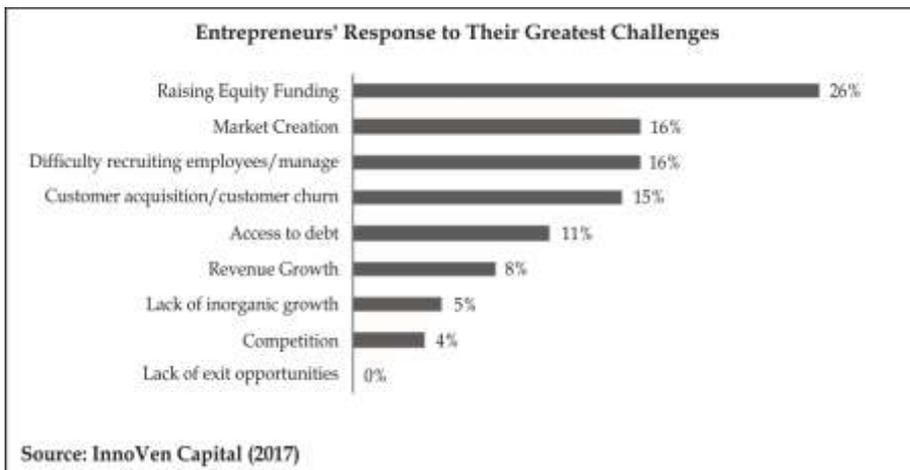
7. The establishment of "Fund of Funds for Start-Ups" (FFS) at Small Industries Development Bank of India (SIDBI) was envisaged as a contributor to various Alternative Investment Funds (AIF), registered with SEBI, which would in turn extend funding support to start-ups. A similar approach is used by the governments all across the world in mobilizing funds for the start-up sector. The corpus of FFS is Rs 10,000 crore, and will be built up over the XIV and XV Finance Commission cycles, subject to progress of the scheme and availability of funds. An amount of Rs 500 crore has already been provided to the corpus of FFS in 2015–16 and Rs600 crore earmarked in 2016–17. The fund is expected to generate employment for 18 lakh persons on full deployment (Government of India, 2016). The Credit Guarantee Scheme for Start-ups (CGSS) is a corpus contribution of Rs 2,000 crore that will enable start-ups to

²Some of the aforementioned measures have been already revised (amendment of the definition of start-up, increase in the period of profit linked deductions to upto 7 years, tax exemptions on investment above fair market value, relaxation of prior turnover and experience criteria in public procurement have been expanded to CPSUs, etc.) based on stakeholder consultation and feedback.

raise loans without any collateral for their business purposes (Government of India, 2016). The scheme provides credit guarantee upto Rs 5crore per case, inclusive of term loan, working capital or any other instrument of assistance extended by the Member Lending Institutions (MLIs) to finance an eligible borrower, i.e., a start-up recognized by the Department of Industrial Policy and Promotion (DIPP), GoI [Start-up definition as per Annex I].

Financing Conundrum of the Indian Start-Up Sector

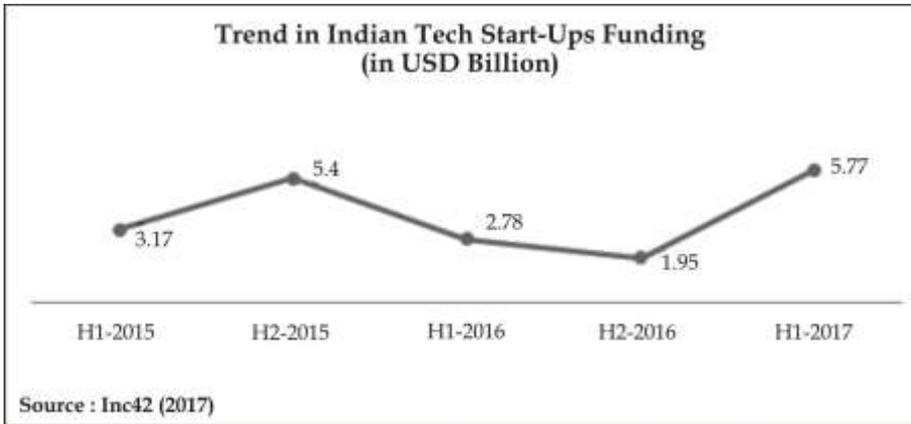
8. Surveys carried out to assess the challenges in the Indian start-up sector indicate that the start-ups in the country are facing funding roadblocks, both at entry and exit stages, while successful global start-up ecosystems are well supported by active investor communities. (“90% Start-ups in India Fail in the First 5 Years due to Stalled Funding, Lack of Innovation, Says IBM,” 2017). In fact, difficulty in raising equity funding and poor access to debt market have been listed as among the top challenges by the entrepreneurs. The GoI’s initiative to create a domestic source of capital for seed and early-stage companies assumes relevance in this context [Opportunities and challenges in the Indian start-up scene in Annex II].



Assessment of the Funding Provisions under the Start-Up India Initiative

9. It has been more than one and a half year since the launch of the SUI initiative and an assessment of its performance indicates major lacunae that need to be addressed. As of August 2017, even though 2,865 companies have been recognized as start-ups, only 60 start-ups have been approved for availing tax benefits. Of Rs 10,000 crore announced under the Fund of Funds scheme, only Rs 623 crore (USD 97 million) have been sanctioned [as on June 30, 2017] and only 67 start-ups have been funded under the scheme [as on August 24, 2017] (Government of India, 2017). Against this, private investors have invested USD 4.27 billion in just one quarter of 2017. It is evident, therefore, that the help given under this scheme is quite insignificant.

10. Further, even though the Credit Guarantee Scheme has been notified for SUI, there is no official information about the guaranteed amount and the beneficiaries on the government website. The Credit Guarantee Scheme is restricted to start-ups recognized by DIPP (Government of India, 2017). There are less than 3,000 start-ups registered with DIPP (Government of India, 2017) and there is no information on number of these start-ups that have benefitted from this scheme. Therefore, government’s efforts to mobilize financing for this sector seem to be lacking in spirit and numbers, and need to be reinvigorated at the earliest.



Is Government Intervention Needed in the Financing Arena of the Start-Up Ecosystem?

11. Given the visibly lacking performance of GoI in mobilizing financing for the start-up sector, one important question that emerges is as to whether the government needs to focus on developing the ancillary environment of the start-up ecosystem and leave the financing aspect to the market forces. Shouldn't investing in start-ups, a very high-risk activity in itself, be best left to investors who are best positioned to undertake these risks rather than be attempted by government officials?

12. While there is absolutely no denial to the fact that the government has a critical role to play in developing the start-up ecosystem of a nation, it is challenging to identify and define the exact nature of this intervention. The next section examines the relevant theoretical literature to understand the rationale for government intervention in mobilizing finance for start-ups. Following this, the experiences of nations who have developed efficient and successful models for government’s role in mobilization of finance, such as Israel and Finland, are analysed for the purpose of drawing lessons.

Theoretical Literature

13. High-growth potential businesses have typically relied on financing from sources other than traditional lenders, such as bank, during their early growth phases. In the more developed economies of the United Kingdom, Canada,

and the United States, venture capitalists have filled this gap by providing capital to early stage ventures with good growth potential. The availability of such capital has helped to promote the emergence of numerous high-growth firms in the United Kingdom, United States, and several other developed economies. This has led many to conclude that venture capital is a crucial factor in fostering start-ups.

14. More recently, venture capital has started to reach into emerging economies, many of whom have encouraged the establishment of their own venture capital industries. This has proved to be a challenge as many emerging economies are undergoing significant economic transition and offer little protection for either investors or private property (Ahlstrom and Burton, 2006). Government support to entrepreneurship stems from perceived market failures of the economy. These market failures can be majorly in the form of information asymmetries and financing gaps. The information asymmetries in the formal credit market severely hamper the flow of the finance for new firms that lack a credit history (OECD). It is in this context that the governments of the emerging market economies including India have started to play a proactive role in mobilizing financing for start-ups.

15. However, while doing so, it is pertinent that the government recognizes that the mode for mobilizing finance for the start-ups should not be generic. Rather, it should be specific to the organizational paths that the entrepreneurs undertake. Experts opine that generally there are six organizational paths that the start-up entrepreneurs pursue: (a) lifestyle business³; (b) small business⁴; (c) scalable start-up⁵; (d) buyable start-up⁶; (e) large company⁷, and (f) social entrepreneur⁸. Each of these distinct organizational path would need a different approach from the government as far as assistance in mobilization of finance is concerned (Blank, 2011). All these start-ups require unique

³ The focus of lifestyle business start-ups is to create and sustain a particular level of income for the founders or owners. They tend to be focused on one or more key persons, the loss of whom will stop the company in its tracks. While this is also true of most start-up companies in their early stages, a lifestyle company never overcomes that limitation.

⁴ Small businesses are of anyone who runs his/her own business. They hire local employees or family. Most are barely profitable. Small business entrepreneurship is not designed for scale. The only capital available to them is their own savings, bank and small business loans and what they can borrow from relatives.

⁵ Scalable businesses not only have the potential to move beyond their founders, their fundamental rationale is to do so. They have the ability to replicate and expand unconstrained substantively by the limitations of any single individual.

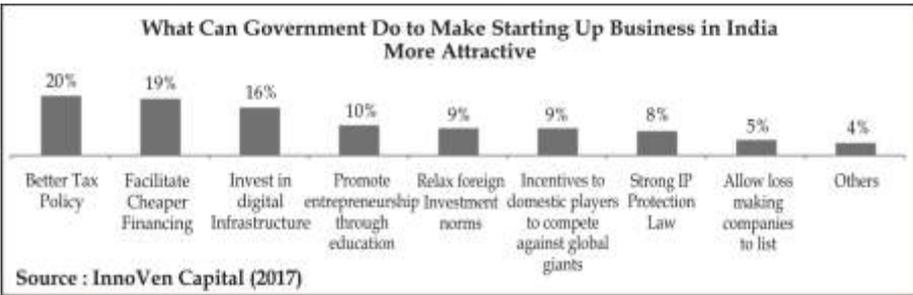
⁶ Buyable start-ups refer to basically web and mobile app start-ups that are founded with a primary aim to be sold to larger companies. The plummeting cost required to build a product, the radically reduced time to bring a product to market and the availability of angel capital willing to invest less than a traditional VC have allowed these companies to proliferate and their investors to make money.

⁷ Large companies have finite life cycles. And over the last decade those cycles have grown shorter. Most grow through *sustaining innovation*, offering new products that are variants around their core products (i.e., Google and Android).

⁸ Social entrepreneurs work on socially responsible businesses and may be organized as a non-profit, a for-profit or hybrid.

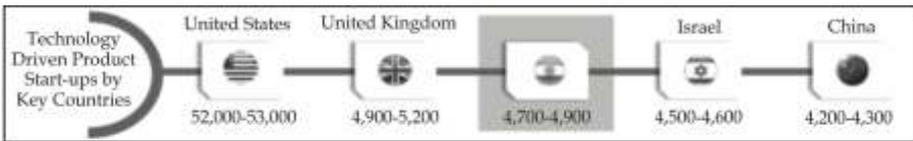
ecosystems to foster and the government needs to design public policy in accordance with the start-up it wants to develop. For instance, building a scalable start-up innovation cluster requires an ecosystem of private not *government-run* incubators and venture capital firms, outward-facing universities, and a rigorous start-up selection process. Any government that starts public financing entrepreneurship needs to have an exit plan after building a private VC industry.

16. A VC firm, Innoven Capital’s Start-up Outlook Report for 2017 indicates that a significant percentage (~19 per cent) of start-ups surveyed have suggested that the government may facilitate cheaper financing options to prospective entrepreneurs.



Learning from the Forerunners

17. Israel, South Korea and Finland have emerged as the key “start-up welfare states”, whose governments pour hundreds of millions into loans, grants and investments in start-ups each year. Judging by results, these start-up welfare states already rank in the top five on global innovation indices, thereby indicating that there are some takeaways from the manner in which government interventions are operating in these countries.



Source: NASSCOM (2016)

18. Israel has a thriving ecosystem of over 4,000 start-ups, as of 2016 (NASSCOM, 2016). For a country with a population of barely eight million, this has been a laudable achievement. Israeli start-ups are focused on cybersecurity, medical devices, and a lot of Software as a Service (SaaS) based technologies. Most of the start-ups are focused on building solutions for the US and European markets, since Israel itself doesn’t have a large enough domestic market (Roy, 2017).The success of the Israeli start-up space owes itself to the success of the venture capital industry in Israel, which was revolutionized by a

government initiative in 1993 called “Yozma”, which offered attractive tax incentives to foreign venture capital investments in Israel and promised to double any investment with funds from the government (Venture Capital in Israel, 2017). As a result of this, Israel’s annual venture capital outlays rose nearly 60-fold, from USD 58 million to USD 3.3 billion, between 1991 and 2000. The number of companies launched using Israeli venture funds rose from 100 to 800. Israel’s information technology revenues rose from USD 1.6 billion to USD 12.5 billion. By 1999, Israel ranked second only to the United States in investing private equity capital as a share of GDP. Moreover, the amount of USD 100 million initially invested by the Israeli government was repaid in 1997 with 50% interest and the VC funds which were initially created by the Israeli government were eventually privatised (OECD, n.d.).

19. Finland, on the other hand, has three types of funding (Geektime, 2015). The first type involves a grant of 75 percent capped at 50,000 euros. Even though the amount is small, it is intended for testing the customer base, building a minimum viable product or service and for the start-up company to increase their understanding of new markets. The second type of financing is funding for research, development and pilot projects. It is typically a loan that the company has to pay back with the loan level being 50–70 percent of the project. The companies can develop products and services as a business model and through piloting also demonstrate the functionality of the solution with customers. If the business is successful, the loan has to be paid back and the government does not take any share of the ownership. Payback starts typically after three years. The third type of funding caters to young innovative companies, and is meant for the most promising start-ups, with a scalable business model that is capable of rapid global growth. Here, the funding is up to 1.25 million euros and it can be leveraged by the private investors.

Suggested Recommendations

20. Juxtaposing the Israeli and Finnish experience of government support to start-ups with the funding mechanism envisaged within the Start-Up India programme, it is evident that there are some important takeaways that can be used to reformulate the mobilization of finance within Start-Up India. These are discussed as follows:

- a) There is a high risk of failures in the start-up space and the innovators/start-up entrepreneurs need to get the signal from the government that they support risk appetite. For instance, the confidence, which comes to a Finnish start-up when they know that they need not have to pay back the loan in total if the start-up fails, is a considerable cushion that government provides to the entrepreneur. Therefore, instead of positioning itself as an investor, the government could possibly help start-ups in fine-tuning their model and developing proof-of-concept way of small grants or soft

loans in very early stages. If a start-up successfully passes this stage, then private investors would automatically be interested in making further investments in such start-ups and the GoI would also be repaid with nominal returns on its investments.

- b) By investing in start-ups, the government takes undue amount of high risk on exchequer's money, which could be better invested elsewhere (such as development of requisite infrastructure, etc.) where returns are more tangible and have multiplier effect. Instead, the government could act as a backer of risk undertaken by the private investors, by providing risk coverage to these investors, especially in those start-ups which are considered to be innovative, have potential to scale or generate employment and are addressing social issues such as climate change, education, health, waste management, rain water harvesting, development of solar technology, R&D in cutting edge technologies, etc. This would give clear signal to the investors as well as start-ups that the GoI is willing to support them. A possible approach could be that the government may consider constituting a steering committee that can provide an opportunity for various venture capitalists to showcase their investee start-up entities on a regular basis. If the steering committee finds that the investee start-up meets the requisite criteria, the GoI could share the risk undertaken by the private investors by way of developing a separate start-up risk management pool. The investors and the start-ups identified by the steering committee may also be given financial incentives. This approach has multiple benefits:
- i) It would boost investor's confidence to make further rounds of investments in the start-up.
 - ii) It would also help start-up to raise funds from other private investors.
 - iii) This arrangement will also free the government from bearing the financial and administrative burden of operating its own fund.
 - iv) VCs typically seek high returns on their investment and thereby seek to invest in sectors which have high growth potential in terms of profit making and market valuation. For instance, in first half of 2017, 64% of the start-up funding went to fintech and only 9% went to social sectors (Inc42, 2017). It is perceived that social sector start-ups are not able to attract enough funding because venture capitalists are not confident about generating adequate returns on their investments in such sectors. By way of risk sharing, GoI can motivate VCs to boost their investments in social sectors. This would also motivate prospective entrepreneurs to work towards addressing the social and environmental issues affecting the Indian economy.

- v) For guaranteeing purpose, services of LIC India and GIC India can be further availed who are well positioned to underwrite such risks.

The progress of such start-ups could be regularly tracked by way of developing robust monitoring and evaluation framework to decide whether the start-up in question continues to meet the requisite criteria or whether the GoI support is required to be continued.

- c) Government intervention in mobilization of finance for start-ups needs to provide a conducive environment to private capital. Too restrictive conditionalities will constrain the investors and dissuade them from entering the market. It must be kept in mind that financing requirement of the sector is much more than any government could provide directly. Therefore, government funding can only act as a source of bridge funding/stimulator to an extent the financing gap is left wide open after all potential private capital is invested. Therefore, instead of trying to be the “key investor”, the GoI has to follow an enabling and catalytic approach with potential investors (other than VCs), such as commercial banks, non-banking financial services companies, high net worth individuals (HNIs) and other emerging financial services firms, such as peer-to-peer lending platforms, venture debt funds, etc., so as to encourage participation in this sector.
- d) The government needs to have a holistic and long term vision when it comes to funding the start-up landscape. Simultaneous focus needs to be placed on school education, investment in research and development incubated in academic institutions, as well as on start-up entrepreneurs, since the backward and forward linkages provide a huge potential for positive spill-overs.

Conclusion

21. The Start-Up India (SUI) initiative holds a lot of potential. The challenge is to correctly identify the lacunae in the system and formulate policy responses in lieu of the same. While funding remains one fundamental challenge in the start-up landscape and there is a clear case for government intervention to address the financing gap, the manner of government intervention in dealing with this issue needs to be considered carefully. The paper suggests that providing government guarantee to potential investors and formulating a holistic and futuristic investment plan that can contribute towards building an innovation ecosystem for the Indian economy can be a good start towards addressing this challenge.

Annex 1

Definition of Start-Ups⁹

1. Department of Industrial Promotion and Policy (DIPP), Government of India (GoI), as per notification dated February 17, 2016 defines an entity as a start-up if it fulfils the following conditions:

- a) Up to five years from the date of its incorporation/registration;
- b) If its turnover for any of the financial years has not exceeded Rs 25 crore; and
- c) It is working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property.

Provided that any such entity formed by splitting up or reconstruction of a business already in existence shall not be considered a “start-up”.

Provided further that in order to obtain tax benefits, a start-up so identified under the above definition shall be required to obtain a certificate of an eligible business from the Inter-Ministerial Board of Certification consisting of:

- a) Joint Secretary, Department of Industrial Policy and Promotion,
- b) Representative of Department of Science and Technology, and
- c) Representative of Department of Biotechnology.

2. However, on May 25, 2017, the definition of start-up was amended by the Government of India incorporating the following changes:

- a) **Age of Start-Up Increased:** Taking into account the long gestation period by the start-ups to establish, an entity shall be considered as a start-up up to seven years from the date of its incorporation/registration (from earlier 5 years). However, in the case of the start-ups in the biotechnology sector, the period shall be up to ten years from the date of incorporation/registration.
- b) **No Letter of Recommendation Required:** No letter of recommendation from an incubator/industry association shall be required for either recognition or tax benefits.
- c) **Potential of Job and Wealth Creation:** The scope of definition has been broadened to include scalability of business model with potential of employment generation or wealth creation.

⁹Potential of Job and Wealth Creation: The scope of definition has been broadened to include scalability of business model with potential of employment generation or wealth creation.

Annex 2

Opportunities and Challenges in the Indian Start-Up Sector in 2016

| Opportunities | Challenges |
|--|---|
| <ol style="list-style-type: none"> 1. 4750 start-ups, India continues to be the third largest, marginally behind the UK 2. 20-25% YoY growth in exits; 95% of the deals by Indian organisations-start-ups, unicorns and corporates 3. 350+ active angels, up 20% from 2015; new breed of angels with domain experts on the rise 4. 8-10% of start-ups from tier 2/3 cities-broad basing the start-up ecosystem 5. Expanding beyond the unicorns; category leaders maturing 6. 2x growth of core technology (IoT, ML/AI, Robotics) start-ups 7. Huge push from the government (Start-Up India), media, industry and academia | <ol style="list-style-type: none"> 1. Funding slowdown; lesser number of big ticket investments 2. Quick cash burning to scale fast leads to high mortality in few B2C start-ups 3. Size of M&A deals is muted 4. Need for faster adoption in corporates to fund and nurture tech start-ups 5. Ease of doing business for start-ups improving, but needs quicker implementation 6. Heightened concerns on cyber security due to increased digital footprint |

References

- '90% Startups In India Fail In The First 5 Years Due To Stalled Funding, Lack Of Innovation, Says IBM' The Huffington Post India, 17 May, viewed 16 September 2017, <http://www.huffingtonpost.in/2017/05/17/90-startups-in-india-fail-in-the-first-5-years-due-to-stalled-f_a_22094979/>
- 'Venture capital in Israel' 2017, Wikipedia, viewed 20 September 2017, <https://en.wikipedia.org/wiki/Venture_capital_in_Israel>
- Ahlstrom, D. and Burton, G D. (2006), Venture Capital in Emerging Economies: Networks and Institutional Change, *Entrepreneurship Theory and Practice*. 30(2). Pp. 299-320
- Blank S. 2011, Why Governments don't Get Startups, viewed 21 September 2017, <<https://steveblank.com/2011/09/01/why-governments-don%E2%80%99t-get-startups/>>

- Geektime 2015, Welcome to Finland, where most startups get government funding — and the payoff is high, viewed 19 September 2017, < <http://www.geektime.com/2015/06/01/welcome-to-finland-where-most-startups-get-government-funding-and-the-payoff-is-high/>>
- Government of India 2016, Economic Survey 2015-16, viewed 17 September 2017, < http://indiabudget.nic.in/budget2016-2017/vol1_survey.asp>
- Government of India 2016, Establishment of Fund of Funds for funding support to Start-ups, Press Information Bureau, viewed 15 September 2017, < <http://pib.nic.in/newsite/PrintRelease.aspx?relid=146400>>
- Government of India 2016, Establishment of Fund of Funds for funding support to Start-ups, Press Information Bureau, viewed 15 September 2017, < <http://pib.nic.in/newsite/PrintRelease.aspx?relid=146400>>
- Government of India 2017, Credit Guarantee Fund for Startup, Press Information Bureau, viewed 14 September 2017, < <http://pib.nic.in/newsite/PrintRelease.aspx?relid=169037>>
- Government of India 2017, Startup India – The Status Report, viewed 14 September 2017, < <http://startupindia.gov.in/status.php>>
- Grant Thornton 2016, Startups India – An Overview, viewed 16 September 2017, http://www.grantthornton.in/globalassets/1.-member-firms/india/assets/pdfs/grant_thornton-startups_report.pdf
- Inc 42 2017, Indian Tech Startup Funding Report H1 2017: \$5.56 Bn Invested Across 452 Deals, viewed 17 September 2017, < <https://inc42.com/datalab/indian-tech-startup-funding-report/>>
- InnoVen Capital 2017, InnoVen Capital: Startup Outlook Report, viewed 14 September 2017, < <http://www.innovencapital.com/sites/default/files/InnoVen%20Capital%20Startup%20outlook%20report%202017.pdf>>
- Kumar A 2017, \$4.7 Billion Invested In Indian Startups In Q1 2017, Double Than Last Year. StartupIndia Booming, Biztor India, viewed 19 September 2017, < <https://biztor.com/startup-india-funding-2017/>>
- NASSCOM 2016, Indian Start-up Ecosystem Maturing, NASSCOM, Noida, India
- OECD n.d., Start-up and Entrepreneurship, viewed 17 September 2017, <https://www.oecd.org/sti/outlook/e-outlook/stipolicyprofiles/competencestoinnovate/start-upandentrepreneurship.htm>.
- OECD n.d., Start-up nation: An innovation story, viewed 16 September 2017, < http://oecdobserver.org/news/fullstory.php/aid/3546/Start-up_nation:_An_innovation_story.html>
- Quartz India 2017, How many Indian unicorns are actually going to make money?, viewed 18 September 2017, <https://qz.com/950672/after-mu-sigma-and-inmobi-how-many-indian-unicorns-are-actually-going-to-make-money/>
- Roy A 2017, Lessons from Israel, the Startup Nation, for India, Yourstory, viewed 14 September 2017, <<https://yourstory.com/2017/03/startup-nation/>>
- Zaki, I M. and Rashid, N H., 2016, Entrepreneurship Impact on Economic Growth in Emerging Countries. *The Business and Management Review*. 7(2).pp.31-39



Rationalisation of Fertiliser Subsidy in India

Kalpana Awasthi, IAS, DG, National Productivity Council

1. EXECUTIVE SUMMARY

India is predominantly an agricultural country where 60.4% of the workforce is engaged in agriculture sector, but it generates only 22.8% of the GDP. The contribution of agriculture sector to GDP is falling due to the decrease in public investment for infrastructure in this sector, as the scarce resources are largely being used for footing an increasing subsidy bill largely in the non-merit goods category fertilisers. To usher a second green revolution, double the farmers' incomes by 2022 and achieve an agricultural growth rate of 4% per annum, a two-pronged approach will have to be adopted-enhancing the sector outlay and focusing on outcomes. This will need appropriate policy interventions.

India had achieved near self-sufficiency in production of urea and diammonium phosphate (DAP) in 2000–01, but import dependence in urea and DAP has increased to 28% & 66%, respectively, in 2015 and 2016. India has also emerged as 2nd largest consumer of fertilisers (N+P+K) and 3rd largest producer of nitrogen and phosphates in the world.

The fertiliser subsidy bill in India has increased from Rs. 62,301 Crores in 2010–11 to Rs. 72,415 Crores in 2015–16 and Rs. 70,000 Crores in 2016–17 (RE). Apart from this, unpaid subsidy and freight bills carried forward to next year in 2015–16 were worth Rs. 43,356 Crores. This is unsustainable and unaffordable for a developing country like India and calls for an urgent analysis of viable options considering its political sensitivity.

This analysis focuses on goals to find policies that reduce the fertiliser subsidy bill in order to ensure increased outlays for making direct investments in agriculture to ensure high and sustainable levels of agricultural growth.

After a detailed analysis of the present scenario, eminent experts based studies and examination of the study of best international practices in Malawi of Voucher based systems, six policy options were evaluated against six well-defined criteria. It is recommended that since this issue has wide economic and political ramifications, it is necessary to take a cautious approach of improving primarily the efficiency and productivity of the fertiliser production units, with efforts to establish a stabilisation fund for costly imported inputs. This

needs to be combined with streamlining Aadhaar based direct benefit transfer to a larger number of farmers. The hybrid approach would ensure the gains by reducing the pains and is the best solution to ensure acceptability of the reform process.

2. BACKGROUND OF THE PROBLEM

2.1 Problem Description

Quantitative

The fertiliser subsidy has increased substantially from Rs. 62,301 Crores in 2010–11 to Rs. 72,415 Crores in 2015–16, but reduced to Rs. 70,000 Crores in 2016–17. In FY 2017–2018, the budget of Rs. 70,000 Crores (urea: Rs. 49,768 Crores; Nutrient Based: Rs. 20,232 Crores) was allocated for the Fertiliser industry, to be given of as subsidies. The policy issues are how to enhance/promote rational incremental fertiliser use among the poor farmers and at the same time reduce the subsidy bill.

About 70% of the urea requirement is met through indigenous production with the balance being met through imports. Despite multiple policies aiming at strengthening the indigenous production of urea, the same has not shown any significant improvement and subsidy for urea has been steadily rising.

The Government of India through its Make in India initiative is working towards increasing the production of urea so as to end imports by 2022 and achieve self-sufficiency in urea production.

Qualitative

There is the ongoing debate as to who actually benefits from this large subsidy; whether it is the poor farmer or the fertiliser industry whose inefficiencies are being subsidised. Besides, the distributional aspect of the benefits being heavily tilted towards a large number of farmers growing water guzzling crops like rice and sugarcane in a few northern states of India is also an area of concern. Despite the large amount of subsidy being paid to manufacturers and importers of urea, it still cannot be guaranteed that the end beneficiaries are farmers because of the leakages in the system that exist. The diversion of subsidised urea in other industries and manufacturing processes is also a cause of concern. When Direct Benefit Transfer (DBT) scheme was introduced first time in the fertiliser industry, the subsidy was given on the dispatch of the materials from their respective factories, and after revisions, on the disbursement of the fertilisers the subsidy was getting paid at a railhead point or any approved godown of a district. In the proposed new system, the subsidy payment is to be based on weekly settlement of claims from actual sales data captured on POS machines after the sale is made by the retailers to the

beneficiaries on submission of claims generated in the web-based online Integrated Fertiliser Monitoring System (iFMS) by fertiliser companies.

The efforts of the industry need to improve the productivity of the plant. This means that the plant personnel, technology suppliers and all involved parties in the production of fertilisers, especially urea units, should maintain or improve plant efficiency to remain viable and meet the stringent energy, environment and safety regulations. Technology suppliers and users also need to select the right type of equipment to minimise unwanted shutdown.

2.2 Policy and Problem Context

The discussion paper titled “Government Subsidies in India” placed before the Parliament in May 1997 classified subsidies in three categories, namely, public goods, merit goods and non-merit goods. Fertiliser was included under non-merit-goods category, whereas cash subsidy was given to the fertiliser units for the provision of providing fertilisers to farmers at prices lower than the government procurement price. Since the element of externality is limited in food and fertilisers, in such cases the justification for subsidies may have to be on grounds other than strong externality, i.e., social and equity objective.

Subsequently, “Report of the Central Government on Subsidies in India (2004)” presented by the then Finance Minister makes a detailed analysis of three major explicit subsidies, namely, food, fertiliser and petroleum. The report suggested as a policy prescription that there is a need to gradually increase the recovery rate in non-merit goods to reduce huge outflow in the form of subsidies.

India is predominantly an agricultural country where 60.4% of the work force is engaged in this sector, but it generates only 22.8% of the GDP.¹ The Indian government is emphasising on self-sufficiency in urea production by 2022; consequently it has been consistently pursuing policies conducive to increasing productivity and capacity utilisation of fertiliser plants in the country capabilities. There are strong manufacturing Since the Green Revolution, the fertiliser industry in India witnessed a significant addition to the fertiliser production capacity and at present there are 30 large sized urea manufacturing units, 21 DAP and complex fertiliser units, 2 units that manufacture ammonium sulphate as a by-product, and 105 medium and small scale units in operation producing single super phosphate (SSP).

This was a legacy of the planned economy where strategic industries were state Controlled, also the bitter experience of PL480 led to the thrust for food and nutritional security. However, due to diversified fertiliser use in the phosphatic sector, the private sector has 62.08% share and is able to determine the costs of production.

¹ Mohan Guruswamy *et al.*, *The Crisis in Indian Agriculture: A Critical Study* (New Delhi: Published for Centre for Policy Alternatives by Hope India Publications, Gurgaon, 2008).

Per hectare consumption of fertilisers has increased from less than 1 kg in 1951–52 to 116.51 kg (estimated) in 2016–17.² In spite of these strides, the contribution of the agricultural sector to GDP has fallen from 55.4% in 1950–51 to 22.8% in 2016–17.

Both production and productivity in agriculture are showing a declining trend due to a fall in public investment for infrastructure in agricultural sector.³ Hence, the urgent need for a second Green Revolution is being felt to raise the growth of agriculture sector from 1.8% per annum at present to 4% per annum, as CSO agriculture GDP projections indicate that if agricultural GDP were to grow at 4% till 2029–30, it would mean 41.83% more income than if it were to grow at 2%. The government is committed to enhancing its performance. However, at present the support is largely in the form of providing subsidised inputs such as power, water, fertilisers, seeds and buying produce from farmers, rather than by enhancing direct investments in the form of efficient irrigation systems, extension services, rural market infrastructure, etc.

2.3 Past Experience to Solve the Problem

Input subsidies are provided in both developed and developing countries. In India, a developing country, subsidies are inextricably linked with the overall philosophy of maintaining low-input costs and low-output prices. Fertiliser subsidy is the difference between the retention price of fertilisers and the price at which fertilisers are made available to consumers. A serious attempt was made by the government in 2000 to reform the Retention Price Scheme (RPS) so as to rationalize fertiliser subsidies and phase out the unit-wise RPS in stages over a period of six years.

The input subsidies have enabled India to keep foodgrain prices low and also provide reasonable returns to farmers so as to motivate them to adopt new technology and increase production. The low foodgrain prices have not only increased the economic access to food but have also enabled industry and governments to keep wage bills low. Thus, the benefits of the input subsidies have been shared and transmitted to all the sections of the society. "It has also helped the government in keeping the food subsidy bill low, as the adverse effect of a rise in input prices on production and farm incomes cannot be mitigated by compensating farmers through an increase in output prices. In this connection, it needs to be pointed out that nearly 78.4% of the farmers operate less than 2 hectares of land and most of them are net buyers of grains with very little marketable surplus. Thus, for these farmers the level of output prices is of little consequence- the government has to make larger

² Ibid.

³ Guruswamy et al., *The Crisis in Indian Agriculture: A Critical Study*.

purchases for providing the price support to the growers. If this occurs, the subsidy saved on inputs may have to meet the additional food subsidy bill.”

⁴ Time and again various Finance Commissions, Joint Parliamentary Committees and the Tariff Commission have laid stress on the need to relook at the fertiliser subsidy regime. ⁵ At times, their suggestions have been implemented in a limited manner and in some cases deferred for almost a decade. In some instances, the suggested hike when implemented had been rolled back, questioning the credibility of the government in its seriousness for reform.

Some of the major initiatives include:

- Introduction of Direct Benefit Transfer (DBT) scheme.
- Nutrient Based Subsidy (NBS).
- New Urea Policy 2015 (NUP 2015) effective from 1st June 2015 to 31st March 2019 and energy norms of urea plants have been further reviewed under the policy.
- It is mandatory in New Urea Policy 2015 that all indigenous producers should produce 100% neem coated urea of their total production of subsidised urea. Imported urea should also be neem coated before despatch from the ports.
- Removal of the minimum capacity utilisation criteria for SSP manufacturing units to be eligible for subsidy under NBS scheme. It has also been decided that the rates of subsidy will be reviewed by the government on half yearly basis instead of annual basis.
- Gas price pooling w.e.f. 01 July 2017 to incentivise urea production at healthy energy efficiency.
- The targeted production of ammonia is estimated to increase to 18.2 MT of ammonia by 2015, 26.4 MT by 2030 and 30.15 MT by 2050. CO₂ emission factor per tonne of ammonia is estimated improve to 1.92, 1.82 and 1.75 t/t by 2015, 2030 and 2050, respectively.
- The government is encouraging SSP production as SSP is also considered as a substitute to DAP, which is largely import based and costlier vis-à-vis SSP.
- The ceiling imposed on production beyond reassessed capacity during 2016–17 has been raised so as to enable all urea units to produce additional production, which otherwise they were not able to do so due to low import parity price.

⁴ S. S. Acharya and D. P. Chaudhri, *Indian Agricultural Policy at the Crossroads: Priorities and Agenda* (Jaipur: Rawat Publications, 2001).

⁵ Astha Ahuja, *Agriculture and Rural Development in India: Post-Liberalisation Initiatives* (New Delhi: New Century Publications, 2006).

3. Significance of Problem

3.1 Assessment of Scope and Severity of the problem

The global recession has forced the government to tighten its belt and resort to zero-based budgeting to evaluate value for money expenditures. The approach of business as usual cannot prevail and it is the right opportunity to take tough hardnosed decisions that will have political and social acceptability due to influence of extraneous factors. In recent agricultural economics studies, agricultural economists are reiterating the need for a critical review of the fertiliser pricing and subsidy policy, emphasising that the opportunities are being missed.

The Department of Fertilisers and some economists justify that the sustainability of the fertiliser industry is also important. They have stated that the rising fertiliser subsidy bill is the result of increasing consumption and increases the costs of inputs of indigenous fertilisers and prices of imported fertilisers from time to time. Among the feedstock, natural gas-based fertilisers are the most energy efficient, followed by naphtha based fertilisers.

All elected governments tend to avoid the issue of price increase of fertilisers for obvious reasons.

Under NBS, the overall subsidy for the P&K fertilisers has decreased, however, certain problems still remain as pointed out by a CAG performance audit (Audit Report no. 16 of 2015) of the Nutrient Based Subsidy Policy for Decentralised Phosphatic & Potassic Fertilisers. Some of these problems have been outlined below as:

- Non-recovery of gains from P&K manufactures using cheaper domestic gas.
- Fixing of price: Under NBS, companies are required to submit cost plans to justify the maximum retail price (MRP) fixed by them for their products. The audit report concluded that unreasonable costs had been taken into consideration for fixing the MRP of the fertilisers in many cases. Further, some companies did not factor in the low procurement cost of imported DAP, while fixing the MRP that allowed the companies to gain an undue profit.

3.2 Need for Analysis

The fertiliser industry is considered to be an allied activity of the agricultural sphere. Farming and ancillary activities contribute to about 1/6 of India's GDP. Although urea often offers farmers the most adequate nitrogen for the lowest price in the market, since it is heavily subsidised by the government, it should be used judiciously to avoid the soil turning acidic in nature. There has

been a great public rhetoric from several quarters about the efficacy of this subsidy whether it is a necessary evil or there is a more efficient and effective manner of reaching the target group effectively. In fact, the polity has at various times emphasised the need to re-examine their efficiency and whether they have outlived their utility.

With a fall in natural gas prices in domestic and international markets, there is a good opportunity for reducing the cost of production of manufacturing fertilisers. It is estimated that for every 1 USD/mmbtu decline in gas prices, the total cost of domestic urea production can reduce by Rs. 4,900 Crores. With urea farm gate prices capped at Rs. 5,360/MT, any variation in the cost of production is absorbed by government through subsidy.⁷

3.3 The Problem Situation Analysis

Total subsidies have increased from Rs. 43,533 Crores in 2002–03 to Rs. 260,658 Crores in 2014–15, an increase by almost 6 times, but then slightly decreased in 2015–16 and 2016–17 to Rs. 2,41,856 Crores & Rs. 2,32,704 Crores, respectively. The fertiliser subsidy has increased from Rs. 11,015 Crores in 2002–03 to Rs. 72,970 Crores in 2014–15 representing an increase of almost 16 times, but then slightly decreased in 2015–16 and 2016–17 to Rs. 72,437 Crores and Rs. 70,000 Crores, respectively. Fertiliser subsidy as a percentage of total subsidy is appended in Annexure-1. As a percentage of GDP, this represents an increase from 1.72% in 2002–03 to 2.02% in 2014–15. The fertiliser subsidy in India as percentage of the total subsidy varied from 25.30% in 2002–03 to 27.99% in 2014–15. The paradox of this situation is that in spite of bearing such a large burden on the exchequer, farmers have had to depend on loans for current expenditures and it is a giveaway to the relatively better off farmers in some states of the country. This is thus iniquitous and exacerbates geographic and regional disparities.

- The cheaper the input, the lower the incentive for economisation and reduction in wastage of that input. Essentially low-return investments may look profitable with subsidies. Low efficiency producers survive and continue in production, thus lowering the overall efficiency. Input subsidies distort prices and cause uneconomic choices at two stages: sub-optimal combination of inputs and in allocation of resources among different competing uses. Products and crops, which use subsidised inputs more intensively, are overutilised while others are contracted. This has led to distortion where in subsidised inputs like water and fertilisers coupled with state intervention for assured procurement of the agri-produce have resulted in cultivation of more wheat and paddy in place of crops like pulses, oilseeds and other horticultural products. The MRP of urea is fixed as it is controlled by the Central Government and the

difference between the MRP and the cost of production is reimbursed to manufacturers as subsidy. As pointed out by a CAG performance audit (Audit Report no. 16 of 2015), price fixing is an area of concern. Hence, reduction in production cost can be an important factor in reducing the subsidy.

- In addition to the economic inefficiency of subsidised system, the ecological effects of unbalanced use of water, fertiliser, pesticides and a particular type of crop rotation (paddy–wheat) have already been seen. The demand and need for counterbalancing it with use of organic fertilisers and farming practices are being increasingly felt.⁶
- The distributional aspects are ignored due to the applicability of subsidised inputs to all cultivators irrespective of the size of holding. The higher the quantum of asset ownership, the larger is the quantum of subsidies appropriated. Hence, the landless, the marginal and small farmers do get less benefit from a regime of subsidised input supply system. This goes directly against the tenet of any welfare state.⁷
- The more the subsidy on inputs like fertiliser and water, the more incentive to go for these crops, this negates the drive for diversification of agriculture.⁸ The crop-wise fertiliser demand function has not been evaluated to address the issue of incentives/disincentives for specific crops.
- Apart from the bad targeting, it is resulting in a recklessly wasteful consumption of fertilisers leading to soil composition being adversely affected. The need of a balanced fertiliser application including macro (nitrogen), secondary nutrients (phosphorus and potassium), micro (zinc) and organic matter (farm yard manure) can be well understood by the decline in crop yield due to imbalanced application of one nutrient or the other. On experimenting with the crop response in different soil types under varying combination of fertilisers, it was discovered that crop productivity was highest under the combination of FYM with N, P, and K, where the micronutrient played an important role.⁹ The NPK ratio was 6.7:2.4:1 in 2014–15 against the ideal of 4:2:1. In many places, it is also resulting in lowering of productivity levels along with environmental pollution.

⁶ A. Vinayak Reddy and M. Yadagira Charyulu, *Indian Agriculture : Challenges of Globalisation* (New Delhi: New Century Publications, 2008).

⁷ Roul, *Bitter to Better Harvest : Post-Green Revolution : Agricultural and Marketing Strategy for India*.

⁸ Ibid.

⁹ Bibek Debroy et al., *Integrating the Rural Poor into Markets* (New Delhi: Academic Foundation published in association with India Development Foundation (IDF) and International Development Enterprises, India, 2004).

3.4 SWOT Analysis and Problem Diagnosis

The problem structure is reflected in the SWOT analysis and problem tree diagram, which is appended as Annexure-2 in the document. The underlying causes for failure as well as perception of problem by various stakeholders have been mapped with help of boundary analysis (Annexure-3). The problem is defined as:

- a) Government failure, since the government has failed to address the influence of the organised and mobilised interests or address bureaucratic supply or private producers so as to improve their productivity, efficiency and remove dependency syndrome among fertiliser manufacturers, and thus release resources for direct investment in rural infrastructure.
- b) As a result of posturing to politically sensitive constituents, the delivery mechanism of reaching the needy farmers or removing information asymmetries through agricultural extension to encourage cost effective optimal mix of fertiliser use is also being explored of late as direct intervention through Aadhaar based DBT well-targeted mechanism, and a responsive extension mechanism has to be explored.
- c) The cost effective options for decontrolling urea production or organic fertiliser use have also not been explored.
- d) Restrictive environment characterised by highly controlled “Cost Plus” approach with stringent regulations and procedures has not induced any investment in the sector. Delays in reimbursement payment of subsidy and their part result in liquidity problems for fertiliser industry. The uniform freight policy is also not reflective of true costs.
- e) There hasn't been much of a change in the annual/reassessed capacity in the public and in the cooperative sector, whereas there has been a marginal increase of 0.01% in the urea manufacturing units and an increase of 2.48% in the DAP and complex fertiliser manufacturing units in the private sector from year 2015–16 to 2016–17.
- f) Higher production cost and lower plant efficiency leading to lower productivity. The long-term plans and targets have been initiated but they still have to show results in delivering benefits. The fact that the government has initiated process for review has come out with several corrective measures, namely, (i) phased decontrol of urea distribution, (ii) incentivising firms for technology upgradation and converting to gas based plants for feedstock, (iii) implementation of DBT and (iv) nutrient-based pricing regime for all subsidised fertilisers, encouraging fortified and coated fertilisers.

This shows that government is moving in the right direction but the pace is slow and measures are being pursued in an ad hoc and piecemeal manner. Review of the system functioning has not been done and systematic approach through convergence of various ministries and departments is also missing.

This instead of a means of developing this sector has become a sacrosanct palliative, which the political leadership would like to revisit or even rationalise. It would amount to a political infeasible position, as it would touch the rich articulate farmers' constituency who have an important say in the vote bank politics.

4. Problem Statement

Excessive increase of expenditure on fertiliser subsidies relative to the GDP/budget, due to production inefficiencies and low productivity, creates a deficit of funds available for direct rural agricultural infrastructure expenditure.

4.1 Interested Parties Analysis

In this paper, the interested parties are classified in 3 categories as stakeholders, beneficiaries and other interested parties.

- **The Key Stakeholders:** These are the Ministries of Chemicals and Fertilisers, Agriculture, Commerce, NITI Aayog and Finance. They have to take the decisions regarding the outlays budget, details of any subsidy scheme implementation, the extent and the periodicity of the schemes. They have both high power and influence.
- **Beneficiary:** Direct beneficiaries are farmers; however, the rich farmers are primarily benefiting from the status quo. They would resent any rationalisation, which curtails their present access to cheap inputs. As a large number would be parliamentarians they would not agree to any cuts.¹⁰ They are very articulate and involved in moulding decisions. Similarly, the cooperatives and the fertiliser manufacturing companies who have been the beneficiaries of the "gold-plated reimbursements" would also resent any reductions arguing on the basis of input costs or reimbursements for technology upgradation of plants.¹¹ They both have high power, interest and influence. Small farmers are affected only to the extent they are users of fertilisers. They have high importance but low power.

¹⁰ Sharma Vibha, "Fertiliser Subsidy Tops Farmers' Wish List," 2009.

¹¹ Satish Chander, "Evolution of Fertiliser Subsidy Scheme in India," in *IFA Crossroads Asia Pacific* (Melbourne, Australia: IFA, 2008).

- Other Interested Parties:
 - State Government: The state governments are also concerned with implementation and supervision to some extent in the field. Besides, as they bear the burden of irrigation and power subsidies, the success of rationalisation of fertiliser regime may encourage them to rationalise the water and power subsidies.
 - Researchers: The research institutes, scientists and agricultural economists would be concerned in preparing the evidence for the various points of view that emerge in the public domain. In fact, their views and studies would fuel the decisions of the Finance Commission as well as the Tariff Commission for the logic of the nature of subsidies that would be implemented.
 - Media: The media raises issues of public concern and the efficiency and cost effectiveness of any interventions.¹²Hence, its power is high.

The Interested Parties Analysis with Power Interest Matrix is placed at Annexure-4, the Position-Interest Matrix is placed at Annexure-5 and the views of the various stakeholders and groups are stated in the Boundary Analysis, which is placed at Annexure-3.

4.2 Goal and Objectives Definition

The goal is to find policies which reduce the fertiliser subsidy bill in order to ensure increased outlays for making direct investments in agriculture to attain high and sustainable levels of agricultural growth and doubling the farmer's income. In order to achieve this goal, the following three policy objectives should be met: (i) To streamline the administrative subsidy distribution mechanism so as to improve the marginal efficiency of fertiliser use by targeting the poor farmers and neglected areas by 10% by 2020. (ii) Encourage optimality of fertiliser-mix use through agricultural extension phased from 20% in 2020 to 100% by 2022. (iii) To remove the production inefficiencies and cost per unit of production in fertiliser units phased from 20% in 2019 to 75% in 2022.

¹²Govinda M. Rao, *Tight Rope Walk for the Finance Minister*, Business Standard (Business Standard, 2009).

The goals and objectives have been shown in the chart below.

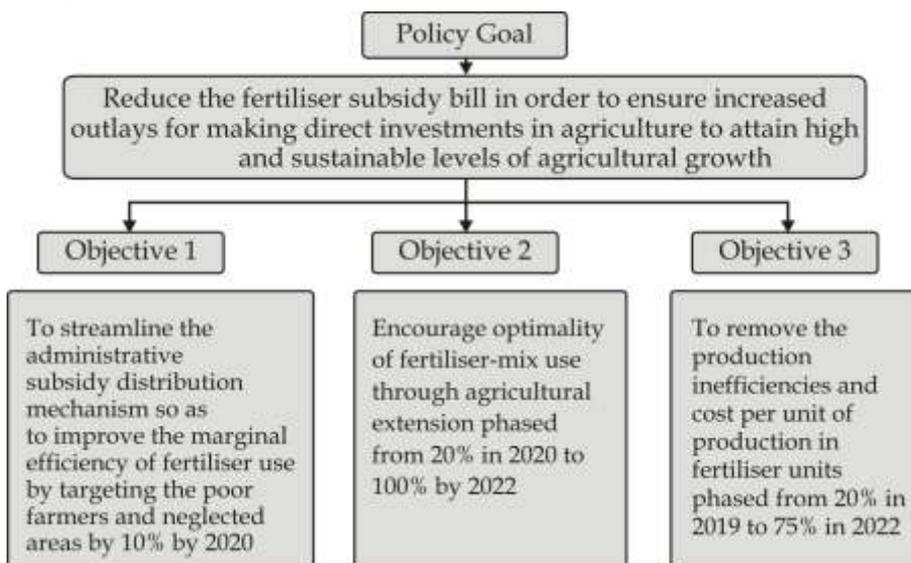


Figure-1: Policy goals and objectives.

4.3 Objectives and Measures of Effectiveness

The indicators for the policy goal and objectives are shown in the table below. They will be monitored for determining the effectiveness.

- i) Objective 1 will address the government failure of bureaucratic supply.
- ii) Objective 2 will address the issue of information asymmetries.
- iii) Objective 3 will address the efficiency and technological upgradation issues of manufacturing units and fixing up the cost of production.¹³

| Policy Goal and Objectives | | Indicators |
|----------------------------|--|---|
| Policy Goal | Reduce the fertiliser subsidy bill in order to ensure increased outlays for making direct investments in agriculture to ensure high and sustainable levels of agricultural growth. | <ul style="list-style-type: none"> % Reduction in fertiliser subsidy (it can be targeted from 2016-17 level by 15% in 2020, 30% by 2022 and 50% by 2025) |
| Objective 1 | To streamline the administrative subsidy distribution mechanism so as to improve the marginal efficiency of fertiliser use by increasing targeting to the poor farmers and neglected areas by 10% by 2020. | <ul style="list-style-type: none"> % increase in Fertiliser use (Fertiliser use promotion increase from present levels by 15% each year) % increase poor farmers' coverage (10% each year through Aadhar linked DBT). No. of Soil Health Report Card of farmers registered on POS. Increase coverage of neglected areas of country (targeted as 15% each year). |

¹³ David Leo Weimer and Aidan R. Vining, *Policy Analysis: Concepts and Practice*, 4th ed. (Upper Saddle River, N.J.: Prentice Hall, 2005).

| | | |
|-------------|---|--|
| Objective 2 | Encourage optimality of fertiliser-mix use through agricultural extension phased from 20% in 2020 to 100% by 2022. | <ul style="list-style-type: none"> • Improvement in NPK ratio (Fertilizer subsidy linked up with the Soil Health Card Schemes for assessment of individual specific requirement of soil so that farmers can use customized fertilizer which satisfies the requirement of the soil). • Increase of no. of soil testing labs (agricultural extension services from present levels to 15% in terms of soil testing labs¹⁴) • % of increase organic fertilisers and nutrients use (targeted as 10% per year) |
| Objective 3 | To remove the production inefficiencies and cost per unit of production in fertiliser units phased from 20% in 2020 to 75% in 2022. | <ul style="list-style-type: none"> • % Decrease in cost of per unit production (Productivity assessment of manufacturing units at regular intervals). • % in increase in Plant Productivity (by adoption of MFCA & lean manufacturing). |

Table-2: Policy goals, objectives and indicators

5. Policy Alternatives

Policy alternatives have been designed based on the description of Minde & Ndlovu (2007b) of “SMART subsidies, i.e., those involving (S)pecific targeting to farmers who would not otherwise use purchased inputs or to areas where added fertiliser can contribute most to yield improvement, (M)easurable impacts, (A)chievable goals, a (R)esults orientation and a (T)imely duration of implementation, i.e., being time bound or having feasible exit strategy”.¹⁵

5.1 Description of Alternatives

The identification of policy alternatives was done through two mechanisms; eminence based analysis of international best practices and the generic policies¹⁶ applicable to the specific circumstances of the case. Based on the above two methods, six policy alternatives have been developed. These are mentioned below:

- **Alternative-1:** Maintain current status quo. Continue with the bloated bill on subsidy according to pressure from interest groups, namely, the fertiliser manufacturers and the rich farmers.
- **Alternative-2 :** Complete withdrawal of subsidy as a radical option at the other end of the spectrum.

¹⁴ Monkombu Sambasivan Swaminathan and National Academy of Agricultural Sciences, *Agriculture Cannot Wait: New Horizons in Indian Agriculture* (New Delhi: Academic Foundation, 2007).

¹⁵ Isaac Minde *et al.*, "Promoting Fertiliser Use in Africa: Current Issues and Empirical Evidence from Malawi, Zambia, and Kenya," (2008).

¹⁶ See explanation of generic policies available in Weimer and Vining 2004, specially the table listed in page 216.

- Alternative-3: Introduce classification of farmers based on land holding and target poor farmers through Aadhaar linked DBT with Soil Health Report Card.
- Alternative-4: Linking productivity assessment of fertiliser manufacturing unit for determination of cost of production. Encourage manufacturers to improve the efficiency of manufacturing processes through adoption of Material Flow Cost Accounting (MFCA) and Lean Manufacturing and reducing the production costs by regular productivity audits and assessment.
- Alternative-5: Creating a separate stabilisation fund for imported input hikes and a task force for dealing with the natural gas /naphta hikes through improved coordination among ministries/organisations in charge of enforcing availability of fertilisers in the country through imports and exports. These are: Ministries of Commerce, Petroleum, Fertilisers and Agriculture.
- Alternative-6: Hybrid model alternatives combination. Suitable combination of above mentioned alternatives in view of the feasibility of implementation.

5.2 Criteria for Selection and Evaluation of Alternatives

The issue has vast economic ramifications, hence economic analysis approach of cost-benefit analysis, cost effectiveness and risk assessment based on empirical studies has been done by various experts. The criteria for selection are therefore biased in favor of cost effectiveness, efficiency, equity, social acceptability and political and administrative feasibility.

5.3 Comparisons of Alternatives

- Alternative-1: Maintain the current status quo
 - Strengths: Requires little institutional effort but puts pressure for additional budget requirements. It generates popular political support.
 - Weaknesses: In the long run, this alternative will lead to further increase in the budgetary requirements, which is unsustainable. The unbalanced use of nitrogenous fertilisers is going to lead to degradation of the environment and diminishing returns from inputs application. It will be primarily opposed by the Finance Ministry and the NITI Aayog due to the pressure on budgetary resources.
 - Social Acceptability: This alternative is a highly popular measure, especially with those in the fertiliser industry, and for those seeking to establish new fertiliser factories.
- Alternative-2: Complete withdrawal of subsidy as a radical option at the other end of the spectrum.
 - Strengths: Will immediately make available huge funds to either clear to a certain extent the budgetary deficit or for making direct investments in infrastructure for agriculture.

- Weaknesses: Will lead to a large country wide protest, which may lead to withdrawal of the measure and loss in credibility in terms of carrying out well- thought reforms.
- iii) Alternative-3: Introduce classification of farmers based on land holding and target poor farmers through Aadhaar linked DBT with Soil Health Report Card. This payment is directly made to the bank account of the farmers, under Direct Benefit Transfer (DBT) scheme, thus eliminating any intermediaries.
- Strengths: Increasing the availability to the poor farmers to reduce distributional problems by better targeting through Aadhaar based targeting. In the states with computerised land records, technologically it should be feasible similar to bank transfers to farmers directly under ongoing schemes of public works or social security schemes. Data availability of Soil Health Report Card at end user level would help in the assessment of individual specific requirement of soil so that farmers can use customised fertiliser, which satisfies the requirement of the soil. It will also improve NPK ratio.
 - Administrative Feasibility: Substantial institutional changes and administrative expenses will be needed in order to systemise Aadhaar linked DBT and data entry of Soil Health Report Card. Since all government departments are becoming digital and records and data are being maintained, it would be easier to interlink land holding records of farmers from revenue department with agriculture department for classification of farmers and end user farmer Soil Health Report Card updating. However, there are large administrative risks related to coordination among departments to the introduction of the new system.
 - Political Acceptability: The political acceptability of this option will be there, as it encourages a system of client and patron for distributing through discretionary methods, the largesse. However, it could be tried on an experimental pilot basis in some states.
- Alternative-4: Linking productivity assessment of fertiliser manufacturing unit for determination of cost of production. The present system does not focus on productivity assessment and improvement of manufacturing units and encouraging manufacturers for adoption of MFCA & lean manufacturing. MFCA, developed in Germany in the late 1990s, is a management tool which promotes increased transparency of material use practices through the development of a material flow model that traces and quantifies the flows and stocks of materials within an organisation in physical and monetary units. By adoption of MFCA, organisations can increase their resource productivity and reduce costs at

the same time. Because data on material losses and the associated costs are often difficult to extract from conventional information, accounting and environmental management systems, most of the organisations are unaware of the full extent of the actual cost of material losses. In this way, MFCA enables organisations to identify material use and their flows within a production process and assign costs to all of these materials. MFCA is a different way of management accounting. In conventional cost accounting, the data are used to determine whether the incurred costs are recovered from sales without determining whether material is transformed into products, or disposed off as waste. However, MFCA focuses on identifying and differentiating between the costs associated with “products” and “material losses/waste,” and material loss is evaluated as an economic loss, which encourages the management to search for ways to reduce material losses and improve business efficiency. The costs to produce “material losses” are included as part of the total output cost in conventional cost accounting even if waste is recognised in terms of quantity. Lean manufacturing, also called lean production, is a set of tools and methodologies that aims for the continuous elimination of all waste in the production process. The main benefits of this are lower production costs, increased output and shorter production lead times.

- **Strengths:** Adoption of MFCA & lean manufacturing will improve the efficiency of manufacturing processes and reduce the production costs by regular productivity audits and assessment.
- **Weaknesses:** In the short run, the fertiliser manufacturers may be reluctant to adoption of productivity improvement techniques. They will depend a lot on enforcement agencies to monitor for compliance.
- **Administrative Feasibility:** There have been attempts to state that adoption of piecemeal attempts at energy audits has been done varied productivity tools and techniques is quite feasible.
- **Social Acceptability:** This measure will be opposed by owners of large units whose reduction of production cost may impact their margins of subsidy. On the other hand, the large farmers and the government will be in favour of this initiative, as it rewards their efforts to be productive and reducing wastages and it helps the government to restrict its allocations.
- **Alternative-5:** Creating a separate stabilisation fund and taskforce for dealing with the imported petroleum/naphtha price hikes.

Through the interest bearing fund and improved coordination among ministries/organisations in charge of enforcing availability of fertilisers in the country, a rational objective weighted system could be developed to release funds for fertiliser units when import prices show volatility. The task force would have representatives from the Ministries of Commerce,

Petroleum, Fertilisers and Finance.

- **Strengths:** This alternative strongly contributes to the expected impacts related to price hikes in the input costs of the natural gas/naphta imports. It will act as a buffer against the volatility in the international market for the crude imports availability.
- **Weaknesses:** The main weakness of this alternative is that it may take a long time to materialise. Besides, the volatility in the market will make it difficult to administer the frequent fluctuations. It may also be the most costly alternative for the government in the short term. The government has already announced a Gas Price Pooling w.e.f 01 July 2017 to incentivise urea production at healthy energy efficiency and may wait for its response.
- **Administrative Feasibility:** Ministry of Fertilisers has a division that works with administered prices. The cost cell in Ministry of Corporate Affairs can also be entrusted with the task to examine the same.
- **Social Acceptability:** This is the alternative with highest social acceptability. The fertiliser manufacturers concern about the price of inputs of mainly natural gas/naphta, as they have no control over their import prices. They will be encouraged to modernise their plants and through volumetric sales improve their profitability once their input prices are within their control.
- **Alternative-6: Hybrid model alternatives combination.** Considering the institutional constraints, cost effectiveness in implementation, as well as social acceptability and political feasibility, it is proposed that a combination of appropriate alternatives be pursued simultaneously or in a phased manner. Alternative-3 can be Concurrently pilot tested and its results are evaluated which may then be considered for upscaling and continuing Alternative-1 till the results of pilot test are analysed. Alternative-4 for the development and establishment of productivity assessment system may be initiated and Alternative-5 for earmarking of funds for the stabilisation fund can be initiated.

6. Policy Recommendations

6.1 Methodology for Evaluation Criteria for Recommending Alternatives

The evaluation criteria for assessing the sustainability and improvability¹⁷ of the provided policy alternatives are determined considering the economic justifiability, socially equity, technical/administrative feasibility and environmental soundness. They are evaluated based on the recommendations of experts and relevance to the Indian context. They have been chosen to stand the test of cost effectiveness and efficiency, equitable with great social and

¹⁷ Eugene Bardach, *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving*, 3rd ed. (Washington, D.C.: CQ Press, 2009).

political acceptability and feasibility. These have been studied in the Evaluation Criteria and Measurement along with Scale for Evaluation of Alternatives (Annexure-6). The Relative Importance of Evaluation Criteria along with the assigned weightages has been shown in Annexure-7.

It is imperative to evaluate each alternative based on the likelihood that each one will achieve policy objectives and desired impacts that are outlined above. The tool used in order to assess the extent of the contribution is the Goal (and Objective) Alternative Matrix (GAM), shown in Annexure-9. Each alternative was graded on a scale of 1 to 100, in their contribution to each objective (1 Minimum – 100 Maximum). Each objective was given maximum of possible points: 50% for objective 1, 30% for objective 2 and 20% for objective 3. Each objective relates to one of the components of reducing the cost of fertiliser subsidy and is driven by economic considerations; hence their weighted importance for achieving the goal is similar.

- **Cost Efficiency:** The analyst gave this criteria higher weight (30), because in this fertiliser subsidy case it is the cost to the central exchequer which will determine the future sustainability of investments in the agriculture sector.
- **Effectiveness:** Cost-benefit analysis conducted by experts showed that the effectiveness of the delivery is very important for the success of any scheme. Accordingly, a weightage of 30 has been assigned.
- **Equity:** The small and marginal farmers are the most affected groups. The targeting has to address their specific requirements for fertilisers to improve productivity and their income. Thus, a weight of 15 has been assigned to this criterion.
- **Administrative Feasibility:** The ease of administering for speedy delivery is important. It should be possible to monitor easily. This has been assigned a weightage of 15.
- **Social Acceptability and Political Feasibility:** In this case, it is also important to evaluate the extent to which the public will accept and support a policy proposal. In order to evaluate this, the analyst used the political maps portrayed in Annexure-10, which show the attitude of each stakeholder towards a given alternative. This has been given a weightage of 10.

6.2 Recommendations and Description of Preferred Alternative

On the basis of Goal (and Objective) Alternative Matrix (GAM) and Criteria Alternative Matrix (CAM) given as Annexure-8, Policy Alternative-6 is the most preferred alternative. Though Alternative-2 also seems good but due to very low political feasibility and poor social acceptability, it cannot be considered as a feasible alternative. The Alternative-6 comprises of combination of Alternatives-1, 3, 4 and 5 where in status quo is to be maintained with concurrent activities of conducting pilot testing of Alternative-3 before upscaling the same. In parallel, the productivity audit and assessment of manufacturing plants would be undertaken (Alternative-4) to

enhance the plant productivity. Simultaneously, the stabilisation fund (Alternative-5) would be established after the competent approval.

The Alternative-6, i.e., combination of Alternatives-1, 3, 4 and 5, is the least complicated to implement, as it does not require the simultaneous implementation of measures by different components at the lower levels. It is easier to control the administered mechanisms than make alterations and provisions of separate delivery mechanisms. The government has enough institutions and funds to carry it out. On the positive side, Alternative-6 has the highest contribution towards the policy objectives and the highest degree of social acceptability compared to all the other alternatives, as it balances the interests of different stakeholders.

6.3 Outline of Implementation Strategy

Regarding the policy implementation, it is necessary to take the following factors in mind.

- **Constituency Building**

Given that the Fertiliser Manufacturers Associations and the cooperatives are with high disruptive boycotting ability, they may view the limits on subsidy allocations adversely, as they might perceive that it will affect their profitability in future. Hence, it is necessary to design and implement a very careful consensus building strategy based on sharing objective benchmarking in the sector that includes following points:

- Find through a search conference a common ground among the various stakeholders that will brainstorm the implementation of the Alternatives- 3 and 4. The agriculture economists, public finance experts, fertiliser manufacturers and the farmers associations will probably be good initial allies. The policy needs to be approved in the Union Cabinet, so support from them will be necessary.
- Inform the media about the policy options thoroughly and gain support of key journalists for chosen alternative.
- Once the alternative is approved, it is necessary to create and distribute an understandable message for the public, to show the long term benefits that this policy brings for all members of the farming community.
- Give the fertiliser industry ample time to make necessary production capacity changes.
- Create a clear message for the farmers to optimise the use of nitrogenous fertilisers balanced with organic fertilisers not only about controlling the cost of fertiliser inputs but also in terms of long term sustainability of their farm soils balance. Ensuring certain visible services for farmers will increase acceptability akin to the gas cylinder subsidy surrender campaign.
- The fertiliser industry needs to be committed to increase the volume of

production and pass on the benefits to the farmers by reducing their own costs and streamlining operations. Throughout the first few months of implementation, there needs to be communication about steps being taken for improving the productivity besides production capacities.

- **Organisational Design**

Given the large number of organisations in the sector, there needs to be one coordinating institution. Stakeholder Participation Strategy has been illustrated in Annexure-11. The Finance Ministry has the legitimacy to take on this role, as planning and earmarking outlays are now its mandate.

The executing agencies for each part of the policy should be:

- Linking productivity assessment of fertiliser manufacturing unit for determination of cost of production and increasing production capabilities: Ministry of Chemicals and Fertilisers.
 - Improving delivery of fertilisers to the farmers with DBT and Soil Health Report Card: POS and Cooperatives.
 - Improving services to the community, through extension and training services: Ministry of Agriculture.
 - Setting a monitoring mechanism for classification of farmers based on land holding and enforcement of distribution to eliminate wastages or leakages: State governments.
 - Coordination of taskforce to improve fertiliser availability: NITI Aayog's DMEO unit.
 - Monitoring, evaluation and communication of results: Ministry of Chemicals and Fertilisers.
- **Mobilisation of Resources**

Many of the resources to implement this policy will come from the central government's budgetary resources.

- iv) **Timeline for Implementation**

Various activities and the timeline for the suggested alternative are tabulated below.

| Timeline for Implementation | |
|---|----------------------|
| Activity | Time Schedule |
| 1. Search Conference. | 3 months |
| 2. Piloting Aadhaar based DBT linking with Soil Health Report Card. | 1 year |
| 3. Evaluation of study of results. | 6 months |
| 4. If results are favourable, upscaling up to all India level. | 2 year |
| 5. Stabilisation fund creation modalities including task force creation after cabinet approval. | 6 months |
| 6. Supplementary funds provisioning before budget. | 9 months |
| 7. Releasing of funds by task force. | 6 months |
| 8. Productivity audits and assessment of fertiliser manufacturing unit for determination of cost of production. | 1 year |
| 9. Adoption of MFCA & lean manufacturing to improve the efficiency of manufacturing processes. | 2 years |
| 10. Feedback, field survey and evaluation studies from stakeholders and necessary corrective actions. | 1 year |

Table-3 : Timeline for implementation.

6.4 Monitoring and Evaluation

It is necessary that the contribution of the policy to the proposed goals and objectives is constantly monitored and evaluated. It is necessary to establish a credible web-enabled system to monitor implementation of the indicators developed on a monthly basis with progress reports review for taking mid-course corrections regarding discrepancies. After implementation for a year, an evaluation of cost-benefit study would be conducted for the purpose. Through consultative meetings further streamlining of procedures would be done.

Moreover, an M&E system will also allow the stakeholders to take the corrective measures.

6.5 Limitations, Risks and Unanticipated Consequences

One of the biggest limitations of this strategy is that the continued social support for the policy depends on the efficient use of additional tax resources, and delivery of the subsidy regime. Any deterioration in the present quality of administering subsidies for the farmer who at present is shielded from any changes will have an adverse effect on the credibility of the government.

7. Conclusions

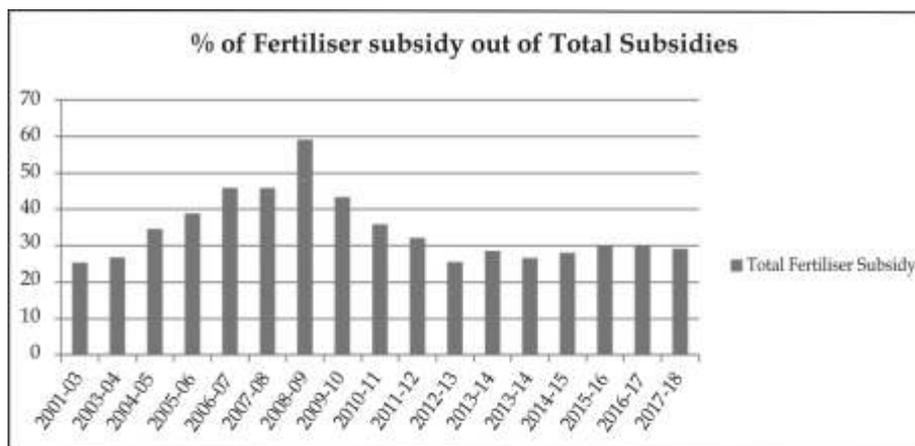
The fertiliser subsidy regime is extensive but with no uniform policy. Different policies are followed for different types of fertilisers. There have been certain improvements made in the subsidy regime due to which the subsidy burden of P&K fertilisers has decreased. As far as urea is concerned, the subsidy burden continues to increase while there is no significant increase in production. In order to reduce the subsidy burden, it is crucial to introduce productivity assessment and adoption of MFCA & lean manufacturing in manufacturing units besides increasing the capacity of indigenous production.

The recommended alternative is simpler and more pragmatic to implement. DBT linking with soil health card will help to bring soil health in focus and curb any pilferages and leakages in the subsidy reimbursement process, as every sale made will be recorded in the POS machine which in turn will make sure the manufacturer will receive the subsidy timely and ensuring that the fertiliser is received by the farmer himself.

It requires broad consensus and information sharing so that all the stakeholders are in the knowledge of the progress and do not perceive the steps as reform by stealth. Continued public policy dialogue in the public domain is likely to inform all the stakeholders about their perceived roles and they can tighten their belts before any of the measures are put into effect. They will be adequately tuned for making adjustments in their business and action plans. This will increase the acceptability and will enhance the ease of implementation.

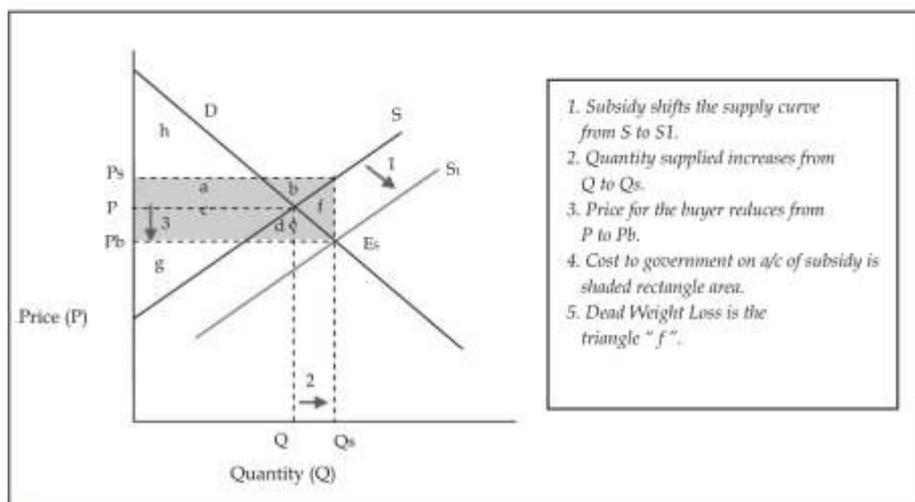
Annexure-1

Share of Fertiliser Subsidy in Total Subsidy in India

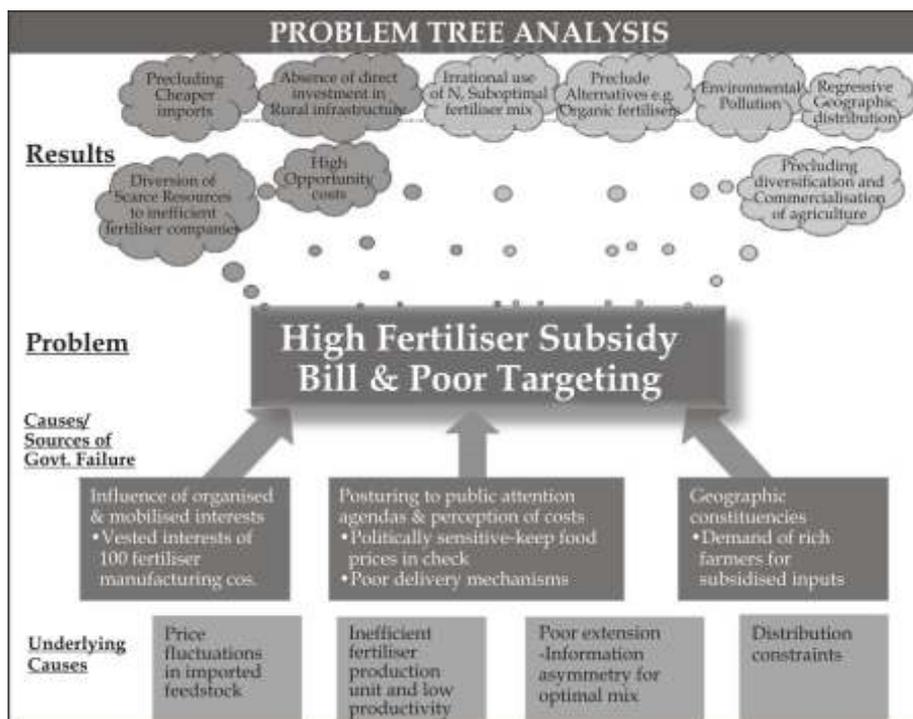


Source: (i) Subsidy data: Annex 3.1 of Expenditure Budget Volume-I of Union Budget 2014-15, page 145. (ii) GDP-Market Prices-CSO and for 2013-14 Budget at a glance of Union Budget 2014-15 [13.4% nominal growth over advance estimates of 2013-14].

Social Welfare Analysis of Subsidy



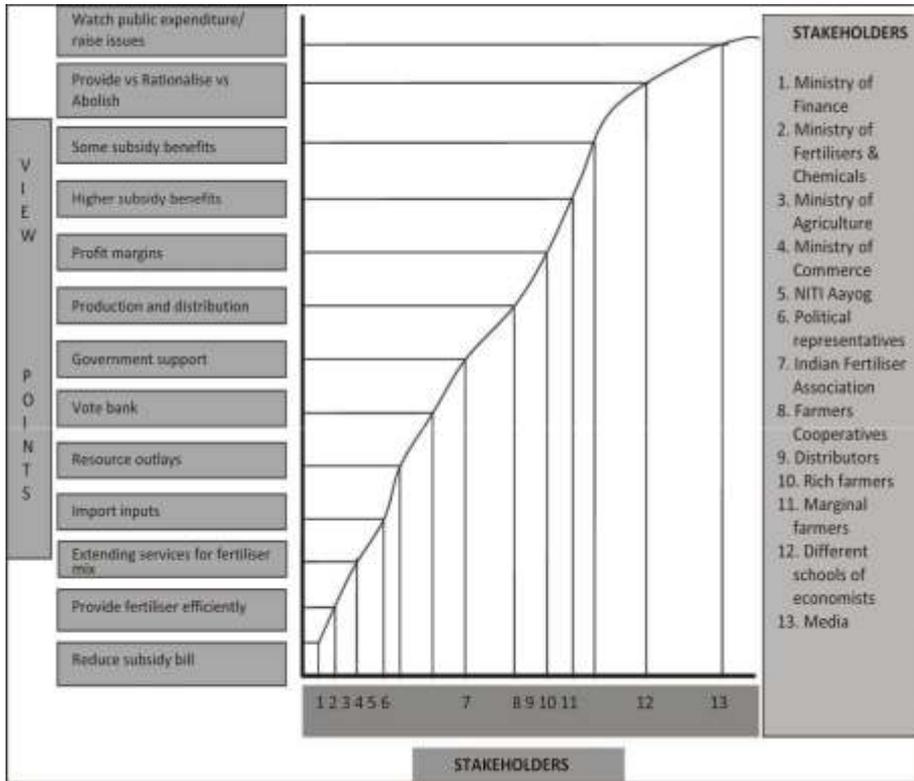
Annexure-2 Problem Tree Analysis for High Fertiliser Subsidy Bill in India



SWOT Analysis of Fertiliser Subsidy

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> Encouraged private investment in fertiliser industry. Subsidy has been regarded as the main factor for stimulating fertiliser production and consumption. Adequate fertiliser supply for agricultural purposes at reasonable prices. | <ul style="list-style-type: none"> Subsidy burden on the exchequer (Government of India) consistently going up. While the farmer enjoys the subsidised product, it is really the manufacturer who is subsidised. Leakages and misuse of urea adds burdens on subsidy. Subsidy not reaching to targeted farmers. Production inefficiencies of manufacturer are not accounted for while fixing cost of production. |
| Opportunities | Threats |
| <ul style="list-style-type: none"> Promoting fertiliser usage for doubling farmer's income. Higher capacity utilisation of existing units or by creation of new capacities. Focus on Make in India for better productivity. | <ul style="list-style-type: none"> If the price is decontrolled there will be significant drop in consumption. Resistance for withdrawal of subsidy by rich farmers and political parties. |

Annexure 3 Boundary Analysis For Reducing Fertiliser Subsidy Bill in India



Annexure 4 Interested Parties Analysis (Power Interest Matrix)

| | | | |
|-------|------|---|---|
| POWER | HIGH | <ul style="list-style-type: none"> ▪ State Governments ▪ Media ▪ Agricultural economists | <ul style="list-style-type: none"> ▪ Central Government – Ministries of Chemicals & Fertilisers, Agriculture, and Finance, NITI Aayog ▪ Fertiliser manufacturing companies and their associations ▪ Co-operative federations ▪ Rich farmers |
| | LOW | <ul style="list-style-type: none"> ▪ Small and marginal farmers ▪ Ministry of Environment & Forest ▪ Scientists, agricultural institutes | <ul style="list-style-type: none"> ▪ Finance Commission ▪ Tariff Commission |
| | | LOW | HIGH |
| | | INTEREST | |

Key Stakeholders:
1. Central Government – Ministries of Chemicals & Fertilisers, Agriculture and Finance.

Beneficiaries:
1. Fertiliser Manufacturing companies and their associations.
2. Co-operative federations.
3. Rich farmers.
4. Small and marginal farmers.

Other Interested parties:
1. State governments.
2. Agricultural economists.
3. Ministry of Environment & Forest.
4. Scientists, agricultural institutes.
5. Finance Commission.
6. Tariff Commission.
7. Media.

Annexure 5

Stakeholders Table of Power and Interests

| Stakeholder | Description | Position | Interests | Resources |
|---|---|---|---|---|
| | Key Stakeholders | | | |
| 1. Government- Ministries of Fertilisers, Agriculture and Finance | Makes a decision about long-term policies for sustainable fertiliser as well as farmers welfare. Has the budgetary resource | Reaches consensus over sustainable fertiliser subsidy use | Different stakeholders' interests should be incorporated into the policies, in order to increase its implementation effectiveness and decrease social tension | Power to plan and dictate the requirements by imports |
| 2. Fertiliser manufacturing companies | Make the investment decisions Determine the production levels | Improve funding from government for plant modernisation | Maximise profits | Power to establish new plants |
| 3. Cooperative federations | Maximise profits along with increased membership of farmers | Identify a revenue maximising model | Maximise benefit of the farmers who are the beneficiaries | - Political power - Support from farmers |
| 4. Local rich farmers | Highly unionised and organised civil society | Increase their share of the economic benefits from subsidised inputs and guard turf | - Large resources - Improve quality of life and income levels through gaining access to subsidised inputs | - Social power - Large access to political positions and/or current politicians - High mobilisation ability |
| 5. Poor farmers | Disorganised | Increase their share of the economic benefits | Improve quality of life and income levels | - Social power due to ability to mobilize and protest - Political power |
| | Other Interested Parties | | | |
| 6. Other Interested Parties | Implementation on ground level | Look to central government for support | Popularity, support for national political agenda | Political power |
| 7. Ministry of Environment | Mandates to ensure environmental considerations are included in the policies | Ensures sustainable development of the norms for soil and water pollution | Coordination across sectors to reach environmental conservation goals | Limited national political power |
| 8. Scientists, agricultural institutes | Provide policy support through evidence based practice | Objective advice | Coordination across various departments for lab to land dissemination | Advisory role |
| 9. Finance Commission | Advices the government on pricing fertilisers based on feedstock | Recommendatory power for policy change | Receives feedback from various stakeholders | Advisory role to support decision making |
| 10. Tariff Commission | Assesses the cost of cultivation of various crops | Powers of influencing costs for setting remunerative prices | Objective criteria for agricultural production | Advisory role |
| 11. Agricultural economists | Influence policy makers | Do research to support policy | Can take feedback from various quarters | Advisory role |
| 12. International fertiliser suppliers | Interested in maximising profits with respect to international price fluctuations | Would try to maximise profits | Try to explore opportunities for selling products at profits | Can influence to a limited extent |
| 13. Media | Position advocacy | May take stand as per situation | Highlight malfeasance | Can influence public opinion |

Annexure 8

Criteria Alternative Matrix

| Criteria/ policy alternatives | Cost efficiency | Effectiveness | Equity | Administrati ve feasibility | Political total feasibility score andsocial acceptability | Rank |
|---|--------------------|---------------|--------|--------------------------------|--|----------|
| Weight | 30 | 30 | 15 | 15 | 10 100 | |
| Alt-1 Status quo | 60 | 60 | 30 | 30 | 30 210 | 4 |
| Alt-2 Abolish subsidy | 90 | 60 | 15 | 15 | 0 180 | 6 |
| Alt-3 Introduce classification of farmers based on land holding and target poor farmers through Aadhaar linked DBT with Soil Health Report Card | 90 | 90 | 45 | 45 | 10 280 | 3 |
| Alt-4 Linking productivity assessment of fertiliser manufacturing unit for determination of cost of production | 120 | 90 | 30 | 45 | 20 305 | 2 |
| Alt-5 Stabilisation fund and task force | 60 | 60 | 30 | 30 | 10 190 | 5 |
| Alt-6 Hybrid model | 120 | 120 | 30 | 30 | 10 310 | 1 |

Annexure 9

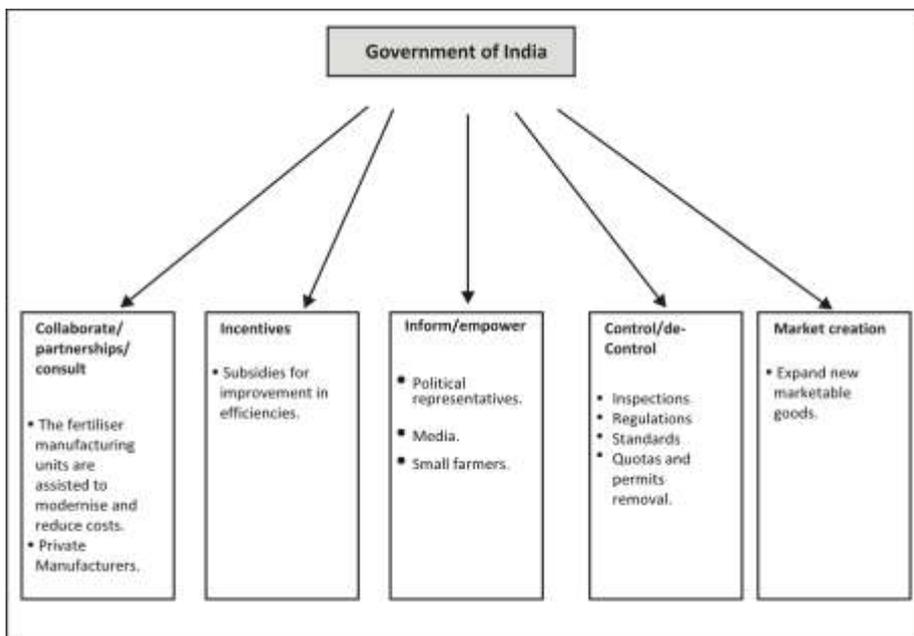
Goal and (Objective) Alternative Matrix (GAM)

| Alternative/Goal/ Objective | Policy Goal | Objective-1 | Objective-2 | Objective-3 |
|---|-------------|---|---|---|
| | | Reduce the fertiliser subsidy bill in order to ensure increased outlays for making direct investments in agriculture to ensure high and sustainable levels of agricultural growth | To streamline the Administrative subsidy distribution mechanism so as to improve the marginal efficiency of fertiliser use by increasing targeting to the poor farmers and neglected areas by 10% by 2019 | Encourage optimality of fertiliser-mix use through agricultural extension phased from 20% in 2019 to 100% by 2022 |
| Alt-1 Status quo | ⊕ | ⊕ | ⊕ | ⊕ |
| Alt-2 Abolish subsidy | ● | ⊕ | ● | ⊕ |
| Alt-3 Introduce classification of farmers based on land holding and target poor farmers through Aadhaar linked DBT with Soil Health Report Card | ⊕ | ⊕ | ⊕ | ● |
| Alt-4 Linking productivity assessment of fertiliser manufacturing unit for determination of cost of production | ⊕ | ⊕ | ⊕ | ● |
| Alt-5 Stabilisation fund and task force | ⊕ | ⊕ | ⊕ | ● |
| Alt-6 Hybrid model | ⊕ | ⊕ | ● | ● |
| Very Low ⊕ Low ⊕ Average ⊕ High ⊕ Very High ● | | | | |

Annexure 10 Political Map

| | Opposition Sectors | | Support Sectors | | | Opposition Sectors | |
|-------------------|---|------------------|---|--------------|---------------------|--------------------|-------------|
| External Actors | | | | World Bank | IMF | | |
| Sector Position | Anti-system | Legal Opposition | Ideological Support | Core Support | Ideological Support | Legal Opposition | Anti-system |
| | | | Ministry of Fertiliser and Chemicals Ministry of Agriculture | | | | |
| Political Parties | UPA Allies TMC CPIM | | BJP & NDA Allies | | | | |
| Pressure Groups | Fertiliser Manufacturers' Association of India | | Confederati on of Indian Industry and ASSOCHAM | | | | |

Annexure 11 Stakeholder Participation Strategy



Bibliography

Books, Journal, Conference papers, News articles, Internet/Web sources:

- Acharya, S. S., and D. P. Chaudhri (2001) *Indian Agricultural Policy at the Crossroads: Priorities and Agenda*. Jaipur: Rawat Publications.
- Ahuja, Astha (2006) *Agriculture and Rural Development in India: Post-Liberalisation Initiatives*. New Delhi: New Century Publications.
- Ballabh, Vishwa, (2007)Institute of Rural Management (Anand India), Switzerland. Direktion fur Entwicklungszusammenarbeit und HumanitareHilfe., Sir Dorabji Tata Trust., and Sir Ratan Tata Trust. *Institutional Alternatives and Governance of Agriculture*. New Delhi: Academic Foundation.
- Bank, World (2009) *Malawi, Fertiliser Subsidies and the World Bank*: World Bank.
- Bardach, Eugene. (2009) *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving*. 3rd ed. Washington, D.C.: CQ Press.
- Chander, Satish(2008) "Evolution of Fertiliser Subsidy Scheme in India." In *IFA Crossroads Asia Pacific*. Melbourne, Australia: IFA.
- Debroy, Bibek, Amir Ullah Khan,(2004) *International Development Enterprises (India), and India Development Foundation. Integrating the Rural Poor into Markets*. New Delhi: Academic Foundation published in association with India Development Foundation (IDF) and International Development Enterprises, India.
- Fertilisers, Department of.(2009) *Annual Report 2008-09*. 1 vols. New Delhi: Ministry of Chemicals & Fertilisers, Government of India.
- Gulati, Ashok, and Sudha Narayanan (2003). *The Subsidy Syndrome in Indian Agriculture*. New Delhi: Oxford University Press.
- Guruswamy, Mohan, Uma Natrajan, ShagunKhare, and Centre for Policy Alternatives (New Delhi India), (2008), *The Crisis in Indian Agriculture: A Critical Study*. New Delhi: Published for Centre for Policy Alternatives by Hope India Publications, Gurgaon.
- Isaac Minde, T.S. Jayne, Eric Crawford, Joshua Ariga, and Jones Govereh. (2008) "Promoting Fertilizer Use in Africa: Current Issues and Empirical Evidence from Malawi, Zambia, and Kenya."
- Kalirajan, K. P., G. Mythili, and U. Sankar, (2001) *Accelerating Growth through Globalization of Indian Agriculture*. Delhi: Macmillan India.
- Kaushik, Viren."FertiliserSubsidyDemystified."BusinessLine,TheHindu, <http://www.thehindubusinessline.com/2004/09/01/stories/2004090100021100.htm>.
- Pandey, L.M., and Ramesh Chand. "Fertiliser Growth, Imbalances and Subsidies: Trends and Implications." National Centre for Agricultural Economics and Policy Research <http://mar.sagepub.com/cgi/content/abstract/3/4/409>.
- Pandeya, Radhika, and Pallavi Singh, (2009), "Nutrient-Based Fertilizer Subsidy Will Benefit Farmers Directly." liveMint.com & Wall Street Journal, 12.07.2009.

- Rao, Govinda M, (2009), Tight Rope Walk for the Finance Minister, Business Standard: Business Standard.
- Roul, Chhabilendra, (2001) Bitter to Better Harvest: Post-Green Revolution: Agricultural and Marketing Strategy for India. New Delhi: Northern Book Centre.
- Service, News. "Fertiliser Subsidy Regime to Stay." <http://epaper.hindustantimes.com/default.aspx>.
- . "Pm Sets up Panel to Rationalise Fertiliser Subsidy." <http://www.encyclopedia.com/doc/1G1-163835127.html>.
- Sharma, Vijay P., and Hrima Thaker. "Fertiliser Subsidy in India: Who Are the Beneficiaries?" IIM, Ahmedabad, <http://econpapers.repec.org/paper/iimimawp/2009-07-01.htm>.
- Swaminathan, Monkombu Sambasivan, and National Academy of Agricultural Sciences, (2007) Agriculture Cannot Wait: New Horizons in Indian Agriculture. New Delhi: Academic Foundation.
- Taylor, John B, (2007), Principles of Micro economics. 5th ed. Boston, New York: Houghton Mifflin Company.
- Vibha, Sharma, (2009), "Fertiliser Subsidy Tops Farmers' Wish List." 2009.
- Vinayak Reddy, A., and M. YadagiraCharyulu, (2008), Indian Agriculture: Challenges of Globalisation. New Delhi: New Century Publications.
- Weimer, David Leo, and Aidan R. Vining, (2005), Policy Analysis: Concepts and Practice. 4th ed. Upper Saddle River, N.J.: Prentice Hall.
- RakeshKapur, IFFCO & Chairman, Fertiliser Association of India, India (2016), Fertilizer Market in India
- Other reference materials
- DR. P. MALA, January (2013), Fertilizer Scenario in India
- Vijay Paul Sharma, HrimaThaker, February 2010, Economic Policy Reforms and Indian Fertilizer Industry
- IFA Annual Conference Marrakech (Morocco), May 2017, Fertilizer Outlook 2017-2021
- Indian Journal of Fertilisers, June 2015 & September 2016
- Fertiliser Association of India, (2011), Fertilizer Statistics 2011-11
- Care Ratings 2017, Indian Fertilizer Industry: Insights and Prospects
- IDFC/FAI report 2017, Fertilizer Subsidies -which way forward?
- Swanitiinitian, 2017, Fertilizer Subsidy: A Brief Profile
- Department of Fertilizers, Ministry of Chemicals and Fertilizers Government of India (2016), Indian Fertilizer Scenario 2015



Options for Health System Organization in Indian States: The Key to Improving System Efficiency

Rakesh Sarwal, Principal Secretary, Planning and Coordination
Government of Tripura

Summary

Despite considerable advances, there is enough evidence to show that when compared to similarly placed countries, India's health system is under-performing. It is also widely accepted that weak health system organizations are responsible for the same. I argue that health system organization bodies at the Centre and State levels are the principal bottleneck in adequate health service delivery; however, considerable efficiency gains can be accrued if these organizations are modeled for key pillars of health system, on corporate lines, being provided the operational authority with clear domains of responsibility. Some concrete suggestions in this regard are placed.

1. How is Health Sector Performing in India?

How is India performing in the health sector compared to its global peers? One suitable indicator to answer this question would be the life expectancy at birth, which is the average number of years a newborn would be expected to live if health and living conditions at the time of its birth remained the same throughout its life. Life expectancy at birth is the only health indicator in the Human Development Index (HDI) that is published every year since 1990 by the United Nations Development Programme (UNDP). With a life expectancy of 68.3 years at birth, and a healthy life expectancy of 59.6, India ranks 126 among countries globally. This is close to its global ranking of 128 based on the per capita income of \$6,300. Despite improvements in absolute terms, our global ranking in terms of life expectancy has fallen since 1970s and 1980s when we were ranked 124th. Other similarly placed countries have overtaken us in life expectancy and global rankings. Vietnam since 1980, Indonesia since 1990, Bangladesh since 2000, Nepal and Bhutan since 2010 and Cambodia since 2015 have reported better life expectancy than India (see Table-1). India's rank in HDI was 131 in 2015. In terms of Millennium Development Goals, even though considerable progress has been achieved in absolute terms, our performance in health indicators of hunger (MDG-1, Indicator-2), reducing child mortality (MDG-4), improving maternal health (MDG-5), curbing the cases of malaria and TB (MDG-6) has been relatively poor. This is in contrast to the performance on income (MDG-1) related indicator, where we have reduced poverty considerably [MoSPI 2014]. These indicators along with

others like non-communicable diseases also appear in the Sustainable Development Goals (SDG). We must find ways to achieve them by 2030.

Table-1: Life Expectancy at Birth in India and Comparable Countries since 1970.

| Country | 1970 | 1980 | 1990 | 2000 | 2010 | 2015 |
|------------|------------|-------------|-------------|-------------|-------------|--------------|
| Sri Lanka | 64.9 (61) | 68.0 (60) | 70.1 (62) | 71.5 (74) | 74.5 (62) | 74.9 (70) |
| Malaysia | 61.6 (76) | 66.9 (68) | 70.3 (60) | 72.4 (63) | 74.1 (67) | 75.0 (69) |
| Thailand | 59.7 (83) | 63.9 (85) | 67.0 (96) | 71.1 (79) | 73.9 (70) | 74.9 (71) |
| India | 49.3 (124) | 55.7 (124) | 59.7 (130) | 62.5 (128) | 66.4 (126) | 68.3 (126) |
| Vietnam | 49.4 (123) | *57.7 (116) | 65.9 (103) | 73.4 (46) | 75.2 (51) | 76.0 (56)* |
| Indonesia | 47.9 (132) | 54.8 (128) | *61.7 (122) | 66.3 (114) | 68.1 (118) | 69.1 (120)* |
| Bangladesh | 44.5 (144) | 48.8 (147) | 54.8 (146) | *65.3 (118) | 69.9 (106) | 71.8 (102)* |
| Nepal | 43 (152) | 48.4 (149) | 54.5 (151) | 62.5 (129) | *68 (119) | 69.2 (119)* |
| Cambodia | 42.4 (156) | 43.0 (166) | 54.9 (145) | 57.7 (142) | 66.5 (125) | *68.7 (123)* |
| Bhutan | 40.9 (159) | 46.7 (157) | 53.1 (154) | 60.2 (132) | *67.9 (120) | 69.8 (114)* |

Source: <http://www.worldlifeexpectancy.com/history-of-life-expectancy> accessed on 2017-09-19.

Often, factors like low overall spending, inadequate government resource allocation, paucity of doctors and health professionals are cited as the reasons for our sub-optimal health indicators. These may not be the real reasons, since the data in Table-2 below reveals that India has more health workers per capita than Sri Lanka, Thailand, Indonesia, Bhutan, Vietnam, Cambodia, Bangladesh and Nepal. Governments in Indonesia, Bangladesh, Nepal and Cambodia spend less on health facilities per capita than in India; and overall health spending per capita in Bangladesh, Nepal, Cambodia and Bhutan is less than that in India.

Table-2: Health Workers and Financing of Health Systems in India and Comparable Countries (2015).

| Country | Skilled Health Professionals Per 10,000 Population | Per Capita Government Health Expenditure (PPP US\$) | Per Capita Total Health Expenditure (PPP US\$) | Health System Rank (WHO, 2000) |
|------------|--|---|--|--------------------------------|
| Sri Lanka | 24.8 | 207 | 369 | 76 |
| Thailand | 24.7 | 467 | 600 | 47 |
| India | 27.5 | 80 | 267 | 112 |
| Vietnam | 24.1 | 211 | 390 | 160 |
| Indonesia | 15.7 | 11.3 | 299 | 92 |
| Bangladesh | 6 | 25 | 88 | 88 |
| Nepal | <6.0 | 55 | 137 | 150 |
| Cambodia | 11.2 | 40 | 183 | 174 |
| Bhutan | 13.4 | 206 | 281 | 124 |

Source: Global Health Expenditure database, accessed on 20.9.2017 from http://apps.who.int/nha/database/Key_Indicators/Index/en and World Health Report, 2000 [WHO 2000].

Thus, some countries are more efficient in transforming resources into health outcomes. This organization of “health systems” has been now acknowledged as the key factor in determining the efficiency of health outcomes. World Health Organization defines health systems as comprising of all the organizations, institutions and resources that are devoted to producing health actions. In a ranking of countries by their health systems in the year 2000, India was 112 [WHO 2000], both in terms of the number of health workers and government health expenditure.

I argue in this paper that the health system organization in India, both at the Centre and in States, is inflexible, unsuitable to the needs of rapidly changing environment and multiple challenges at hand, and can learn from corporate organizational structures.

2. Organizational Issues of Health System in India.

Even though the key subjects of hospitals, public health and sanitation fall in the State list, States follow the organizational structure of the Ministry of Health and Family Welfare. Unless otherwise delegated, subjects allocated are to be disposed of by, or under the general or special directions of, the Minister-in-charge. Secretaries are responsible for the proper transaction of business and the careful observance of these rules in the department [GoI 2017].

The Ministry/Department carries out the functions of policy making, funding and financial control, procurement, personnel management of cadre services, regulation, legislative role, vigilance, audit and public grievances, information and communication, as well as execution functions for institutions in its domain, i.e., hospitals, clinics, teaching institutes and public sector undertakings. The Ministry/Department directly implements numerous programs, provides technical support to the States. The Directorate General of Health Services (DGHS), an “*attached office*” of the Ministry, with its “*subordinate offices*” all over the country, renders technical advice and is involved in the implementation of various health schemes. All hospitals and central teaching institutes, except those established by legislation like AIIMS, are considered as subordinate offices of the DGHS [GoI 2017]. Taking the example of Tripura state, besides the Directorate of Health Services, there exist a Directorate of Medical Education, of Family Welfare and State Health and Family Welfare society with a Managing Director for the National Health Mission. Within the Ministry/Departments, administrative structures follow on the lines of programs and schemes, which are numerous and disease based.

The current health system organizational structure is associated with many issues. Just as health is multi-dimensional, delivery and management of health services are complex, as they depend on a large number of inputs, among

which human resource and supplies are of utmost importance at numerous points of delivery. The existing structure is centralized and it is fragmented into over a dozen programs categorized disease-wise; this leads to little correspondence between authority and accountability. For instance, no single department of the government is assigned the business of increasing life expectancy. There is a conflict of interest between the oversight and implementation roles of the Ministry/Department.

Existing organizations in the health sector have grown over traditional bureaucracies, often creating overlapping domains with little regard for the patient. For example, a patient being attended to in a primary health centre would receive treatment from a doctor whose cadre control is with the Director of Health Services, the salary of this doctor is drawn and paid by the Director of Family Welfare, who also supplies some of the medicines and incentives for performance provided by NHM. No single agency is either responsible for or has total control on the organizational structure or performance of the PHC. It is therefore of no surprise that neither the full range of services provided in the Indian public health standards are made available, nor monitored by the authorities.

We cannot imagine a bank in which cash, the main product, is perpetually not available or in short supply. By contrast, in public health clinics, non-availability of medicines and diagnostics is endemic, yet widely accepted. Over two third of out of pocket expenditure of households is on medicines, an indicator of their widespread non-availability in public health system [NSSO 2016]. Often, procurement bottlenecks, rather than financial constraints, lie at the root of stock-outs.

Since health organizations are organized along disease lines, they are largely guided by clinicians with expertise in that clinical domain, rather than managers. The current system leads to sub-optimal performance in most aspects of its functioning-regulation, service delivery, financial protection, quality, consumer satisfaction and responsiveness.

Despite considerable expansion in privately available health services and popularity of insurance as a financing mechanism, we stand committed to the public provision of health services. There is merit in public provision of health services because they cost one fourth of the private provision on an average [NSSO 2016].

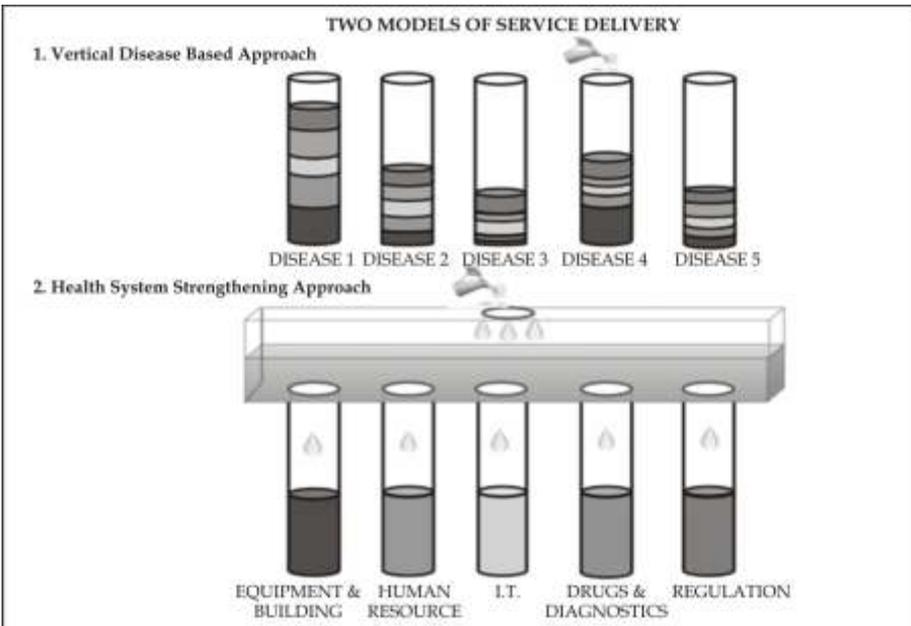
A realization of the rigidities of the system leads to the birth of National Rural Health Mission (NRHM) in 2005, which provided flexibility of spending beyond treasury constraints, managerial control of programs and convergence of schemes. But instead of reforming existing systems, the NRHM created

parallel structures at all levels of the health system, with easy access to funds parked in banks. While this strategy has worked in providing some acceleration to the improvement in health indicators, it has reached a plateau and has done little to reform the underlying health system. The inability to spend allotted amounts is widespread in the National Rural Health Mission societies. Financial irregularities in the spending of NRHM funds have been frequent subjects of audit by the CAG.

3. Options for Health System Organizations

There are only a handful of elements in the health systems, which are at the core of every program or scheme. The have also been identified by WHO as the six building blocks [WHO 2007]: health services, health workforce, information of medical products, vaccines and technologies, health financing and leadership and governance. The report of the Steering Committee for the 12th Five Year Plan [PC 2012] is build on these blocks, calling the pillars, by adding regulation, public health and responsiveness.

We can consider service delivery as a vertical for each disease, or else as a combination of assortment of system inputs (see the figure below). The advantage with the second approach is that the system elements are fewer, immutable, cross-cutting and help focus on the essentials. A health system organization based on the elements of health system is therefore likely to be more efficient, productive and cost-saving.



The second Administrative Reforms Commission (ARC) has recommended the separation of policy and implementation along with the restructuring of implementing agencies with greater operational autonomy and flexibility, as also making them accountable [DARPG 2009]. Nowhere is this more required than in the health sector due to paramount role of government, entitlement of citizens to assured services and existence of information asymmetry between the provider and the patient. Hence, efficient models of service delivery must be explored.

What can the health organizational structure learn from the corporate world? Successful organizational systems are characterized by their simplicity, flexibility, reliability, economy and acceptability [Johnson et al. 1963]. One preferred design is matrix structure that adheres employees by both function and project. The purpose of the matrix structure is to maximize the use of cross-functional teams to get work done.

With the above analysis, presented below are some options for restructuring our health system organizations at the Centre and States.

Hiving off all functions other than of governance and policy making into agencies with clear mandate and authority. If these implementing agencies are to be retained as a part of the Ministry/Department, they can be formed as specialized units; the subjects to be assigned to these units should be on health system lines, as procurement and logistics, information systems, human resources, financing, regulation, public health and health services.

Else, and even more advisable would be to hive off service delivery, enforcement tasks to be separate entities at an arm's length from the Ministry/Department. These bodies may be organized as corporate entities or as trusts, and given clear goals and performance targets. Governance, oversight and policy making can be institutionalized into management boards, which can have nominees from the Ministry/Department. The structure would work like a modern corporation, with clear separation of roles between Chairman and Managing Director. The board, headed by chairman, will play a supervisory role about the decisions taken by the managing director led management. Yeshasvini Trust in Karnataka and Arogyasri Trust in Andhra Pradesh are the examples of modern, professional, multi-dimensional special purpose organizations that are able to achieve high quality outputs by virtue of autonomy provided to them. The Directorates of Health at the Centre

and the States need to be transformed into such trusts and be given specific, measurable goals, which then ought to be measured and performance incentivized.

References

DARPG (2009). *Second Administrative Reforms Commission Thirteenth Report: Organisational Structure of Government of India.*

GoI (2017). *Government of India Transaction of Business Rules.*

MoSPI (2014). *MILLENNIUM DEVELOPMENT GOALS INDIA COUNTRY REPORT 2014.*

NSSO (2016). *Health in India.*

PC (2012). *Report of the Steering Committee on Health for 12th Five year plan.*

WHO (2000). *The World Health Report 2000 Health Systems: Improving Performance.*

WHO (2007). *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes – WHO's Framework for Action.*



Economic wellness and behavioral application: The relevance of behavioral economics in agricultural productivity - A comparative analysis and prescriptions

D. Manikandan, IAS, Secretary (IT), Government of Puducherry and
PhD Scholar (Applied Psychology-Behavioral Economics) in
Pondicherry University.

Economic wellness and behavioral application: The relevance of behavioral
economics in agricultural productivity - A comparative analysis and prescriptions

Agriculture is the major occupation in India. It constitutes for about 60% of the aggregate employment in our country. Increasing the agricultural income is one of the main focus areas of the government, and for that many interventions are being operational, including the credit support, technology adoption, marketing, infrastructure creation, etc., to name a few. There is an abuzz in the research activity in the field of behavioral economics, which provides many intriguing findings on the behavioral pattern of the individual due to the economic wellness and the poverty. Researchers have proved that the human behavior can be changed in desired direction and the public policies can be designed for better life of the citizens. Cognition process and mental state are found contributing to the economic development of individual life and vice versa. This article analyzes the application of behavioral economics in the agricultural productivity.

Behavioral Economics: An inter-disciplinary approach

In recent times, this area of study is gaining interest among scholars. The importance of this interdisciplinary study can be easily understood, as the honored Nobel Prize has been awarded to the experts in this field many a times. The recent Nobel Prize in economics to Prof. Richard H. Thaler for his contributions in the nudge concept is a feather to the already recognized area of public policy research.

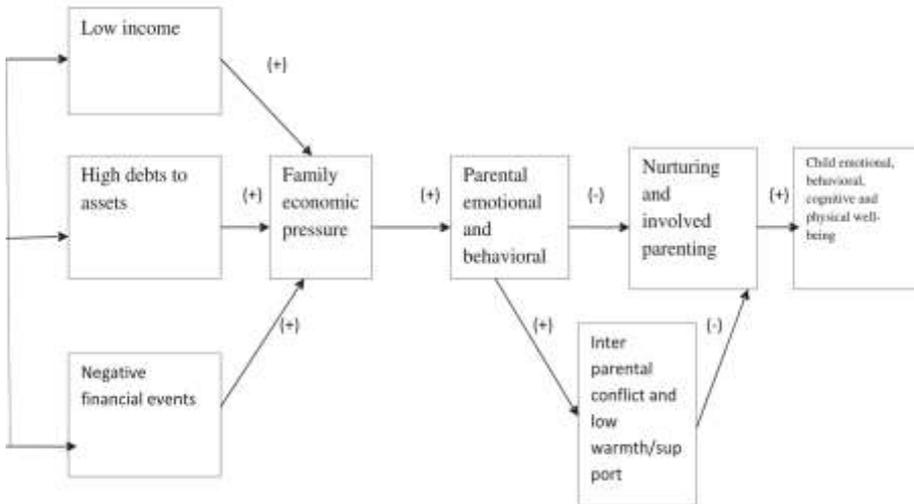
Behavioral economics (BE) applies the concepts and principles from psychology, sociology, anthropology, and the economics to arrive at and suggest more realistic models of how people think and make decisions related with socioeconomic profile. The behavioral economics differs with the

traditional concept of decision making of the human being who is economically rational-in other words, the human drives are based on rational thought but BE argues that the process of being human is not straight/rational and influenced by the framework in which the information is presented; previous encounters and schema formed, usage of hues and heuristics, as well as the cultural demands available persist before the decision making. Studies reveal that the thinking is not always a mere automatic cognition and many a time involves elaborative information processing activities. It is a complex phenomenon related with social process, mental model, etc. (Kahneman, 2003).

Supportive theoretical model on the relationship between the financial conditions and cognitive functioning

The family stress model of theory developed by Congers Elder in 1994 found that the economic conditions of the family have direct influence on the parental as well as the children’s mental well-being. The stress caused by the economic conditions according to this model will lead to the emotional non well-being, which will also affect their parenting style that in turn will have direct implications on both the physical and mental health well-being of the children.

Family stress model



Analysis of principles of behavioral economics through secondary Data

In order to analyze the relationship between behavior and economics, the following secondary data are taken into consideration in this paper. In this study, in pursuance of the principle of parsimony, the states for which the GSDP figures are available vis-à-vis to the prevalence rate of mental disorders are taken into consideration:

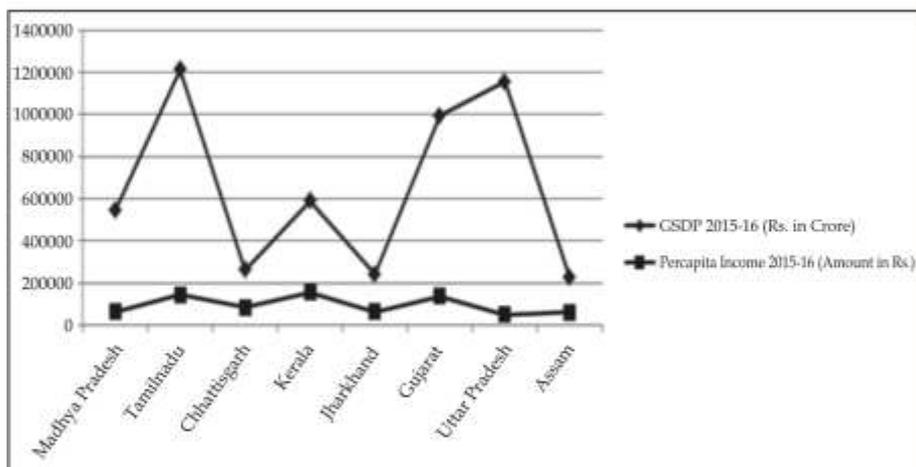
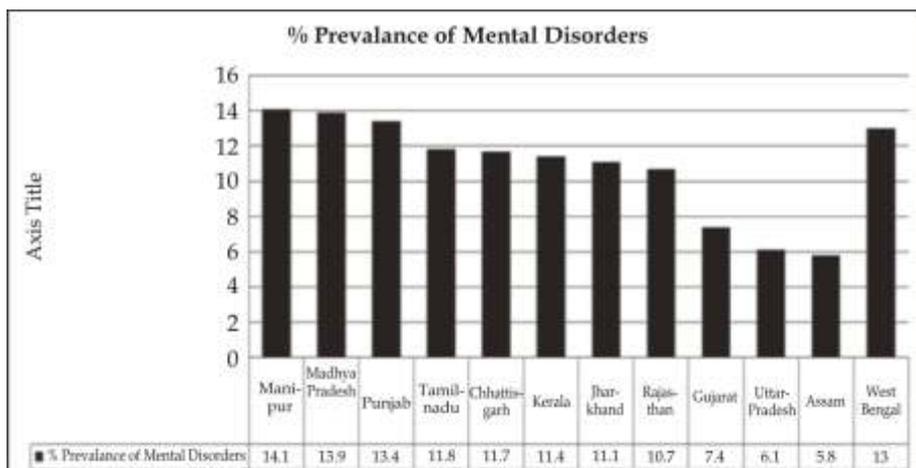
1. Mental disorder prevalence.
2. GSDP (as a measure of economic wellness) of the states to compare with prevalence of mental disorders.

Mental disorder prevalence

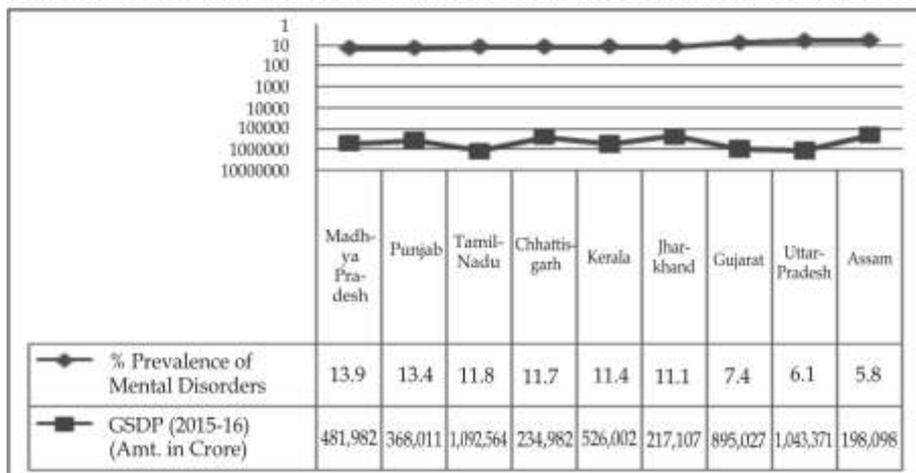
In a report by the World Health Organization titled “Depression and Other Mental Disorders-Global Health Estimates” published in 2017, it is found that the global population is affected by various mental health issues, particularly the depression which found 322 millions of people affected. Around 50% of this affected population is in developing nations such as India and China. With 5Crores affected, India among countries is worst hit by depression, which is highest in South East Asia and western pacific area. The total Years Lived with Disability (YLD) for depression is 7.1%. Suicide is among the top 20 causes of death and is found reported more from less and middle income nations, which implies that the mental health is related with economic development.

Mental health disorders prevalence in India and Mental Health Survey 2015–16

The National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore conducted a survey called the Mental Health Survey 2015–16 with the objective to find out the prevalence and incident rate of various mental health problems, availability of health services across the nation to address the mental issues, as well as the missing resources which are required to effectively deal with the mental health issues. The survey found that 15% of adults of age 18 years and above are in the essential requirement of intervention of mental health services and made out a case for closer inter-linkage between the mental health issues and the socio economic lives of the people. The data for both the GSDP and mental disorder prevalence are presented in the graphical mode below.



Comparison of mental disorder prevalence rate and the economic wellness of states



It is inferred from the analysis of secondary data above mentioned that the trends of the economic indicators and prevalence of mental disorders are found similar barring the extremes. In other words, the high income states like Tamil Nadu are reported to have more prevalence of mental disorders, whereas the lowest GSDP state in the above comparison (Assam) is reported to have least mental disorders. However, states like UP, Gujarat, and Chhattisgarh give the similar trends among the economic wellness and mental health. In other words, the extremes are not showing the relationship between the behavior and economics while the intermediaries show.

Relating BE concepts with agricultural production–hunger–poverty

There is a close relation among agricultural productions, hunger, and poverty. Enough agricultural produce is there in our country to make population hunger free. However, the large produce of agriculture and allied activities are also reportedly lost in both during harvest and postharvest period. The monetary value of the harvest and postharvest loss agricultural produce in India is estimated to be Rupees 93000 Crores (approx.) in 2011–12 by taking the wholesale price data as per the report of the CIPHET (Central Institute of Post-Harvest Engineering and Technology) of which the annual wastage of fruits and vegetable is itself estimated at Rupees 41000 Crores. This affects both the producer (farmer) and the consumer and has implications of poverty.

Poverty-Is it only material deprivation? New insights by BE and field experiments

Poverty is traditionally thought of caused by the absence of monetary wealth. But recent findings in the field of behavioral economics argue that poverty is also of cognitive resource depletion. The report titled “Mind, Society and Behavior” published by the World Bank in 2015 found that the economic wellness of a person affects his cognitive process. It says that poverty is not merely a state of material deprivation but also of “cognitive tax,” and there is a vicious cycle between economic decisions among choices and the resultant mental tax. This mental tax influences economic decision and causes perpetuation of poverty by three means:

- Poverty makes the individual concentrate on present demand at the cost of future requirement.
- Poverty generates poor framework of information/choices; hence, the poor sees through that limited framework of choices.

- Besides the nurturing or the environments in which the poor live also make additional cognitive demands and thereby further taxation.

Improved economic state and resultant cognitive taxing: A field experiment

Researches in the field of cognitive psychology and behavioral economics found that a supportive environment facilitates cognitive functioning. Such broad framework of environment also includes economic environment of a person, in other words the richness of a person. According to the World Development Report (WDR) 2015 of World Bank, there is a positive correlation between these two states. The report exhibits an experiment done on the sugarcane farmers in India, which showed that the sugarcane farmers who generally were not well off before harvest (the percentile of holding loan before harvest was estimated 99 against 13 after harvest, and the percentile of those who pawned some of their resources before harvest was 78 as against 4 after harvest) performed better in the tasks of mental tests that were designed for executive function and fluid intelligence, and the difference in the scores were found translated to approximately ten IQ points which are not generally attributed to other reasons; however, the economic wellness after harvest which enabled the farmers to perform better as their cognitive resources is efficiently deployed. The report found out that the economically well-off farmers were able to take better decisions of their livelihood, children's education, etc., and this has cross-cultural similarity (Mani and others, 2003).

The diminished executive functions are reportedly related to scarcity in economic resources (Shah, Mullainathan and Shafir, 2012). The brain drain concept (diminishing cognitive alertness due to demanding factors) was recently tested by the psychologists in an experiment in 2017 conducted at McCombs School of Business, University of Texas, Austin in which 800 participants discussed the presence of mobile phone and its influence on the mental tests used for concentration. It was found that the subjects whose phones were kept in another room were found performing better than those who had kept their mobiles on their desk or in a pocket or their bag. It was reported by the researchers that even thinking to not to think about the phones itself drains the cognitive resources and this causes the subjects to perform poorly in the mental tests designed for the concentration.

Similarly, certain behavior style is also found to have implications on the mental health balance of individuals including peasants. Behavioral factors are emerging as being important (about 52%), leading to suicidal death of

farmers. Depression was found prevalent in 26.24% of suicide victims of the study undertaken in Ananthpur District (Gyanmudra, 2010).

The close observation of these studies reveals that there exists relationship between economic well-being and mental health activities. The economic balance helps the individual to have focused decision-making on the life requirements. This economic wellness makes the conservation of psychological energy, i.e., cognition surplus is deployed by the individual for the developmental activities of life. Thus, the brain drain is prevented and the individual focuses more effectively on the life demands. This in turn causes the individual to augment the economic wealth.

Applying BE concepts in agriculture

Studies have found that like any other individual peasants also suffer from certain behavioral issues. In a study conducted by Gyanmudra about the profile of farmers in Ananthpur District, about 26% reportedly had depression and 17% were found suffering from alcoholism (Agrarian Crisis and Farmer Suicides, 2010). Similarly, other behavioral issues like mood disorders, impulsiveness, etc., were also reportedly found among them. As the studies in behavioral economics say that the cognitive potential has close relations with economic wellness, behavior modification programs such as counseling, community involved credit, etc., may facilitate the cognitive betterment which in turn promote their decision making behavior. Similarly, there has been huge difference of labor productivity in the agriculture among the countries. Such differences even touch 50% and are very high compared to the differences in the aggregate productivity (WDR, 2015). The detected plausible reason was that simple technologies (which can improve the agricultural productivity) are not being followed by the farmers. Also, the application of BE concepts, such as temporal intervention, makes the complex agricultural technology simpler for easy comprehension of its advantages, making the required information available at a common point by using IT tools that may be useful in addressing such issues.

Two pronged approach

From the analysis of research findings in the field of economic psychology, there exists relationship between mental and material wellness. Hence, a two pronged approach may be beneficial for the agricultural productivity. Among many reasons for not adopting technologies in farming are lack of information

and not taking decisions at required time. Timely intervention (temporal factor) such as increased behavioral incidence of prepurchase of agricultural inputs immediately after harvest when there is reasonable good opportunity of money with farmers is found giving results resembling the method of increasing the farm productivity based on subsidy intervention. In an experiment conducted by Mullainathan and others in 2014 providing important information of direct relation between pod lengths to revenue generation in sea weed cultivation which was not paid importance by cultivators in Indonesia had helped to improve the production which implies that the technology adoption in farming will help in increasing the revenue to peasants.

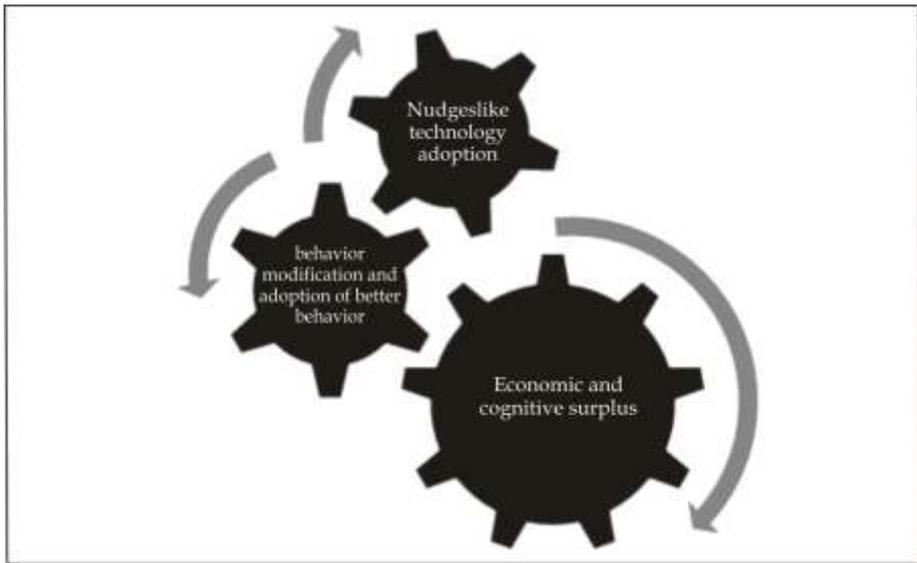
Climate change and agricultural production

Climate change is another important global phenomenon which has wide ramifications on the agricultural production. It requires two essential interventions (nudges):

- Technology adoption facilitative public policies for adopting green technology to build green infrastructure through supportive measures, such as cost rationalization of green technologies and tools for encouraging adoption.
- Consistent and adequate funding on green technology development through de-risking and partial guaranteeing the returns of private investment, as there is quantum of private resources available.

Intervention made by the government such as protected cultivation is another state supported measure for enhancing the farm income. This technology protects the cultivation from the vagaries of the rainfall and natural calamities. It assures better income than the traditional method of open field cultivation, as the growing climate, sunlight, and humidity are controlled and the produce is managed from pest attacks. The financial assistance in the form of subsidy is provided for this purpose to farmers through the schemes of National Horticulture Mission, as well as by the state schemes. In a recent study conducted among the farmers of 13 districts in Himachal Pradesh, Punjab, and Haryana during September to October 2017 by the Center for Research in Rural and Industrial Development (CRRID), very good to decent financial returns (net income ranges from Rupees 3–5 lakh per acre) were reported as against Rupees 1 lakh in traditional open method of cultivation. Thus, nudging

the farmers for adoption of simple technology like the protected cultivation technology had made better returns to the peasants who practiced the same. Similarly, the policy support to establish cold chain infrastructure, setting-up/modernization of abattoirs, mega food park, NHM, etc., is also such similar positive intervention by the government on the libertarian paternalistic principles of behavioral economics. The adoption of better technology will also provide more free time for farmers. This in turn may prevent the drain of cognitive resources, which can facilitate better thinking. All these interventions may confluence on agricultural productivity, thereby the economic wellness and the below mentioned vicious cycle will emerge.



Conclusion

Does the richness lead to better behavior, particularly mental well-being? By inferring the above findings, we may be able to draw some link between economics and cognitive abilities and mental healthiness. However, there have been certain limitations such as relative evaluation or comparison effects on the perception of economic wellness (Diener, 1984). Despite these observations, the BE concepts are applied in wide variety of fields including consumer behavior, law, education, agriculture, poverty eradication, etc., and had resulted in positive outcomes in the individuals in the form of behavior modification in desired directions without affecting their freedom of choice.

The caution is the universal prescription without considering contextual factors. In other words, the BE concepts may be used by localizing effectively in public policies for agricultural productivity and development.

References

- <http://mospi.nic.in/data>, Ministry of Programme implementation & Statistics, GoI.
- Mental Health Survey 2015–16, National Institute of Mental Health Sciences, Bengaluru.
- The New Indian Express, dated 30-06-2017.
- World Development Report 2015: MIND, SOCIETY, AND BEHAVIOR
- Agrarian Crisis and Farmer Suicides—Land Reforms in India: Vol. 12, edited by R.S. Deshpande and Saroj Arora, 2010.
- Wikipedia.
- The joyless economy: An inquiry into human satisfaction and dissatisfaction. Scitovsky. T. (1976).
- Steps taken to reduce postharvest food losses, PIB, GoI, Ministry of Food Processing, Dated 26th Feb 2016.

Subscriptions

The Administrator is published half yearly: i.e January and July.

Subscription orders can be placed with Training Research & Publication Cell (TRPC) as per the contact details below:

E mail: administrator@lbsnaa.gov.in *Phone:* 0135-222-2324

The subscription rates for single copy purchase are as follows:

- (i) Individual (1 issue): ₹ 150.00 per copy
- (ii) Institutional (1 issue): ₹ 300.00 per copy

Annual Subscription Rates:

- (i) Individual (2 issue): ₹ 250.00
- (ii) Institutional (2 issue): ₹ 500.00

Contributions

The Administrator provides a forum for civil servants and academicians who have applied themselves to issues pertaining to areas of public administration, public policy, etc.

Contribution in the form of articles/ paper/ book reviews can be sent to **Email:** administrator@lbsnaa.gov.in contributors to follow the font, spacing, citation, reference, etc. as per the style sheet.

Detailed guidelines and style sheet for submission of Article/ Papers/ Book Review for publishing in Administrator can be accessed at LBSNAA website **<http://www.lbsnaa.gov.in/pages/display/559-subscription-contribution-for-administrator>**.