

**No. I&M-13(27)/2012
Government of India
Planning Commission
Industry Division**

EOI Notice dated June 29, 2012

Request for Proposal for Consultancy for Economic Modelling of Emerging Scenarios for India's Twelfth Five Year Plan

Background, Objectives & Scope of the Assignment/ Study

1. To complement the 12th Five Year Plan, the Planning Commission conducted an extensive exercise to prepare 'scenarios' of India's future. The scenarios are projections of plausible outcomes of alternative courses of action, and depending on the choices we make, three alternative scenarios have been framed as follows:

- (i) Muddling Along
- (ii) Falling Apart
- (iii) The Flotilla Moves

Detailed background and analysis of the scenarios have been provided in the attached document (Appendix-I).

2. The next step is to extend this scenario analysis using economic modelling to forecast at least outcome indicators:
 - a. GDP Growth Rate
 - b. Fiscal Deficit/ Balance
 - c. Quality of Inclusion

It will also be useful to test some sustainability outcomes, if possible. All elements of macro-economic system will need to be considered to generate projection for three indicators. Investment in Infrastructure and human capital must be built into the growth model.

Request for Proposal

3. Adviser (Industries), Planning Commission, for and on behalf of the President of India, hereby invites proposals from qualified consulting firms or expert institutions having adequate experience of conducting studies of macro-economic systems & projections and econometric modelling for taking up the assignment of economic modelling and forecasting as indicated in the Section 2 above. The proposal has to be **submitted positively within fifteen (15) days** from date of the uploading of the EOI Notification in the Planning Commission Website.

Validity of Proposal

4. The proposal should be valid for a period not less than **sixty (60) days** from the due date for receiving the proposal.

Eligibility

5. The firm should meet the following criteria

- 5.1 The consulting firm/ expert institution should have at least ten years' experience in dealing with economic policies, study and evaluation of macro-economic issues and econometric model.
- 5.2 The firm/ organization having exposure in dealing with Government sponsored assignment/ work shall preferred

Brief Description of the Selection Process

- 6) A two stage selection process will be adopted in evaluating the Proposals. In the first stage, a technical evaluation will be carried out. In the second stage, a financial evaluation will be carried out. Proposals will finally be ranked according to their combined technical and financial scores. The first ranked Institution shall be selected while the second ranked Institution will be kept in reserve.

Timeframe

- 7) The assignment shall be for a period of **three** months. Draft inputs shall be made available from time to time as per requirement and shall be finalized after discussions with the Planning Commission. The Final Report has to be made available to Planning Commission **within 3 Months**.

Right to reject any or all Proposals

- 8) Notwithstanding anything contained in this RFP, the Planning Commission reserves the right to accept or reject any Proposal and to annul the Selection Process and reject all Proposals, at any time without any liability or any obligation for such acceptance, rejection, or annulment, and without assigning any reasons thereof.
- 9) The Planning Commission reserves the right to reject any Proposal if:
- a) at any time, a material misrepresentation is made or uncovered; or,
 - b) the Consultant/ Institution does not provide, within the time specified by the Planning Commission, the supplemental information sought by the Planning Commission for evaluation of the Proposal.

Submission of Proposals

- 10) The Proposal shall be typed or written in indelible ink and signed by the Authorized Signatory of the firm, who shall initial each page, in blue ink. All the alterations, omissions, additions, or any other amendments made to the Proposal shall be initialed by the person(s) signing the Proposal. The Proposals must be properly signed as detailed below:

While submitting the Technical Proposal, the Firm shall, in particular, ensure that:

- a) CVs of the experts have been submitted;
 - b) Applicant organization meets the Conditions of Eligibility;
 - c) The CVs have been recently signed in blue ink by the individual and the Team Leader. Photocopy or unsigned / countersigned CV shall be rejected; and
 - d) The CV shall contain an undertaking from the Team member about his/her availability for the entire period of report preparation.
- 11) Failure to comply with the requirements spelt out in Clause 10 above shall make the Proposal liable to be rejected.

- 12) If a firm/ organization or any of its members make(s) an averment regarding his or their qualification, experience, or other particulars and it turns out to be false, or his commitment regarding availability for the Project is not fulfilled at any stage after signing of the Letter of Acceptance, all the members of the organization shall be debarred for any future assignment of the Planning Commission for five years.
- 13) The Technical Proposal shall not include any financial information relating to the Financial Proposal.
- 14) The Planning Commission reserves the right to verify all statements, information, and documents, submitted by the Applicant in response to the RFP. Failure of the Planning Commission to undertake such verification shall not relieve the firm of its obligations or liabilities hereunder nor will it affect any rights of the Planning Commission thereunder.
- 15) In case it is found during the evaluation or at any time before issue of Letter of Acceptance (LOA) that one or more of the eligibility conditions have not been met by the firm or the Team has made material misrepresentation or has given any materially incorrect or false information, the firm shall be disqualified forthwith if not yet appointed as the Consultant. If the firm has already been issued the LOA the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Planning Commission without the Planning Commission being liable in any manner whatsoever to the Applicant.
- 16) The Proposal will be sealed in an outer envelope, which will bear the address of the Planning Commission, RFP Notice No., Consultancy name, and the name and address of the Team Leader. It shall bear on top, the following:

“Do not open, except in presence of the Authorized Person”

If the envelope is not sealed and marked as instructed above, the Planning Commission assumes no responsibility for the misplacement or premature opening of the contents of the Proposal submitted.

- a) The aforesaid outer envelope will contain two separate sealed envelopes; one clearly marked **“Technical Proposal”** and the other clearly marked **“Financial Proposal”**. The envelope marked **“Technical Proposal”** shall contain the Application in the prescribed format along with relevant Forms and supporting documents.
 - b) The envelope marked **“Financial Proposal”** shall contain the financial proposal in the prescribed format.
- 17) The Technical Proposal and Financial Proposal shall be typed or written in indelible ink and signed by the authorized signatory of the firm. All pages of the original Technical Proposal and Financial Proposal must be numbered and initialed by the authorized signatory (on behalf of the firm) signing the Proposal.
 - 18) The completed Proposal must be delivered on or before the specified time on the due date as per Clause 23. Proposals submitted by fax or e-mail shall not be entertained.

- 19) The Proposal shall be made in the Forms specified in this RFP. Any attachment to such Forms must be provided on separate sheets of paper and only information that is directly relevant should be provided. This may include photocopies of the relevant pages of printed documents.
- 20) The rates quoted shall be firm throughout the period of performance of the assignment up to and including acceptance of the Report by the Planning Commission and discharge of all obligations of the Consultant under the Agreement.

Financial Proposal

- 21) Applicants shall submit the financial proposal in the Forms at Annex 3 clearly indicating the total cost of the Consultancy in both figures and words, in Indian Rupees, and signed by the authorized signatory of the firm. In the event of any difference between figures and words, the amount indicated in words shall be taken into account. In the event of a difference between the arithmetic total and the total shown in the Financial Proposal, the lower of the two shall be taken into account.
- 22) While submitting the Financial Proposal, the firm shall ensure the following:
 - a) All the costs associated with the assignment shall be included in the Financial Proposal. These shall normally cover remuneration for all the Personnel, accommodation, travelling, printing of documents, taxes etc. The total amount indicated in the Financial Proposal shall be without any condition attached or subject to any assumption, and shall be final and binding. In case any assumption or condition is indicated in the Financial Proposal, it shall be considered nonresponsive and liable to be rejected.
 - b) The Financial Proposal shall take into account all expenses and tax liabilities. For the avoidance of doubt, it is clarified that all taxes shall be deemed to be included in the costs shown under different items of the Financial Proposal. Further, all payments shall be subject to deduction of taxes at source as per applicable laws.
 - c) Costs (including break down of costs) shall be expressed in INR.

Proposal Due Date

- 23) The proposals should be submitted on or before 11.00 hours on July 20, 2012 to:
Dr. Renu S. Parmar
Adviser (Industries),
Planning Commission,
Yojana Bhawan, Sansad Marg,
New Delhi 110 001
For any further queries please contact: rsparmar@nic.in.

Late Proposals

- 24) Proposals received by the Planning Commission after the specified time on the due date shall not be eligible for consideration and shall be summarily rejected.
- 25) Any alteration / modification in the Proposal or additional information or material supplied subsequent to the due date, unless the same has been expressly sought for by the Planning Commission, shall be disregarded.

Evaluation Process

- 26) The Planning Commission shall open the Proposals at 11.30 hours on the due date, and in the presence of the Applicants who choose to attend. The envelopes marked "Technical Proposal" shall be opened first. The envelopes marked "Financial Proposal" shall be kept sealed for opening at a later date.
- 27) Prior to evaluation of Proposals, the Planning Commission will determine whether each Proposal is responsive to the requirements of the RFP. A Proposal shall be considered responsive only if:
- a) it is received in the specified format;
 - b) it is received by the due date including any extension thereof;
 - c) it is signed, sealed and marked as stipulated;
 - d) it contains all the information (complete in all respects) as requested in the RFP;
 - e) it does not contain any condition or qualification; and
 - f) it is not non-responsive in terms hereof.
- 28) The Planning Commission reserves the right to reject any Proposal, which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by the Planning Commission in respect of such Proposals.
- 29) The Technical Evaluation will be in the following format.

Details	Marks	Criteria
Relevant experience of the firm and its experts/Members	40 %	Number of years' experience in macro-economic studies and econometric modelling;
	30 %	Level of responsibility and experience, especially of the experts to be involved in the assignment.
	40 %	Nature of work. More weightage will be given for exposure/ experience in dealing with economic policy related studies and Government sponsored projects/ research work.
Total	100 %	

- 30) After the technical evaluation, the Planning Commission would prepare a list of pre-qualified Applicants for opening of their Financial Proposals. The opening of Financial Proposals shall be done in presence of Applicants who choose to be present. The Planning Commission will not entertain any query or clarification from Applicants who fail to qualify at any stage of Selection Process.

Clarifications

- 31) To facilitate evaluation of Proposals, the Planning Commission may, at its sole discretion, seek clarifications from any Applicant regarding its Proposal. Such clarification(s) shall be provided within the time specified by the Planning Commission for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing. If a Team does not provide clarifications sought

above within the specified time, its Proposal shall be liable to be rejected. In case the Proposal is not rejected, the Planning Commission may proceed to evaluate the Proposal by construing the particulars requiring clarification to the best of its understanding.

Evaluation of Technical Proposals

- 32) In the first stage, the Technical Proposal will be evaluated on the basis of the experience of the firm. Only those Applicants whose Technical Proposals score 70 marks or more out of 100 shall qualify for further consideration, and shall be ranked from highest to the lowest on the basis of their technical score (ST).
- 33) The scoring criteria to be used for evaluation shall be based on the number of years of experience and its relevance to the proposed scope of work. The minimum eligibility will be determined on the basis of minimum requirement of experience of having worked in economic studies and econometric models as indicated above. For additional years of experience, additional weightage shall be accorded on a pro-rata basis. For the purpose of experience in strategy formulation, weightage would be given on the number of years of experience in preparing strategy.

Evaluation of Financial Proposal

- 34) In the second stage, the financial evaluation will be carried out and each Financial Proposal will be assigned a financial score (SF).
- 35) For financial evaluation, the total cost indicated in the Financial Proposal will be considered.
- 36) The Planning Commission will determine whether the Financial Proposals are complete, unqualified and unconditional. The cost indicated in the Financial Proposal shall be deemed as final and reflecting the total cost of services. Omissions, if any, in costing any item shall not entitle the Team to be compensated and the liability to fulfill its obligations as per the TOR within the total quoted price shall be that of the Consultant. The lowest financial proposal (FM) will be given a financial score (SF) of 100 points. The financial scores of other proposals will be computed as follows:

$$S_F = 100 \times F_M / F$$

(F = amount of Financial Proposal)

Combined Technical and Final Evaluation

- 37) Proposals will finally be ranked according to their combined technical (ST) and financial (SF) scores as follows:

$$S = S_T \times T_w + S_F \times F_w$$

Where S is the combined score, and T_w and F_w are weights assigned to Technical Proposal and Financial Proposal that shall be 0.80 and 0.20 respectively.

38) The Selected Team shall be the first ranked firm (having the highest combined score). The second ranked firm shall be kept in reserve in case the first ranked firm withdraws, or fails to comply with the requirements as the case may be.

Award of Consultancy

39) After selection, a Letter of Award shall be issued, in duplicate, by the Planning Commission to the Selected Firm and the Firm shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. The LOA shall constitute the Agreement for the purpose of this consultancy assignment.

Proprietary data

40) All documents and other information provided by the Planning Commission or submitted by a firm to the Planning Commission shall remain or become the property of the Planning Commission. Firms are to treat all information as strictly confidential. The Planning Commission will not return any Proposal or any information related thereto. All information collected, analyzed, processed, or in whatever manner provided by the Consultant to the Planning Commission in relation to the Consultancy shall be the property of the Planning Commission.

Deliverables and Payment to the Consultant

41) Billing and payments in respect of the Services shall be made as follows:-

No.	Work Description	Payment (%)
1	Advance on award of the job & received of allowance acceptance from the firm	20 %
2	Interim payment on 40% completion of the assigned job as per assessment to be made by Planning Commission	30 %
3	On completion of the study and submission of final report	60 %
	Total	100 %

42) The Planning Commission shall cause the payment due to the firm to be made within 30 (thirty) days after the receipt by the Planning Commission of duly completed bills with necessary particulars.

43) All payments under this Agreement shall be made to the bank account specified by the firm as may be notified to the Planning Commission by the Consultant.

Performance Security

44) The Planning Commission shall retain by way of performance security 5 % (five percent) of all the amounts due and payable to the firm, to be appropriated against breach of this Agreement or for recovery of liquidated damages. The balance remaining out of the Performance Security shall be returned to the Team at the end of three months after the expiration of the contract.

Liquidated Damages for error/variation

45) In case any error or variation is detected in the reports submitted by the firm and such error or variation is the result of negligence or lack of due diligence on the part of the firm, the

consequential damages thereof shall be quantified by the Planning Commission in a reasonable manner and recovered from the Consultant by way of liquidated damages, subject to a maximum of 10 % (ten percent) of the Contract Value.

Liquidated Damages for delay

- 46) In case of delay in completion of Services, liquidated damages not exceeding an amount equal to 0.2 % (zero point two percent) of the Contract Value per day, subject to a maximum of 10 % (ten percent) of the Contract Value will be imposed and shall be recovered by appropriation from the Performance Security or otherwise. However, in case of delay due to reasons beyond the control of the Consultant, suitable extension of time shall be granted.

Appropriation of Performance Security

- 47) The Planning Commission shall have the right to appropriate the Performance Security, in whole or in part, without notice to the firm in the event of breach of Agreement or for recovery of liquidated damages.

Miscellaneous

- 48) The Selection Process shall be governed by, and construed in accordance with, the laws of India and the Courts at Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the Selection Process.

Annex 1

Particulars of the firm/ organization

1	Title of Consultancy:
2	Name/ designation, and contact details of the experts and leaders : Name: Designation: Address: Phone No.: E-mail address:
3	Name, designation, and contact details of all the other members to be involved Name: Designation: Address: Phone No.: E-mail address:
3	For all Experts/ Leaders: a) Number of Years in experience in dealing with economic studies and economic models b) Details of employment/ experiments as required in terms of clause in 5 & 31 c) Number of years of experience in economic study and economic models d) Details thereof (not more than 200 words).
4	For the Expert Members, state the following information: a) Have the experts and members been penalized by any organization for poor quality of work or breach of contract in the last five years? Yes/No b) Have the experts and Members ever failed to complete any work awarded to it by any public entity/ Planning Commission in last five years? Yes/No c) Have the experts and members been blacklisted by any Government department/Public Sector Undertaking in the last five years? Yes/No d) Have the experts and members, suffered bankruptcy/insolvency in the last five years? Yes/No

Annex 2

Curriculum Vitae (CV) of Main Experts to be involved

- 1) Name of Personnel:
- 2) Date of Birth:
- 3) Nationality:
- 4) Educational Qualifications:
- 5) Membership with Professional Associations/ Bodies:
- 6) Other Training:
- 7) Countries of Work Experience:
- 8) Employment Record:
(Starting with present position, list in reverse order every employment held.)
- 9) Details of economic policy/ econometric modeling/ the strategy-related projects that expert has worked on.

Annex 3

Financial Proposal

Form 1: Covering Letter

(Date and Reference)

To,

... ..

Dear Sir,

Subject: Appointment of Consultant for "Consultancy for providing advisory services for preparation of the National Manufacturing Plan"

We, _____ (Authorized signatory's name) herewith enclose the Financial Proposal for above.

We agree that this offer shall remain valid for a period of 60 (sixty) days from the due date or such further period as may be mutually agreed upon.

Yours faithfully,

(Signature, name and designation of the Authorized signatory's)

Note: The Financial Proposal is to be submitted strictly as per forms given in the RFP.

Form 2: Financial Proposal

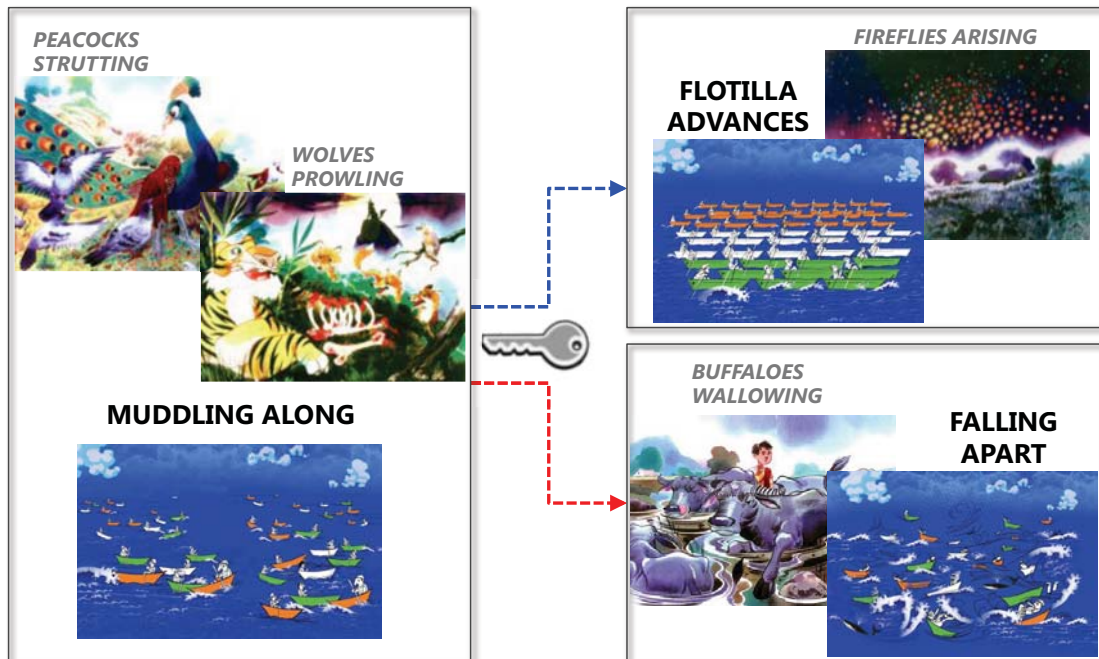
No.	Description	Amount (Rs.)
A.	Personnel and Miscellaneous Costs	
1.	Remuneration for Personnel (inclusive of all personal allowances and traveling costs within Delhi only)	
2.	Miscellaneous Expenses	
	Total, including taxes, (in Rs.) In Indian Rupees in words: _____	

Note:

- 1) The financial evaluation shall be based on the above Financial Proposal.
- 2) All travel outside Delhi shall be borne by the Planning Commission and all expenses on his account reimbursed as per entitlements of a Director-level officer of Government of India.
- 3) The reimbursement of cost and expenses shall be limited to the amounts indicated above.
- 4) No escalation on any account will be payable on the above amounts.
- 5) All payments shall be made in Indian Rupees and shall be subject to applicable Indian laws, withholding taxes if any.



Scenarios: Shaping India's Future



SCENARIOS: SHAPING INDIA'S FUTURE

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1. Executive Summary

India needs a new Plan to accelerate more inclusive and more sustainable, yet faster growth. The plan must be a departure from old structures of thinking and planning. What India (and the world) will be like in the next 25 years will depend on the ideas that are developed and applied to define progress, manage development, and govern societies. If the prevalent “theories-in-use” continue much longer, the risks to the environment and to social harmony are very large. Economic extrapolations that are being made about the likely sizes of China’s, India’s, and the global economy by 2050 must be tempered by recognition of the societal and environmental risks that are now evident and can derail conventional patterns of economic growth.

The need to substantially change both the content and the process of planning required the Planning Commission to apply innovations in the process of preparing the 12th Plan. Amongst these innovations was the addition of the process of “scenario planning” to the preparation of the 12th Five Year Plan, so that the effects of broader systemic forces could be considered, and so that their consequences could be communicated in a meaningful language to a broader set of stakeholders.

The Planning Commission was set up sixty years ago. Then, conditions in the country and the world were substantially different to those today. There was a single political party that ruled in the Center and in the States. The private sector was very small then and the state had to provide almost all resources to build the economy. Moreover, India was a closed economy, not well connected with the world. Therefore, central planning with centralized allocations of resources was justified.

Since the 1990s, these conditions have changed. Globalization has accelerated and the Indian economy has opened up too. The private sector has become much larger; it is the engine of growth for the economy. The Indian political firmament has become more diversified with many strong regional parties, and coalition governments have become the norm in the Center. Therefore, centralized planning as before is less useful. In fact, some say it has become irrelevant.

The Planning Commission undertook a review of its purpose and performance in 2010 through consultations with stakeholders and experts before it commenced preparations of the *Approach to the 12th Plan*. Stakeholders and experts agreed that the Planning Commission must change its ways. Surprisingly they also said that the

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country needs a central “sense-making” body more than ever before! With dynamic and less predictable change in the world, and within the country, a “radar” is required to sense what may happen, and provide the flotilla of (independent) stakeholders in the private sector, the States and the Center, with scenarios they can use to steer themselves.

Creating the scenarios

The purpose of “scenario thinking” is to project “what if”. What if we do not change our underlying theories-in-use about progress and governance? What could be the consequences? On the other hand, what if we begin to adopt alternative theories to guide our policies and actions? What then?

Scenarios are not predictions. They are projections of plausible outcomes of alternative courses of action. They can help us choose the strategies that have more likelihood of producing the outcomes we want. Scenarios can enable dialogues about choices, and these dialogues can lead to agreements to try new approaches.

The preparation of scenarios of India’s future, to complement the 12th Five Year Plan, required an extensive and rigorous process. The process commenced with an integrative reflection in 2010, by all the divisions of the Planning Commission, cutting across their organizational and disciplinary boundaries, about the fundamental challenges facing the country—challenges that cut across sectors and regions. These challenges are explained in **Annexure 2**.

The examination of these challenges for the country and suggestions for how they should be managed was carried out by a widely participative process. This was perhaps the most participative planning process the Planning Commission has ever conducted. 950 civil society organizations, representing all sections of society, especially those who have not felt sufficiently included so far in India’s plans and growth, came together on a common platform of their own, Wada Na Todo Abhiyan. New social media platforms were also used to consult with citizens electronically, with the assistance of India@75—an organization of young Indians devoted to engaging youth with shaping what India should become by the 75th year of its Independence, in 2022.

Several citizens volunteered to supplement the official planning process, using the process of scenario thinking to describe the future of India and distil strategies required to produce desired outcomes. They included experts in economic and

social development, security and international relations, and environmental issues. They participated in workshops and provided resources and inputs for the process.

The Center for Study of Science Technology and Policy (CSTEP), a not-for-profit policy research think-tank in Bangalore developed a systems' map to provide a more rigorous grounding for the scenarios. System dynamics techniques were used to understand different aspects in defining the future of India. The systems' analysis constituted several iterative steps that included identification of stakeholders, forces that shape the future, and the interactions amongst the various forces.

As the analysis proceeded, it was tested in several forums. These included workshops of international development experts who have been in India for many years and are familiar with our developmental challenges and possibilities, and workshops of mid-career IAS officers from across the country steeped in the challenges and possibilities on the ground. These interactions have validated the insights in the scenarios.

Three scenarios and three leverage points to sustainably accelerate India's progress

Many forces outside the country will impact its progress. These include the condition of the global economy, parts of which seem severely stressed at present. More immediate concerns for India are forces within its neighboring countries. These forces were also examined while developing the scenarios. What the condition of these external factors will be in the near term and longer-term future is not easy to forecast. Therefore the most important question for the country's policy-makers must be: what strategy will ensure that the country will be best placed regardless of these external uncertainties?

Not surprisingly, India will be most secure in times of uncertainty if it is internally cohesive and strong. Therefore, an analysis of the leverage points for change within the country, to strengthen the Indian economy and society, provides the keys to the strategies for India to weather turbulence in the world around. These are within India's own control, whereas the forces in the world around are not. Moreover, India will be in a stronger position to influence change in the world when it is more cohesive and internally strong. Therefore, when the world around is changing, the Plan for India must concentrate even more on institutional reforms within.

The three leverage points that can change the course of the country's development, and put it on to a more inclusive, more sustainable, and faster growth path are:

- A. The approach we take to “inclusion”: what we want to accomplish and how we will do it
- B. The approach we take to “governance”
- C. The “theory-in-use” we apply towards energy and environmental solutions

The analysis of interacting forces that reveals leverage points and their interaction with other forces is given in **Section 6: The System Model**. The choices before us at these leverage points are explained in **Section 7: Three forks in the road to the future**.

Depending on the choices we make and implement, three alternative scenarios can emerge of India in the next ten years. These are described as:

1. Muddling Along

2. Falling Apart

3. The Flotilla Advances

Descriptions of these scenarios are in **Section 8: Three Scenarios**.

The leverage points are institutional reforms: reforms of governance and business models. Institutions are ships designed by humanity to improve its condition and make progress. A critical condition of the world at this time, as reported by several surveys, is the declining trust of citizens in institutions of government, global finance, and big business. This is not surprising. The global environment has changed substantially in the past decade. Yet we are trying to sail and navigate it in institutions that were designed for other conditions.

The global environment has changed and become more turbulent by the coming together of four forces in the new millennium. One is the speed and spread of global finance. The second is the strengthening of beliefs in human rights and democracy. The third is an increasing awareness of the limits of the natural environment to support “business as usual”. And the fourth, stirring up a storm of contention amongst these forces, is the ubiquity of information available to citizens, fuelled by

new technologies and their acknowledged rights to information. These forces are sweeping across India too. Governments and large corporations everywhere are being buffeted by them. They must change and develop new capabilities to conform to new expectations of citizens.

Moving on

As India embarks on its 12th Five Year Plan, there is dismay that its economy has lost the momentum it had developed during the 10th and 11th Plans. Some of the sluggishness can be attributed to global economic conditions, which have been unfavorable since the crisis in global financial markets and slowdown of the US and European economies. Global economic uncertainty continues. However, much of the dampening of the growth of the Indian economy is also attributed to internal problems of coalition politics, lack of consensus, and poor coordination. While external conditions will be outside India's control, the country must find ways to improve internal governance. The essential difference amongst the three scenarios of India's progress in the next ten years lies in improvement of the quality and capability of cooperative governance at many levels.

The Planning Commission must take a path not taken by it before. It must become, in the words of the Prime Minister, a "systems reforms commission" (and not allocator of funds), and an "essay (a force) in persuasion". It must plan differently, and communicate with stakeholders differently. These scenarios, the system analysis of forces, and elements of an emerging vision, provide starting points for a new conversation between the Planning Commission and stakeholders, and also amongst citizens. These conversations, debates, and dialogues, about the future of the country and collective choices that must be made can help to produce the missing consensus in the country.

There is no guarantee that this process will result in a consensus. But it is certain that, in the absence of a good dialogue about these issues, a consensus is even less likely! Therefore, the new path for the Planning Commission, as it launches the 12th Five Year Plan for India, is to design and facilitate a process for dialogues with stakeholders, and amongst them, about the future course of the country. The scenarios, the analysis of the systemic forces, and choices before us as a country, are tools to facilitate these dialogues.

2. Scenarios, Turning Points, Directions

With mankind's remarkable progress in the last fifty years, two questions have begun to be asked in the new millennium. Is the pattern of economic growth sustainable? And, is the pattern of growth fair? These questions have become amplified in the new millennium by universal access to information and ubiquitous means for communication that modern technology has provided. A new approach is required for human development and societal progress that is environmentally more sustainable, and more just.

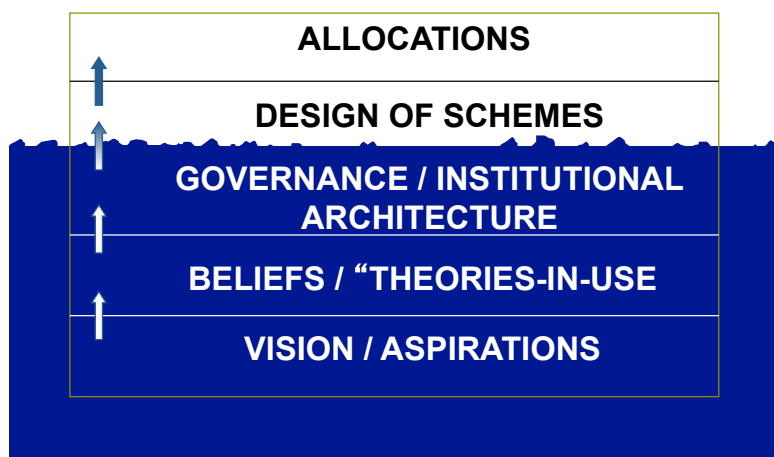
Moreover, global and national governance has become complicated in the 21st century with the clash of two strengthening, and inherently opposing forces. On one hand, ideas of "globalization", of removing all barriers to flow of money and trade across the world, became very strong, especially since the collapse of the Iron Curtain along with the, albeit measured, joining of China in the global economy. In this world-view, governments that create barriers to free flow of capital and trade into their countries are bad for their people. On the other hand, the idea of elected and accountable governments has also become very strong with the collapse of the Iron Curtain and may even be infecting China too.

In this world, people expect their governments to take care of them when their livelihoods are affected by global forces. That, in their view, is what "their" government is for. This tension between responsibility to their electorates on one hand, and compliance with "common, global" solutions on the other, is manifest in international attempts to create a global climate change regime, in the recent governance problems in the EU, and also in the governance complications within India's federal structure.

What India (and the world) will be like in the next 25 years will depend on the ideas that are developed and that are applied to define progress, manage development, and govern societies. If the prevalent "theories-in-use" continue much longer, the risks to the environment and to social harmony are very large. Economic extrapolations that are being made about the likely sizes of China's, India's, and the global economy by 2050 must be tempered by recognition of the societal and environmental risks that are now evident and that can derail conventional patterns of economic growth.

The purpose of “scenario thinking” is to project “what if”. What if we do not change our underlying theories-in-use about progress and governance? What could be the consequences? On the other hand, what if we begin to adopt alternative theories to guide our policies and actions? What then? (Examples of some contending “theories-in-use” of governance, development, and economics are given in **Annexure 1**).

The figure below explains five levels of understanding on how to make change happen. Most of the time, there is discussion on the two levels that are “above” the waterline—allocations and design of schemes. What is more important is to understand and then leverage what is “below” the waterline. This document focuses on these elements in its analysis.



Navigating the ship versus fitting out the cabins

Scenarios are not predictions. They are projections of plausible outcomes of alternative courses of action. They can help us choose the strategies that have more likelihood of producing the outcomes we want for ourselves and, as the saying goes, for our children and grandchildren too. Scenarios can enable dialogues about choices, and these dialogues can lead to agreements to try new approaches. As mentioned before, India is at a crossroad. Choices must be made and innovations found for sustainable and more inclusive strategies for the country’s progress. Therefore, a team of Indians with diverse backgrounds, has developed scenarios for India’s outlook in the next ten to fifteen years by adopting alternative theories-in-use for inclusion, sustainable development, and progress. These scenarios can facilitate new, collaborative conversations, not stuck in stale ideologies, amongst citizens and policy-makers, about India’s future.

3. The 12th Plan and Scenarios for India

India needs a new Plan to accelerate more inclusive and more sustainable, yet faster growth. Not the same plan, as the 11th Plan was, merely with different numbers. The plan must be a departure from old structures of thinking and planning. Indeed, observers of China's 12th Plan note that it is an evident departure from the structure of its 11th Plan. Its content is strongly directed towards environmental sustainability and social harmony.

The Cabinet Resolution of March 15, 1950 setting up the Indian Planning Commission says, "The work of the Planning Commission will affect decisively the future welfare of the people in every sphere of national life. Its success will depend on the extent to which it enlists the association and cooperation of people at all levels."

Planning in India was required to be a participative process, with inputs from the people, and benefits for the people. However, each five-year plan seemed to drift further and further away from the language and concerns of people into the realms of economic numbers and financial budgets. Therefore, it has become necessary to adjust the method of planning, to connect planners more strongly with people. Even if the founding fathers of India's planning had not intended it in the 1950s—though they clearly did—the ubiquity of means of communication with citizens in the 21st century along with the strength of belief in the rights of citizens to actively participate in their own governance, would have required India's planning process to change to enable more participation by citizens.

The need to substantially change both the content and the process of planning required the Planning Commission to apply innovations in the process of preparing the 12th Plan. Amongst these innovations was the intention to add on the process of scenario planning to the preparation of the 12th Five Year Plan, so that the effects of broader systemic forces could be considered, and so that their consequences could also be communicated in sensible language to a broader set of stakeholders.

The development of the *Approach to the 12th Plan* commenced with an integrative reflection, by all the divisions of the Planning Commission cutting across their organizational and disciplinary boundaries, about the fundamental challenges facing the country—challenges that cut across sectors and regions. One such challenge,

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flowing through sectors of health, education, and labor, is the condition of “markets” in these sectors with respect to their equity, not merely their efficiency. Another challenge is the “democratization of information” across sectors and regions of the country. And another is the quality of “decentralized governance”.

Twelve such challenges were distilled for examination (**Annexure 2**). They served principally as a stepping-stone into deeper dialogues with diverse stakeholders around the country from which emerged insights into the forces shaping the country and aspirations of people that are reported in this document.

The examination of these challenges for the country and suggestions for how they should be managed was carried out by a widely participative process, perhaps the most participative planning process the Planning Commission has ever conducted. 950 civil society organizations, representing all sections of society, especially those who have not felt sufficiently included so far in India’s plans and growth, came together on a common platform of their own, Wada Na Todo Abhiyan. They reached back into their member bases to discuss the systemic challenges identified by the Planning Commission. They then provided the Planning Commission with their views.

Simultaneously, the Planning Commission also consulted business associations and think tanks about these challenges too. New social media platforms were also used to consult with citizens electronically, with the assistance of India@75—an organization of young Indians devoted to engaging youth with shaping what India should become by the 75th year of its Independence, in 2022.

The official *Approach to the 12th Plan* was prepared by the Planning Commission and was approved by the National Development Council in October 2011. Thereafter the Planning Commission proceeded to prepare the Plan. At this stage, several citizens volunteered to supplement the official planning process, and use the process of scenario thinking to describe the future of India and distil strategies required to produce desired outcomes.

This group of citizens, which includes several leaders of the Wada Na Todo Abhiyan exercise, several business executives, and young leaders from India@75 and other organizations, met in three scenario thinking workshops facilitated by Arun Maira, a Member of the Planning Commission, who had earlier facilitated two major national exercises to develop scenarios for India, prior to joining the Commission. The participants in these workshops, in late 2011 and early 2012, were able to draw on the insights obtained from their earlier extensive consultations with citizens

regarding the twelve national challenges with which the participative planning process had commenced. Inputs from diverse points of view—many civil society perspectives, business perspectives, and youth perspectives—came together. The contours of a shared vision began to emerge, as well as an agreement about the critical forces that will affect the country.

Separately, as the Members of the Planning Commission were completing the structure of the 12th Plan, they also felt the need to develop a more comprehensive and systemic view of the forces shaping the country. They had obtained detailed inputs about their sectors from their consultations with Working Groups and Steering Groups in their sectors. Having seen “the trees” through these bottom up, sectoral consultations, they met in two workshops in January 2012, to synthesize a systemic picture of “the woods”. In these workshops, using techniques of the scenario planning process, they too described the contours of a vision of the country and distilled the critical forces that will shape the future.

Thus, two very rich sets of inputs, both founded on extensive prior consultations, one from the Planning Commission’s Members, and the other from the citizens’ group, became available to synthesize scenarios for India. (A noteworthy feature of both processes, by the citizens as well as the Members, was the inclusion of an analysis of developments outside India, and especially in India’s neighborhood, to appreciate those forces that could have a strong effect on India’s future.)

At this stage, the Center for Study of Science Technology and Policy (CSTEP), a not-for-profit policy research think-tank in Bangalore, volunteered to assist Member Planning Commission, Arun Maira, to develop a systems’ map with these inputs, to provide a more rigorous grounding for the India scenarios. System dynamics techniques were used to understand different aspects in defining the future of India. The systems’ analysis constituted several iterative steps that included identification of stakeholders, forces that shape the future, and the interactions amongst the various forces. This analysis helped to develop a conceptual model. The conceptual model and the system components’ rules were established assuming different paradigms and their relationships with the forces. The rules thus established enabled a study of the systemic effects of different alternate scenarios.

4. An “essay in persuasion”

As mentioned before, the Cabinet Resolution of March 15, 1950 setting up the Indian Planning Commission says, “The work of the Planning Commission will affect decisively the future welfare of the people in every sphere of national life. Its success will depend on the extent to which it enlists the association and cooperation of people at all levels.” The Planning Commission must fulfill the purpose for which it was created.

The Prime Minister (and Chairman of the Planning Commission), Dr. Manmohan Singh, while asking the Planning Commission to reform itself, has directed it to become a “systems reforms commission” and an “essay in persuasion”. Scenarios, based on systems’ analysis, explain the reforms to the system—the “theories-in-use” and the “policy-matrix”—required to produce faster, more rapidly inclusive, and more sustainable growth. However, people at large must understand the fundamental shifts in policy required and support them, and press the political system for change. Therefore, the scenarios, and the choices, must be in language that talks to the people. Then only can the Planning Commission become an “essay” (a force) for persuading change in the system.

The scenarios (and plans) must talk to many stakeholders, and meet many stakeholders’ needs. Amongst these stakeholders are the central ministries, and the finance ministry, who want to know what budgetary allocations the Planning Commission will make and support. To them, those aspects of the plan that talk about their schemes and budgets are most important. Other stakeholders are the State governments. To many of them, budgetary allocations towards their States matter. But that is not the only benefit that States expect from a national planning process. They expect insights into strategies they can adopt to improve their own performance.

The citizens are the ultimate stakeholders of the Plan. They are the “customers” of the ministries’ schemes and the state governments’ plans. What do citizens make of the Plan, the choices to be made, and the consequences? Therefore, the content of the Plan must speak in diverse languages and idioms to diverse stakeholders.

Scenarios expand the scope of the system that the plan addresses and can engage a wider set of stakeholders. The central focus of the Planning Commission has been an

Economy Plan. On one hand, that plan is converted into allocations, as mentioned before. On the other hand, the plan must connect with the wider social and political system of the country, which is what scenarios enable. Thus, scenario planning is a complement to the traditional planning process, and this is an innovation made in the 12th Plan.

5. Forces shaping India

The forces shaping India, analyzed by the Planning Commission were:

A. Aspirations of Citizens

A1. Changing Aspirations of "Marginalized" Communities

- Assertions to be in the mainstream
- Changing professional desire (Farming to Service oriented occupations)
- Assertions of Cultural heritage and value systems

As of the 2011 Census, while 59% of Indian households have a mobile phone, just 47% have a toilet on the premises.

A2. Aspirations of the Middle Class

- Aspirations for transparent and accountable governance
- Assertions of Cultural heritage and value systems.
- Desires for equitable distribution of resources

A3. Aspirations of Youth

- Opportunities for employment and entrepreneurship
- Rewards based on meritocracy
- Leadership that inspires

A4. Increasing demand for Human Rights

- Political Rights
- Social Rights
- Economic Rights

B. Demographics (Demographic Forces/Changes)

B1. Vis-à-vis Rest of the World (Labour Force of the World)

- India is expected to have a younger workforce compared to the rest of the world. It is expected that India will be the source of labor in coming decades

It is expected that, in 2020, the average age of an Indian will be 29 years, compared to 37 for China and 48 for Japan.

B2. Distribution within India (Age/Regional Distribution)

- Given the differences in birth rates between

various States (predominant north-south divide), it is expected that the majority of young population will come from northern States such as U.P., Bihar and Madhya Pradesh

C. Impatience and Protest

This force captures the effects of impatience with “trickle down” effects, inadequate sources of livelihoods for all (especially the marginalized communities)

- Restive populations
- Protest movements
- Increased violence

Left-Wing Extremism currently affects 182 out of 640 districts in India, with 83 of these districts seriously affected

D. Democracy and its Institutions

D1. Growing Lack of Trust in Institutions—Government, Big Corporations, and (even) Judiciary

- Increasing distance between “rulers” and “ruled”
- Strained governance systems—people unwilling to accept laws, norms, processes that serve community interests when they conflict with individual/own group’s interests
- Rampant and rapid increase in corruption
- Rising dissonance with legal system to ensure justice and social cohesion

The 2012 Edelman Trust Survey found that year over year globally, trust in government declined from 52% to 43% and trust in business declined from 56% to 53%

- Insufficient/absence of leadership to shape institutions
- Exclusive Planning—lack of planning and decision making involving local bodies and institutions

D2. Challenges in Democratic Politics

- Rise of regional identities/aspirations: challenge of shaping “One from Many”
- (Dis)honesty and failure of institutions” (government, corporations) communicating with people
- Inability to get alignment and support for leadership
- Lack of political consensus

The recent Indian anti-corruption movement, started in the aftermath of the Commonwealth Games and Adarsh Housing scandals, was named among the “Top 10 News Stories of 2011” by Time magazine.

D3. Exclusion in Traditional Practices

- Default “discrimination” in traditional

institutional practices in society

E. Availability of Earth's Resources

E1. Water Availability

- Effects of lowering of water table
- Drying up of traditional water bodies
- Wastage due to inefficiencies in extraction, storage, distribution and use

India has just 1,197 cu. meters of renewable freshwater per capita compared to a global average of 6,258 cu. meters.

E2. Energy Availability

- Depletion of traditional sources of energy (coal, gas, oil)
- Wastage due to inefficiencies in extraction, storage, distribution and use
- Inability to harness renewable and new sources of energy

E3. Land Availability

- Conflicts in Land Use
- Agriculture vs. Urban vs. Industry vs. Minerals vs. Forests
- Process of land acquisition
- Forest cover and its ability to absorb carbon (CO₂) emissions

E4. Food Availability

- Distorted priorities in production of food (non-diversification)
- Inefficient supply chains to store and deliver food grains where required

F. Climate Change and Natural Forces

F1. Stochastic Events

- Successive droughts, floods, earthquakes, or tsunamis

F2. Long-Term Climate Change Impacts

- Impact on resources and productivity

Glaciers in the Himalaya are receding faster than in any other part of the world and at the present rate may disappear by 2035.

G. Potential of "Big Ticket" Breakthroughs in Science-Technology

- Global Scientific breakthrough
- Proliferation of technological knowhow worldwide

H. Innovations in Growth Model, Architectures of Institutions, and Business Models (See Annexure 5)

- Innovation in Economic growth model: inclusion and sustainability *with* growth
- Innovations that translate science and technology into affordable and accessible outcomes for people
- “Entrepreneurship” outside and within Government to change extant processes
- Innovations in models of public services delivery (Subsidies for Health, Education, Food, Energy, and Other Resources)
- New Business Models and Networked Organizations

The Aravind Eye Hospital, the world's largest eye care center, produces over 1 million intraocular lens for \$10 a piece versus \$200 for imported lenses

I. Information and Communications Revolution

- Ubiquity of information, and proliferation of channels for communication
 - Cellphones
 - 24x7 news
 - Internet/social media
 - Right to Information

India has the highest number of mobile operators (10) and the lowest average call tariffs (Re. 0.50 per minute) in the world.

J. Global and Regional Forces

J1. Stability of India's Neighbors

- China, Pakistan, Bangladesh, Nepal, Sri Lanka, Afghanistan, Myanmar and Maldives

J2. Growth of China

- Effect on geopolitics, and on India
- Impact on global natural resources

J3. Conflicts Impacting Oil and Energy Production

J4. Imposition of Global Financial Systems (IMF, World Bank and Investors)

- Race to the Bottom to roll out the Red Carpet for capital
- Imbalanced returns to capital rather than labour
- Challenges to national governments' powers

J5. Barriers to Trade

J6. Global Developments and Treaties on Climate, Energy

J7. Stability of Developed Economies

Under pressure from the US, state-run Indian oil companies, which are Iran's biggest oil buyers, have cut imports from Iran drastically in 2012.

- EU: uncertain, US: tenuous, Japan: whither?

K. Threats to National Security

K1. Internal violence and terrorism

- Spread of "LWE" movement
- Urban terrorism strikes
- Violent unrest in NE and J&K

K2. Proliferation of New Threats

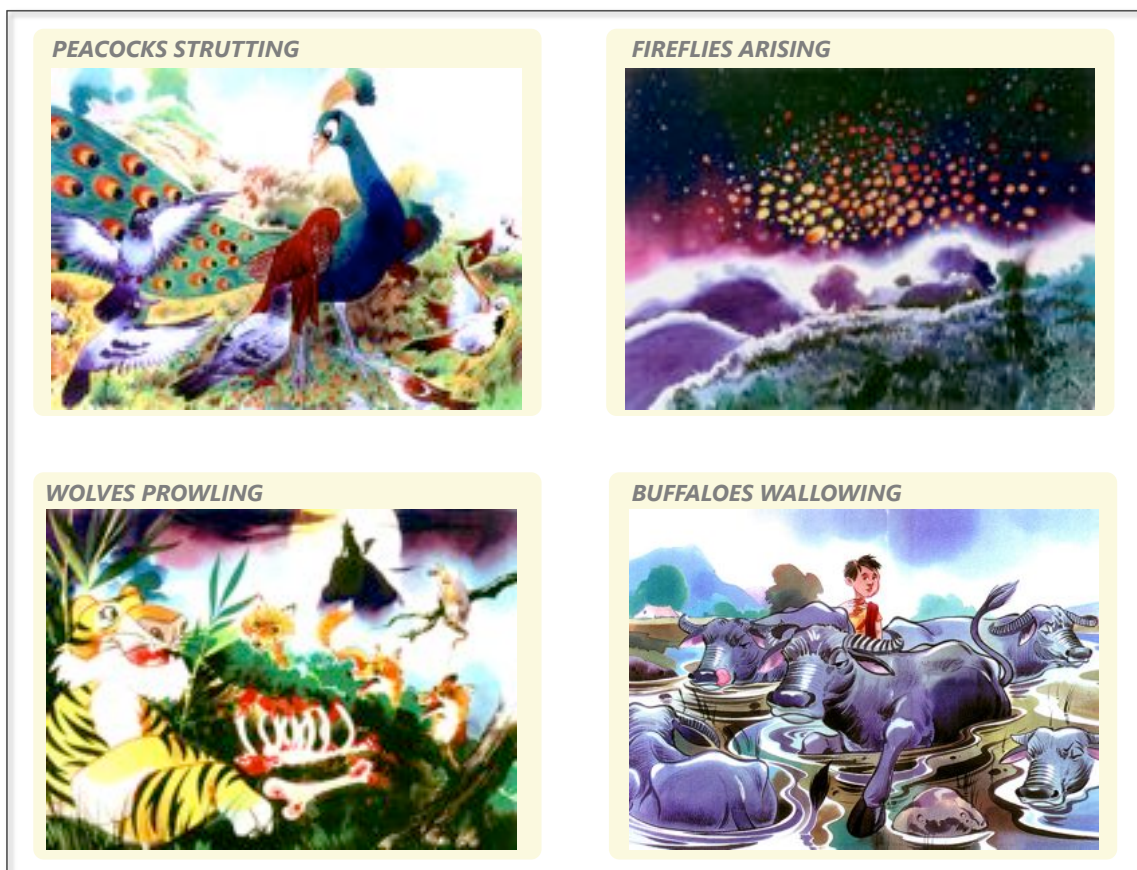
- Bird flu, cyber-wars, unmanned systems, tactical nuclear weapons

K3. Denial of Systems, Equipment, and Knowledge

- Embargoes on technology that could be of dual use. This force affects ability to leapfrog technologies and effect efficient development.

With an estimated annual budget of \$47 billion, India is the eighth ranked military spender globally. However, with a \$143 billion defense budget, neighboring China is ranked second after the USA.

A Kaleidoscope: What is Going On Within?



Many contending forces of change and resistance

6. The System Model

The relationship between the fundamental forces that emerges from a systems analysis is presented in the diagram below. The systems analysis is explained in **Annexure 3**.

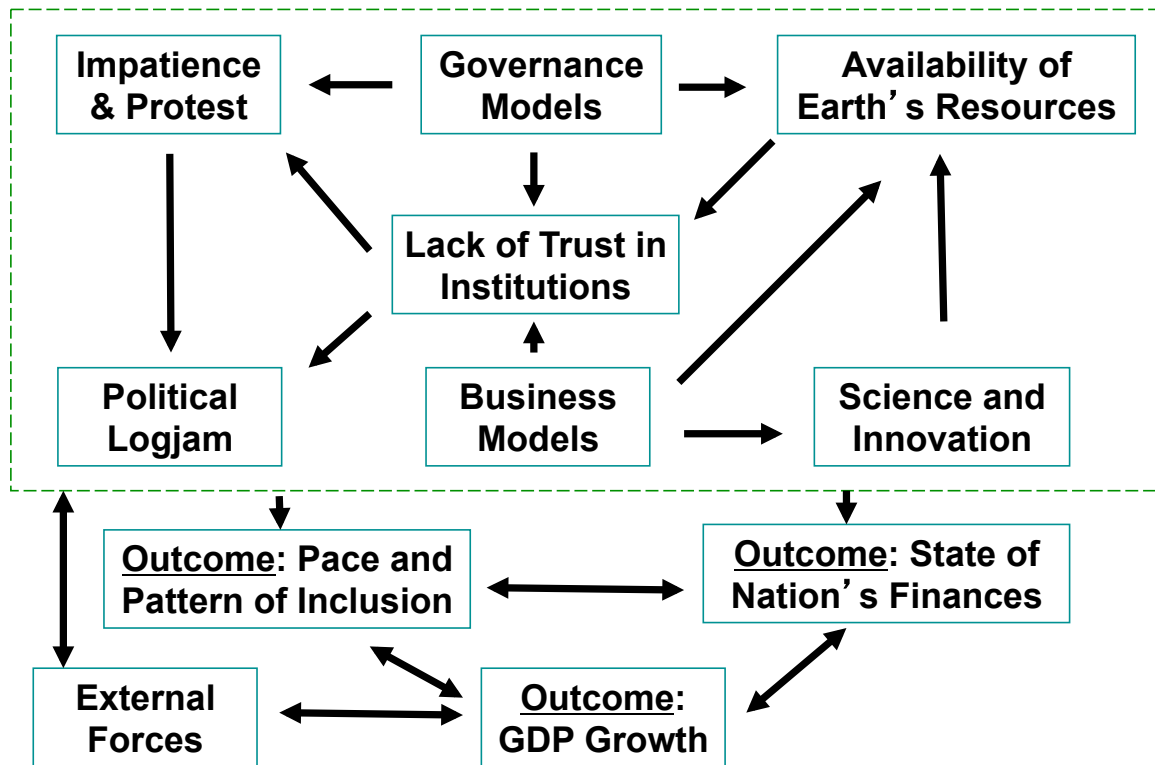


Figure: Root Causes and Leverage Points

The analysis locates the leverage points: the forces that affect the condition of all others. These are seen in the middle of the diagram. They lie in the design of institutions. The architecture of Governance and Business Models is the key to the condition of the entire system. The critical features of governance and business models that impact the system are explained in the following section, describing the “Three Forks in the Road”. The architecture of governance and business models impacts trust in institutions, especially institutions of government and large business, which has been severely eroded. Governance and business models also impact sustainable and equitable use of the earth’s resources. They also influence the impact of science and innovations on the conditions of people and the earth’s resources.

Lack of trust in institutions is increasing impatience in society, especially younger people, and leading to protest, sometimes turning violent. Increasing impatience

and protest, fuelled also by the ubiquity of media and information, and the lack of trust in institutions leads to political logjam. Unfulfilled aspirations, impatience with the pace of change, and protests impact the political system, which makes reforms, that the system needs, more difficult.

The condition of the system, and its ability to reform itself through improvements in its institutions, will determine the pace and pattern of inclusion in growth. It will also affect the state of the nation's finances. These in turn will affect GDP growth. Therefore, predictions of GDP growth rates must be related to the condition of the system and the social, political, and institutional forces within it. Often treated as exogenous to economic growth models, it is necessary to include such forces within the model of the system to understand trends in GDP growth rates. A comprehensive model also provides insights into measures outside pure economic policy that will increase growth.

Many forces outside the country will impact its progress. These include the condition of the global economy, parts of which seem severely stressed at present. More immediate concerns for India are forces within its neighboring countries. These forces were also examined while developing the scenarios, as mentioned before. What the condition of these external factors will be in the near term and longer-term future is not easy to forecast. Therefore the most important question for the country's policy-makers must be: what strategy will ensure that the country will be best placed regardless of these external uncertainties?

Not surprisingly, India will be most secure in times of uncertainty if it is internally cohesive and strong. Therefore, an analysis of the leverage points for change within to strengthen the Indian economy and society provides the keys to the strategies for India to weather turbulence in the world around. These are within India's own control, whereas the forces in the world around are not. Moreover, India will be in a stronger position to influence change in the world when it is more cohesive and internally strong. Therefore when the world around is changing, the Plan for India must concentrate even more on institutional reforms within.

The focus on internal institutional and systems' reforms as the key agenda for India's 12th Plan is consistent with the role the Planning Commission is expected to play henceforth. While it transitions to its more strategic role, it will have to continue to perform its role in allocation of funds also, until those functions are passed on to the Finance Ministry as recommended by the Rangarajan Committee (that was set up by the Planning Commission).

7. Three Forks in the Road to the Future

Many of the strong forces that will shape our future are “givens”. For example, the demographics of India—the size of its population in the next fifteen years, and the proportion of youth within it; the amount of land in India; and the spread of communications with new technologies. These are givens. However, other forces that will strongly shape our future too, are not necessarily givens: they can play out one way or another. An example is the approach towards inclusion that we would emphasize in our policies and actions. Will it be through a process of “trickle down” with handouts meanwhile? Or, will it be through more effective and widespread generation of livelihoods? We have choices here. The future shape of the system—the quality of the inclusion as well as the financial condition of the economy—will depend on the choices we make. Thus, we can project alternative scenarios by changing the directions of such forces.

Like an X-ray, the systems’ analysis shows a deeper pattern. Whereas many forces will significantly affect India’s future, some of these forces are more “fundamental” than others because they can shape the way other forces will play out. With these insights, alternative scenarios of the future can then be constructed by considering different directions/values of these more fundamental forces. When they play out one way, many other forces that depend on them will also go accordingly. And when they go another way, another “scenario” altogether can emerge.

Where the direction of a force is not a “given”, we can choose the approach we (the system) will take, and develop our own strategy. Therefore, it is not surprising that the three fundamental forces that can shape India’s future are about approaches to development and governance—that is, about “Hows”. A word of caution: some of these approaches may seem “idealistic” and “impractical”. Skeptics can ask: where is the proof that this has been done and it works? The answer is, “Hows” can be invented. Where, in the 1960s, was the evidence that a man could be sent to the moon and back? Yet, within ten years of President Kennedy’s audacious call for innovation, it was done.

Humanity’s progress is based entirely on innovations of institutions and processes, and also innovations in services and devices, that have enabled people to do what until then had been considered idealistic and impractical—merely because it had not been done before. The creation of a more inclusive and sustainable future will

require innovations in institutions and processes (See **Annexure 5** for a detailed discussion on innovation).

“Give me a place to stand and a lever long enough and I will change the world”, Archimedes said. Our choices about the approaches we will take are turning points in the course the system will take. They provide the “leverage points” to nudge change in the course of events and create the future we aspire to. They lay out the principles of an alternative “policy-matrix”, and a vision of how the change will be brought about.

Three principal forks in the road that have been located by the systems’ analysis are:

A. The approach we take to “Inclusion”: the What and How of inclusion.

The principle of “cumulative causation”, whereby those who have some assets—finance, education—will first benefit from more opportunities in the economy, results in increases in disparities with economic growth, until benefits of overall growth “trickle down” to all. In the last twenty years, the impatience with the pace of “trickle down” has increased greatly all over the world. Impatience has increased with emergence of two forces of relatively recent origin. One is the value assigned to human rights and fairness, which is being magnified universally with the spread of democracies since the latter part of the previous century. The other is the ubiquity of information with new technologies, a large force of even more recent vintage. As a result, a principal challenge for economists and policy makers all over the world has become how to achieve “Inclusion” along with economic growth.

Achieve inclusion we must. The question is How to achieve Inclusion more rapidly *along with* growth. Two contending approaches are evident. One emphasizes “redistribution”: taking from those who have more, by way of taxes, higher prices, etc, and giving to those who do not have enough, thus producing some measure of justice faster. The other approach emphasizes creating more access to opportunities, and supporting them with capabilities to access those opportunities, so that the less well-off can increase their incomes faster and also contribute to growing the pie.

Proponents of the “handouts” approach would object on the grounds that the “opportunities” approach is idealistic. On the other hand, proponents of the latter approach point out that handouts and subsidies can become economically unaffordable. Thus, there is a choice to be made here: which course shall we put our collective weight behind? Scenarios can project the consequences over time, for the

lives of people and the state of the economy, of choosing one course rather than the other.

The condition of this force can be represented as a continuum. At one extreme (**X0**) the emphasis is mostly on “handouts”—how much, for what, and to whom. At the other extreme (**X1**) the emphasis is on a very determined effort to generate more opportunities for livelihoods and to provide all sections of society with access to them.

B. The approach we take to “Governance”: will we strengthen local, community based, and collaborative governance rapidly?

When systems seem to be “not in control”, and when results are required faster, the instinct is to centralize. However, if the reasons for the results not coming faster are that the diversity in the system is very large and therefore solutions must be locally adapted, and that there is not a capable center, then it may be best to strengthen local governance rather than try to impose central control. Here too, one may hear skepticism about “the romance” of local governance and demands for evidence that it works. Scenarios project the quality of the system that will come about if local government is deliberately and more effectively strengthened as well as the condition of the system in the future if this is not done now. It is up to us to make the choice of what to begin doing earnestly to realize our vision.

Another dimension of governance is the vertical split of institutions and programs into specialized “silos”, which is the prevalent condition in India. The need to break across the silos and create convergence has been recognized. Will we?

At one extreme (**Y0**) the way most things are run is, in effect, “central” and “silo-ed”. At the other (**Y1**) local rural and urban governments are effectively in charge of their affairs with vigorous participation of local citizens with higher levels of government facilitating them with policies and resources, and also greater convergence of efforts. In a devolved structure with power closer to where results are required, and with different parts of the system working collaboratively, adaptation and learning are faster too. Therefore, a system at the **Y1** end is a much faster learner than a system at **Y0**.

C. The “theory-in-use” towards energy and environmental solutions (as well as enterprises): big projects, or more community-based solutions and enterprises?

Local and smaller solutions can create more ownership and responsibility for the use of resources and also ensure more equity in distribution of benefits. The argument against this theory is that scale is required for more efficiency. Modern communications technology, as well as miniaturization of machines and devices, now enables small, dispersed units to combine into larger networks in ways that were not possible till recently. Therefore innovations in networked enterprise designs can enable the benefits of both, local ownership, as well as the benefit of scale where required.

Here too, one can imagine extreme positions, with a continuum of situations in between. On one end (**Z0**), big is good is the dominant paradigm. At the other end (**Z1**) only small is beautiful. In reality, both types of solutions should be applied in the system, albeit appropriately to the situation. The scenarios project the likely consequences for the system of a greater bias towards one or the other approach.

Scenarios are projections of "What If". Each scenario is an internally consistent description of the system it describes (the country in this case) if forces play out, or are caused to play out, in one way rather than another. Internal consistency requires that implausible combinations of directions of the forces are not considered. For example, the analysis tests whether highly centralized governance can go with decentralized, community-based solutions. Thus, the number of alternative scenarios is limited to internally consistent combinations only.

The India scenarios described in this document are constructed around the leverage points in the more fundamental forces explained above. These are the cross roads in our pathways to the future. These fundamental forces and leverage points provide the "skeletal bones" of the scenarios. They are derived from an analysis of all the critical forces (that were identified by the Members of the Planning Commission, and by the civil society, business, and other participants in the scenario process). Thus, the scenarios are comprehensive, and internally consistent, descriptions of different States of the country's future. They show the longer-term consequences of the choices we can make now. Three scenarios emerge in our analysis. These are described in the next section.

8. Three scenarios of India's future

The system analysis reveals three scenarios of India. They can be described under the headings of *Muddling Along*, *Falling Apart*, and *The Flotilla Advances*. These scenarios result from three different configurations of the methods by which inclusion is sought to be achieved, and the shape of governance and business models adopted for development of the country. These configurations impact the forces within the System Model differently, and therefore result in different scenarios with different outcomes.

The three scenarios are presented in three vignettes. Each vignette is composed of a description of the situation along with an analysis of the interplay of forces. India is at crossroads, as explained in the concluding section of this chapter, titled "India at a turning point: which scenario will emerge?"

Scenario 1: *Muddling Along*

This is the scenario of India where the system is crying for reform, and some reforms are initiated. However, these are piecemeal, do not address core governance issues, and therefore are not effective. Centralized government systems struggle with demands for decentralization. Small enterprises are sought to be encouraged, but the agenda of big business dominates. The policy conflict between subsidies and financial stability of the economy remains unresolved.

The picture

The many diverse communities that compose our nation (class, caste, region, etc.) can be imagined to be sailing in ships in a flotilla on a sea that is often rough. The sea they are navigating through is the external global and national environment, and the increasing stress on the earth's resources. The flotilla would like to



move faster but is slowed down because the ships are unable to keep together. This

is not a naval fleet, with all captains enjoined to obey the admiral's orders, but a flotilla of ships under the leadership of a flagship headed by a commodore who is elected to be first among equals.

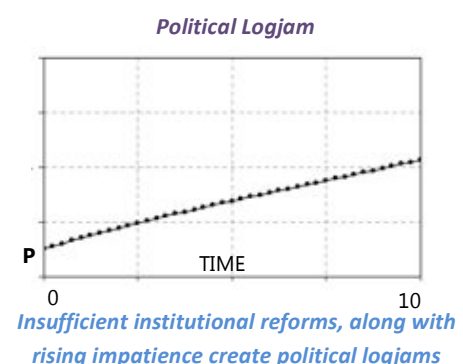
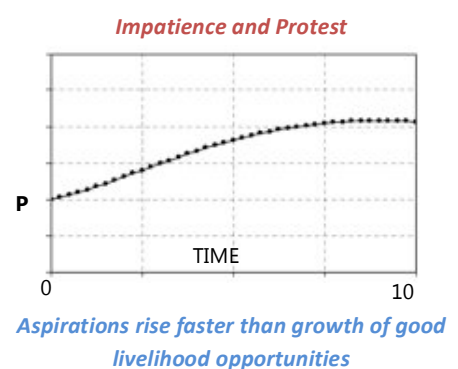
The sea has become more turbulent. The commodore in the flagship isn't talking to the captains of the ships often enough for all to collectively decide on their direction. At the same time, the engines and navigation systems of the ships (their institutional capabilities and governance models) have not been updated to suit the more turbulent environment so they are not able to travel faster and to coordinate quickly with the flagship.

Often, one ship moves ahead faster than the others, but it has to wait impatiently for the laggards to catch up. Sometimes a storm separates the individual ships and it is difficult to bring them back into the flotilla and on course. Other countries' flotillas in contrast seem to stay closer together and are able to maintain a higher average speed. Fearing that their Indian flotilla may be falling behind the progress of others (such as the recent comments that Indonesia may be replacing India as the "I" in BRICS), the crews of the Indian flotilla are becoming restive with their leadership. Fortunately, because they can see that they are moving ahead, albeit in fits and starts, they have not yet protested so loudly as to throw the entire flotilla off course.

The analysis

As the government engages in piecemeal reforms, some positive feedback loops are created within the system. A shift away from subsidies, albeit halting, allows for some more investments in education and employment opportunities. As many newly educated citizens engage in newly created jobs, hopes rise, but since the progress is not fast enough, impatience also increases even though GDP increases. Higher tax revenues improve the government's ability to reduce budget deficits, but the pressure to ease poverty by subsidies and handouts also continues.

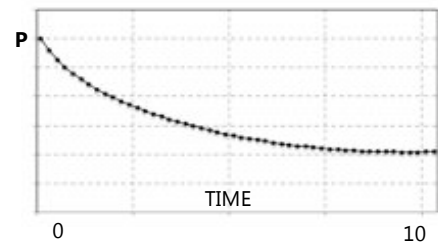
At the same time, a lack of reforms in several areas, because they are politically difficult, hampers progress. A centralized government,



being inherently inefficient at allocating resources when compared with localized government, impedes improvement of outcomes of centralized schemes. Innovation is stifled by a lack of autonomy and precious natural resources are wasted. This increases lack of trust in institutions, resulting in continuing protests and political logjam.

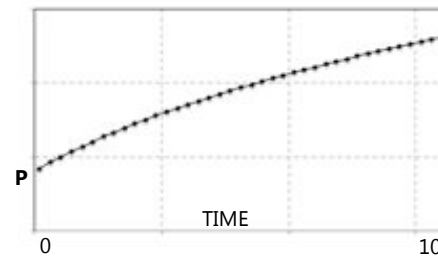
Reforms are made but not given the priority they need, and many are stalled or diluted. The economy grows but hardly achieves its full potential: it remains pregnant with unrealized possibilities. The underlying malaise of citizens' lack of trust in institutions remains insufficiently attended to. Therefore, insufficient social and political cohesion remains a threatening source of instability.

Pace of Inclusion



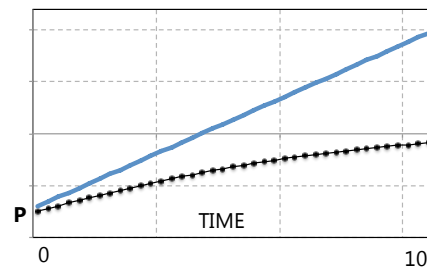
While more people come out of poverty, many remain behind, and the sense of unfairness increases

Budget Deficit



Inadequate and slow reforms continue to put pressure on budget deficits

Potential Growth / Actual GDP



GDP Growth below potential and expectations

Scenario 2: *Falling Apart*

This scenario emerges from India remaining stuck in a centralized governance system whose theory-in-use is to exert control in the face of demands for devolution, by centralized mega-schemes and projects, and by “redistribution” of wealth through a system of “handouts” and subsidies. The impatience and political logjam that result put India under severe stress, with several factions threatening to dissociate themselves from the political union.

The picture

A flotilla of ships is trying to sail together, but ships keep colliding with each other. The commodore in the flagship and the captains of the ships do not communicate enough. And whenever they do, their meetings are inconclusive, because the captains of the individual ships think themselves superior to other ships or even the commodore.



Consequently, ships often sail off in different directions. The flagship is spending too much time just getting the flotilla back together, leaving little time to coordinate future directions.

Only in a calm sea does the flotilla move faster. When the sea becomes stormy, and the ships often cannot even see each other, much less the horizon that they are to sail towards, they fall apart. Moreover, since the ships don't have an updated chart of the seas they are sailing in, they sometimes hit uncharted rocks. Thus some ships are left behind while others move on.

These setbacks are disheartening the flotilla's crew. They hear of the rapid advance of other flotillas. They also hear the frequent confused signals between the ships in their own flotilla. This makes them even slower in responding to any misfortune that strikes their ship—consequently, making it harder to recover.

The Analysis

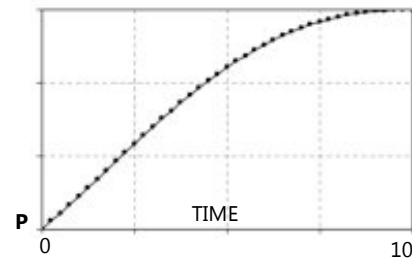
In a system where hardly any institutional reforms are made, a vicious cycle emerges which results in the political logjam becoming so severe that government can barely function.

The areas in which government authority has weakened increase. Left Wing Extremism and separatist movements infect more areas of the country. Stand-offs between central government institutions and between the center and the States become rigid. The center and state governments try to win popularity with increasing hand-outs and, at the same time, try to assert their authority with more police, and even army, action. Civil society protest movements take up non-negotiable stances. The political logjam becomes worse.

The hand-outs and costs of police actions strain central and state governments' finances. Investments slacken. With lower tax revenues, budget deficits increase. The condition of the economy worsens. Employment needs of enterprises do not grow as rapidly as the workforce, so instead of producing a dividend, India's demographic changes become a ticking time bomb. Handouts do not incentivize innovation and entrepreneurship, but instead create dependency. Social spending increases and tax revenues decrease. Thus, a cash-strapped government is unable to achieve its goal of poverty alleviation through subsidies.

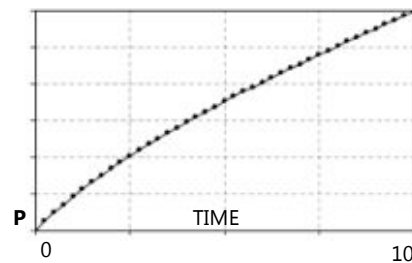
Amidst this backdrop of low employment and malfunctioning government machinery, the nation's economy quickly falters and GDP growth collapses. Needless to say, both the pace and

Impatience and Protest



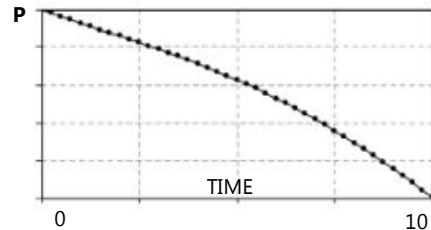
Aspirations not met leading to rise in impatience and protest

Political Logjam



Falling trust in institutions contributes to the political logjam

Pace of Inclusion



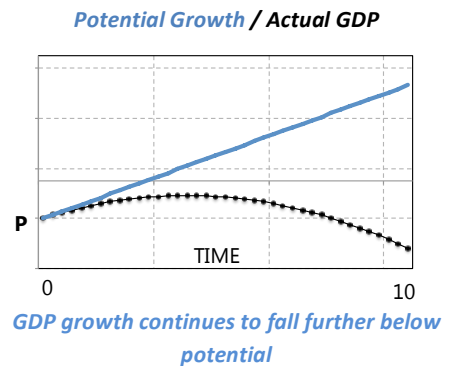
A handout culture persists; slow growth of livelihoods and increasing budgetary constraints slow the pace of inclusion

Budget Deficit



A crisis in the government's financial position breaks down confidence in the economy

pattern of inclusion are far off target. Any belated attempts at reform are now stymied by a central government with limited financial or political capital to deploy.

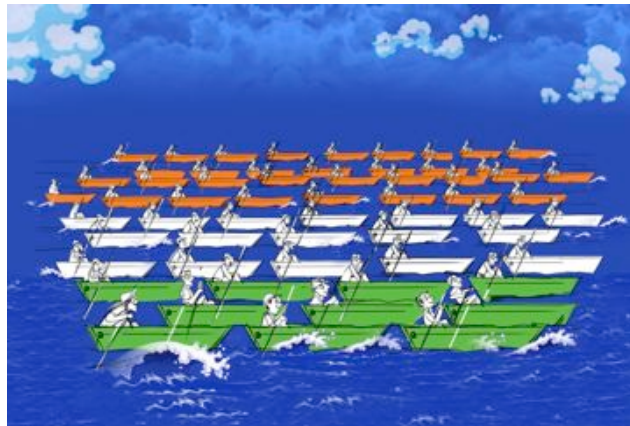


Scenario 3: *The Flotilla Advances*

This is the future of India with a federal governance system in which the wheels begin to mesh more smoothly, local governance institutions and small enterprises are nurtured and grow effectively. Livelihood opportunities, along with community based solutions and enterprises for addressing environmental issues, are seen to be sprouting.

The picture

The flotilla is well coordinated with better navigation and communication systems between all the ships. The captains and the commodore consult regularly. They have created a system to arrive at a consensus about the direction the flotilla must take. The ships are manned by inventive crews, empowered to try new ways to speed



up their ships. With good communications between the ships, new ideas from one ship are transmitted quickly to others. Consequently, all ships are improving their abilities to navigate and sail faster.

The flagship has ensured that all ships have a map, know the route to take, and have good instruments to guide themselves and coordinate with others. When ships temporarily lose contact with others in a storm, they are able to return to the path and rejoin the flotilla. Their confidence in their ability to progress and in their captain motivates the crews to go about their work satisfied that they are individually and collectively moving ahead.

The flotilla soon catches up with other flotillas that left nearby ports at the same time. After overhauling them, it has set its sights on reaching and then overtaking other flotillas that sailed earlier.

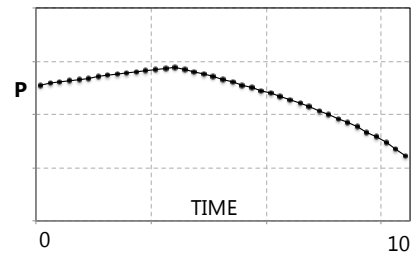
The Analysis

Responding to the widespread demand for institutional reforms, the government vigorously takes up necessary reforms in government processes and regulatory systems, along with pending economic reforms. The central government's financial assistance to the States is altered to give the States more flexibility to devise local solutions while also linking the assistance to agendas for governance reforms. Institutional capacity building, especially in local governance, is given high priority in government's rural and urban programs. Once a critical mass of reforms is initiated in all three areas of inclusion, governance, and sustainability, a self-sustaining positive cycle emerges. People begin to see change on the ground. They are engaged, not alienated.

The emergence of "networked enterprises" such as farmer cooperatives, producer societies, and clusters of small and large enterprises, create a wider spread of opportunities for citizens to earn better livelihoods, improving inclusion outcomes. Innovative business solutions emerge to use scarce natural resources and human talent more efficiently, which boost productivity and the GDP. Faster growth of economic activities and employment opportunities increases government revenues and reduces the demand for handouts and subsidies, thus improving governments' finances.

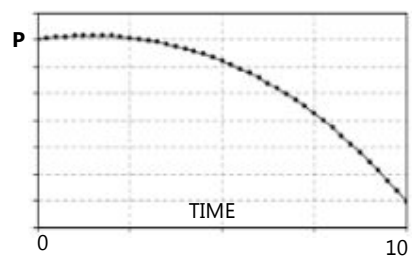
A challenge in this model of distributed authority and local innovations is the "scaling up" of good solutions across diverse political configurations and geographical areas within the country. On the other hand, more

Impatience and Protest



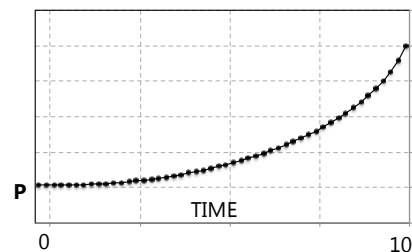
Impatience continues till citizens begin to perceive benefits of reforms and improving livelihoods

Political Loaiam



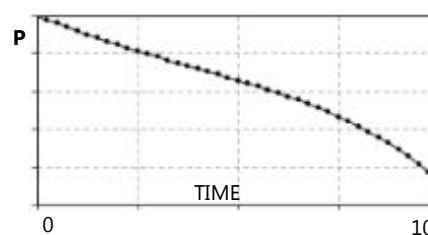
Successful implementation of local projects by empowered local governments increases trust in institutions

Pace of Inclusion



Strong inclusionary growth is a byproduct of localized skill development and innovation in business models

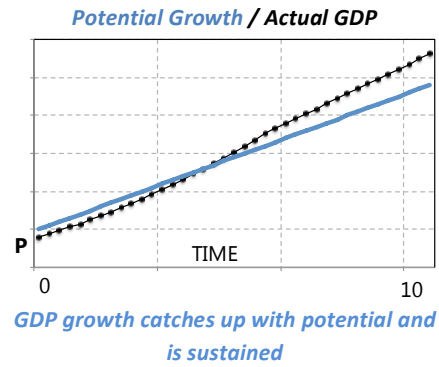
Budget Deficit



With India fulfilling its growth potential, the government's finances improve

participation and more innovations make the whole system stronger. In aggregate, the economy grows faster, and inclusion in growth is more too. Such a strong and diverse system also provides greater protection from shocks from external forces.

Thus, a concerted effort to adopt decentralized governance and solutions, along with a focus on opportunity-based inclusion produces more sustainable strength—both socially and economically for the country.

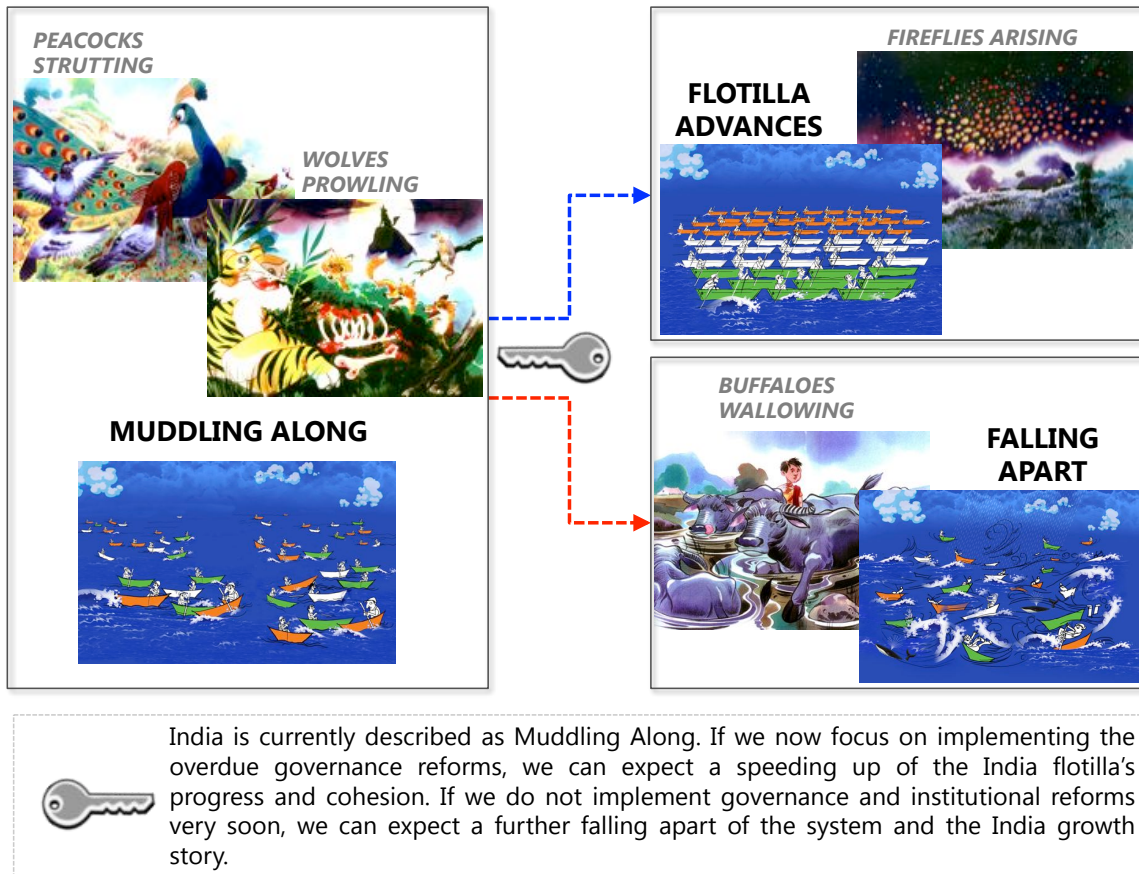


Comparison of the Scenarios

	Muddling Along	Falling Apart	The Flotilla Advances
1. Strategy for Inclusion	<ul style="list-style-type: none"> • Espoused strategy – Livelihoods • Actual strategy – Handouts 	<ul style="list-style-type: none"> • Use of handouts increases to quench protests 	<ul style="list-style-type: none"> • Effective strategy – Livelihoods • Diminishing need for handouts
2. Architecture of Governance	<ul style="list-style-type: none"> • Espoused strategy – Devolution • Actual strategy – Keep control 	<ul style="list-style-type: none"> • Attempts to centrally control as system gets out of control build further resistance to center • Institutions/States go their own ways 	<ul style="list-style-type: none"> • Center implements devolution to States & States to local governments • Fewer, more effective coordination mechanisms
3. Capacity Building of Institutions	<ul style="list-style-type: none"> • Lip-service to capacity building 	<ul style="list-style-type: none"> • Lip-service to capacity building 	<ul style="list-style-type: none"> • Systematic building of capacities
4. Science & Technology	<ul style="list-style-type: none"> • Increased allocations • Not effectively tied to innovations/institutional improvements 	<ul style="list-style-type: none"> • Cannot afford increased investment in Science & Technology 	<ul style="list-style-type: none"> • Increased allocations • Tied into innovations and institutional improvements
5. Innovation	<ul style="list-style-type: none"> • Some attention to innovation ecosystem • Confusion regarding Science & Technology vs. Innovation 	<ul style="list-style-type: none"> • Innovation is a buzzword only • Insufficient institutional support 	<ul style="list-style-type: none"> • Innovation ecosystem systematically built • Benefits of local innovations begin to spread
6. Impact on Natural Resources	<ul style="list-style-type: none"> • Dwindling natural resources – water, forests etc. • Many efforts to prevent decline, but not coordinated 	<ul style="list-style-type: none"> • Resource-based crises increase 	<ul style="list-style-type: none"> • Tide seems to be turning to sustainable use of resources • Community/user responsibility becoming effective
7. Use of Information & Communications Technology	<ul style="list-style-type: none"> • Investments made and schemes rolled out • Not sufficiently connected with institutions & process 	<ul style="list-style-type: none"> • Investments not connected with institutional & process improvements • Investments curtailed 	<ul style="list-style-type: none"> • Institutional & process improvements go hand in hand with IT investments

	improvements	because benefits not sufficient	
8. Growth of Enterprises & Livelihood Opportunities	<ul style="list-style-type: none"> • Many areas of success, but insufficient impact across the country 	<ul style="list-style-type: none"> • Impatient demands for livelihoods, here and now, overwhelm the process of creating new enterprises 	<ul style="list-style-type: none"> • Enterprises sprout in increasing numbers around the country • Employment and livelihood opportunities increase
9. Confidence in Institutions and Country's Progress	<ul style="list-style-type: none"> • Declining 	<ul style="list-style-type: none"> • Crisis point 	<ul style="list-style-type: none"> • Hope building again • Confidence restored • Willingness to be more patient
10. Government Budgets	<ul style="list-style-type: none"> • Pressure to continue subsidies/handouts • Economic activity and government revenues not keeping pace • Alarm at government budgetary position 	<ul style="list-style-type: none"> • Rapid slowdown of economic activity reduces government resources • Reduction of subsidies/handouts becomes untenable • Crisis point 	<ul style="list-style-type: none"> • Faster, more widespread growth of economic activity • Less pressure to maintain handouts/subsidies • Government finances improve
11. Investors' Confidence	<ul style="list-style-type: none"> • Declining • Creating a negative cycle: less investment, less growth 	<ul style="list-style-type: none"> • Very low • Difficult to attract investments to spur growth 	<ul style="list-style-type: none"> • India Growth Story advancing again • Investors return, with confidence in India's medium-term prospects
12. Trade Balances	<ul style="list-style-type: none"> • Unfavorable, with slower growth of manufacturing and slower exports 	<ul style="list-style-type: none"> • Reach levels of alarm 	<ul style="list-style-type: none"> • Manufacturing activity grows • More exports • Less pressure for imports
13. Vulnerability to External Shocks	<ul style="list-style-type: none"> • Increasing, due to lower internal 'buffers' and lower speed of responses 	<ul style="list-style-type: none"> • High 	<ul style="list-style-type: none"> • Less vulnerability as internal cohesion builds and speed of response increases • Stronger economy and finances provide better buffer
14. GDP	<ul style="list-style-type: none"> • Under pressure 	<ul style="list-style-type: none"> • Sinking 	<ul style="list-style-type: none"> • Rising

India at a turning point: which scenario will emerge?



Citizens within and observers outside India describe the present state of affairs in the country as "muddling along". They say that the economy has lost the momentum it had due to the internal political logjam, delays in structural economic reforms that are necessary, and above all, inadequate progress in reforms of institutions and in improvement of governance that is being demanded by both investors and citizens. The present sense of an impending economic crisis with slowing GDP growth, a ballooning budget deficit, declining foreign investments, and negative trade balance, calls for economic policy reforms. If these are made in good time, the macro-economic parameters will improve. But if fundamental governance reforms are not implemented too, the political and social tensions will reassert and, once again, economic growth will stall.

Meanwhile, young people are continuing to add to the potential workforce, demanding more and better opportunities for earning respectable livelihoods. And the historically disadvantaged sections of Indian society are becoming more impatient, demanding faster inclusion. Cracks in internal cohesion can turn into deeper divides if ways are not found soon to improve mutual understanding and

collaborative action. The sense that the India story is falling apart can induce people to take unilateral actions to serve their own interests, making cohesion even more difficult. There is fear that if the country has not reached a crisis yet, it may in the not too distant future, unless it aligns around a new vision and direction to persuade the Indian flotilla to align as it moves on.

9. A vision of our future

Scenarios explain the consequences of the choices we make, the theories we apply, and the “policy-matrix” we use. To choose a path from the alternatives before us, we must have a vision of where we want to go. The power of vision was evoked by the poet Iqbal. Paraphrasing his poem, this is what he said:

My Vision is like the pale light before the dawn
Which, from the horizon, begins to show
A path coming to my feet

As it brightens
I see hope in green shoots of grass
Visible beneath the frost
Before my step

Three scenarios for India have been analyzed that depend on the path we follow and policy-choices we make. What is our vision of what sort of country we want to be?

Our vision will illuminate the values we will live by, how we will be, the choices we make and the paths we will follow. The economic value that we will create in the country will be an outcome, and an element of our vision, but not its only, or even its principal objective.

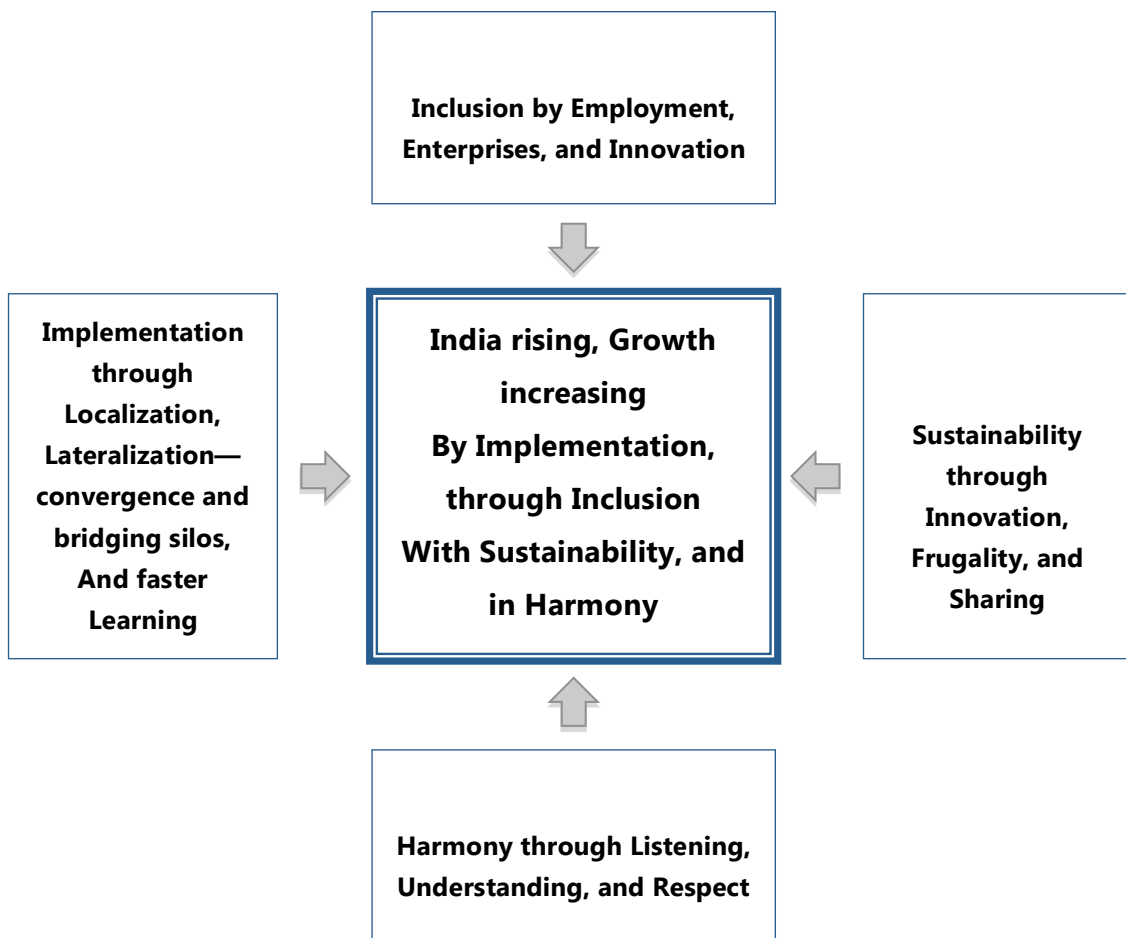
If we have to go together as a nation, as we must, we must have a shared vision of what we aspire for. Planners cannot create a spirit of shared vision in citizens: they can only provide paths and plans for realization of the vision. At most, they may provide a seed to start conversations about a shared vision for India’s future. The vision will emerge from multiple dialogues between citizens in many places and many settings about their vision. From these multiple conversations over space and time, a shared vision may emerge which, while it may never be articulated into a “vision statement”, will begin to align the directional changes the people demand from their Governments in the Center and in the States.

The Members of the Planning Commission have gathered, from their consultations with the States civil society groups, business associations, local governance

institutions, and citizens in various forums, some principal elements of a vision for the future of India. These are listed in **Annexure 4**.

These vision elements are a beginning for many dialogues that should take place in a variety of forums and in several places amongst citizens about the future, they want for their country.

Like Iqbal's light before the dawn, from these elements and subsequent conversations amongst stakeholders about the scenarios and choices before us, a vision for India seems to appear as:



10. A New Path

*I shall be saying this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less travelled by,
And that has made all the difference.*

—Robert Frost, “The Road Not Taken”

By many accounts, the world is at a turning point. A new path has to be found to reverse environmental degradation, respect the rights of all people, and accelerate their inclusion in the benefits of economic growth.

In today’s paradigm of India as a modern, globalized economy, the Planning Commission as envisioned sixty years ago is no longer as relevant. Stakeholders and experts concur that there is both a great need and value in a body that provides a “radar” for India’s flotilla of independent stakeholders.

The vision, the system analysis, and the scenarios presented here are an unconventional complement to India’s 12th Five Year Plan. They are a response to a demand from citizens to the Planning Commission for a more accessible discussion about the country’s future than a conventional economic plan provides. This document complements the traditional Plan document that discusses performance of the economy, plans for sectors, and allocations of resources. It goes beneath economic trends to the fundamental forces, guiding theories, and institutional structures that shape the country.

Three scenarios of India’s progress in the next ten years can be anticipated, depending on the institutional reforms and the policy-matrix the country implements. These scenarios, explained in this document, are titled *Muddling Along*, *Falling Apart*, and *The Flotilla Advances*. The essential difference amongst these scenarios lies in improvement of the quality and capability of cooperative governance at many levels.

The scenarios, along with the system analysis of forces, and elements of an emerging vision, provide starting points for a new conversation between the Planning Commission and stakeholders, and also amongst citizens. These conversations, page **40** of **52**

debates, and dialogues, about the future of the country and collective choices that must be made can help to produce the missing consensus in the country. There is no guarantee that this process will result in a consensus. But, it is certain that, in the absence of a good dialogue about these issues, a consensus is even less likely! Therefore, the new path for the Planning Commission, as it launches the 12th Five Year Plan for India, is to design and facilitate a process for dialogues with stakeholders, and amongst them, about the future course of the country.

The questions are: What is the character of the country we want, and how will we build it together.

Annexure 1: Contending World Views

These are examples of contending “theories-in-use” that may be embedded in the backs of our heads and would influence our instinctive choices of strategies and policies we support.

Subject	World-view 1	World-view 2
Economics	Rational Quantitative Macro	Emotional Qualitative Micro
Measuring the world	GDP: A world of money and numbers	Well-being and happiness: a world of feelings and people
Policy / Reforms	“Silver bullets” “Hedgehogs” *	Process / evolution “Foxes” *
Inclusion	Grow the pie before sharing – “Re”-distribution “Handouts”	Enable people to grow their own incomes – Capabilities Access to opportunities
Social Construct	Individuality	Community
Governance	Control	Participation
Right to “organize”	Source of trouble	Necessary for liberty
Organization/ Management	Scale “Up” One size for all	Create a network / connect Diverse solutions
Leadership	Orchestra conductor—making others perform	Jazz leader—co-creating with others
Science	Specialization Man dominates nature	Holism / Systems Man in harmony with nature
Innovation	Intellectual “property” Personal wealth	Open source; shared resource Affordable, accessible services

* Refer to Isaiah Berlin’s, “The Hedgehog and the Fox: An Essay on Tolstoy’s View of History”. The ancient Greek philosopher, Archilochus, is credited for the proverb, *Multa novit vulpes, verum echinus unum magnum*, or, “the fox knows many little things, but the hedgehog knows one big thing”.

Annexure 2: Twelve Challenges for India

The starting point of the Planning Commission's consultations with stakeholders for the 12th Plan

1) Enhancing capacity for growth

Today, India can sustain a GDP growth of 8 percent a year. Increasing this to 9 or 10 percent will need more mobilization of investment resources; better allocation of these resources through more efficient capital markets; more efficient use of resources through the public system; and, higher investment in infrastructure through both public and Public-Private Partnership routes.

2) Enhancing skills and faster generation of employment

It is believed that India's economic growth is not generating enough jobs or livelihood opportunities. At the same time, many sectors face manpower shortages. To address both, we need to improve our education and training systems; create efficient and accessible labor markets for all skill categories; and encourage the faster growth of small and micro enterprises.

3) Managing the environment

Environmental and ecological degradation has serious global and local implications, especially for the most vulnerable citizens of our country. How can we encourage responsible behavior, without compromising on our developmental needs?

4) Markets for efficiency and inclusion

Open, integrated, and well-regulated markets for land, labor, capital, as well as for goods and services are essential for growth, inclusion, and sustainability. We have many sectors where markets are non-existent or incomplete, especially those which are dominated by public provisioning. How do we create or improve markets in all sectors?

5) Decentralization, Empowerment, and Information

Greater and more informed participation of all citizens in decision-making, enforcing accountability, exercising their rights and entitlements; and determining the course of their lives is central to faster growth, inclusion, and sustainability. How can we best promote the capabilities of all Indians, especially the most disadvantaged, to achieve this end?

6) Technology and innovation

Technological and organizational innovation is the key to higher productivity and competitiveness. How can we encourage and incentivize innovation and their diffusion in academia and government as well as in enterprises of all sizes.

7) Securing the energy future for India

Faster and more inclusive growth will require a rapid increase in energy consumption. Since we have limited domestic resources, how can we meet this need equitably and affordably without compromising on our environment?

8) Accelerated development of transport infrastructure

Our inadequate transport infrastructure results in lower efficiency and productivity; higher transaction costs; and insufficient access to our large national market. How can we create an efficient and widespread multi-modal transport network.

9) Rural Transformation and Sustained Growth of Agriculture

Rural India suffers from poor infrastructure and inadequate amenities. Low agricultural growth perpetuates food and nutritional insecurities, which also reduces rural incomes. How can we encourage and support our villages in improving their living and livelihood conditions in innovative ways?

10) Managing Urbanization

Most of our metros and cities are under severe stress with inadequate social and physical infrastructure coupled with worsening pollution. Migration pressures are likely to increase. How do we make our cities more liveable? What can we do today to ensure that smaller cities and towns are not similarly overwhelmed tomorrow?

11) Improved access to Quality Education

Educational and training facilities have been increasing rapidly. However, access, affordability, and quality remain serious concerns. Employability is also an issue. How can we improve the quality and the utility of our education, while ensuring equity and affordability?

12) Better preventive and curative healthcare

India's health indicators are not improving as fast as other socio-economic indicators. Good healthcare is perceived to be either unavailable or unaffordable. How can we improve healthcare conditions, both curative and preventive, especially relating to women and children?

Annexure 3: Systems Modeling

“All Models are wrong, but some are useful”

—George Edward Pelham Box, in "Robustness in the Strategy of Scientific Model Building" (May 1979) in *Robustness in Statistics: Proceedings of a Workshop* (1979) edited by R L Launer and GN Wilkinson

Modeling the India’s growth scenario using different real-time constraints is a complex modeling task. To simplify the different forces, linkages, and scenarios, the “*phenomenological-system dynamics model*” shows satisfactory results. Here the variables are considered to describe the knowledge of empirical understanding of the phenomena, without paying detailed attention of their fundamental significance to the scenario generation. The major phenomenological variables (which can be considered as force in growth scenario) are as follows:

- | | |
|--|--|
| A Lack of Aspiration | B Demographics |
| C Impatience and Protest | D Democracy and Institution |
| E Earth Resources | F Climate Change |
| G Potential of Science & Technology | H Innovation of Business models |
| I Information Revolution | J Global / Regional Forces |
| K Threats to National Security | |

Interestingly each variable from the set {A, B,..., K} are not independent but depends on other variables from the same set {A, B,..., K}. Since the detailed understanding of these variables is not computationally feasible, the phenomenological modeling approach using some empirical relations (like positive & negative effects) is useful for the generation of different growth scenarios. The following matrix representation considers some important variables suitable for modeling. The +/- effects of each of the variables with respect to others is shown below.

		Aspiration	Demograph	Impat	Democrac y	Earth	Clima te	Sci/Te ch	Inn o	Com mn	Glob al	Thr eat s
		A	B	C	D	E	F	G	H	I	J	K
Aspirati on	A	1	1	-1	0	1	0	1	1	1	1	0
Demogr a	B	0	1	0	0	0	0	0	0	0	0	0
Impat	C	1	1	1	1	-1	0	-1	-1	1	-1	1

Democr acy	D	0	0	1	1	0	0	-1	-1	-1	0	1
Earth	E	0		0	0	1	-1	1	1	0	1	0
Climate	F	0	0	0	0	0	1	0	0	0	0	0
Sci/Tech	G	0	1	-1	0	-1	1	1	1	1	1	1
Inno	H	1	1	1	1	-1	0	1	1	1	0	0
Commn	I	0	0	0	0	0	0	0	0	1	0	0
Global	J	0	0	0	0	0	0	0	0	0	1	0
Threats	K	0	0	0	0	0	0	1	0	0	-1	1

For system analysis, let consider, three independent phenomenological variables X, Y and Z, which can be defined as X = Inclusion, Y = Governance, Z = Sustainable Growth.

Here X is bounded in X_0 and X_1 , where X_0 = Subsidy and X_1 =Livelihoods; similarly Y is bounded in Y_0 and Y_1 , where Y_0 = Centralize and Y_1 = Local; and Z is bounded in Z_0 and Z_1 , where Z_0 = Big Projects and Z_1 = Small or Localized Projects.

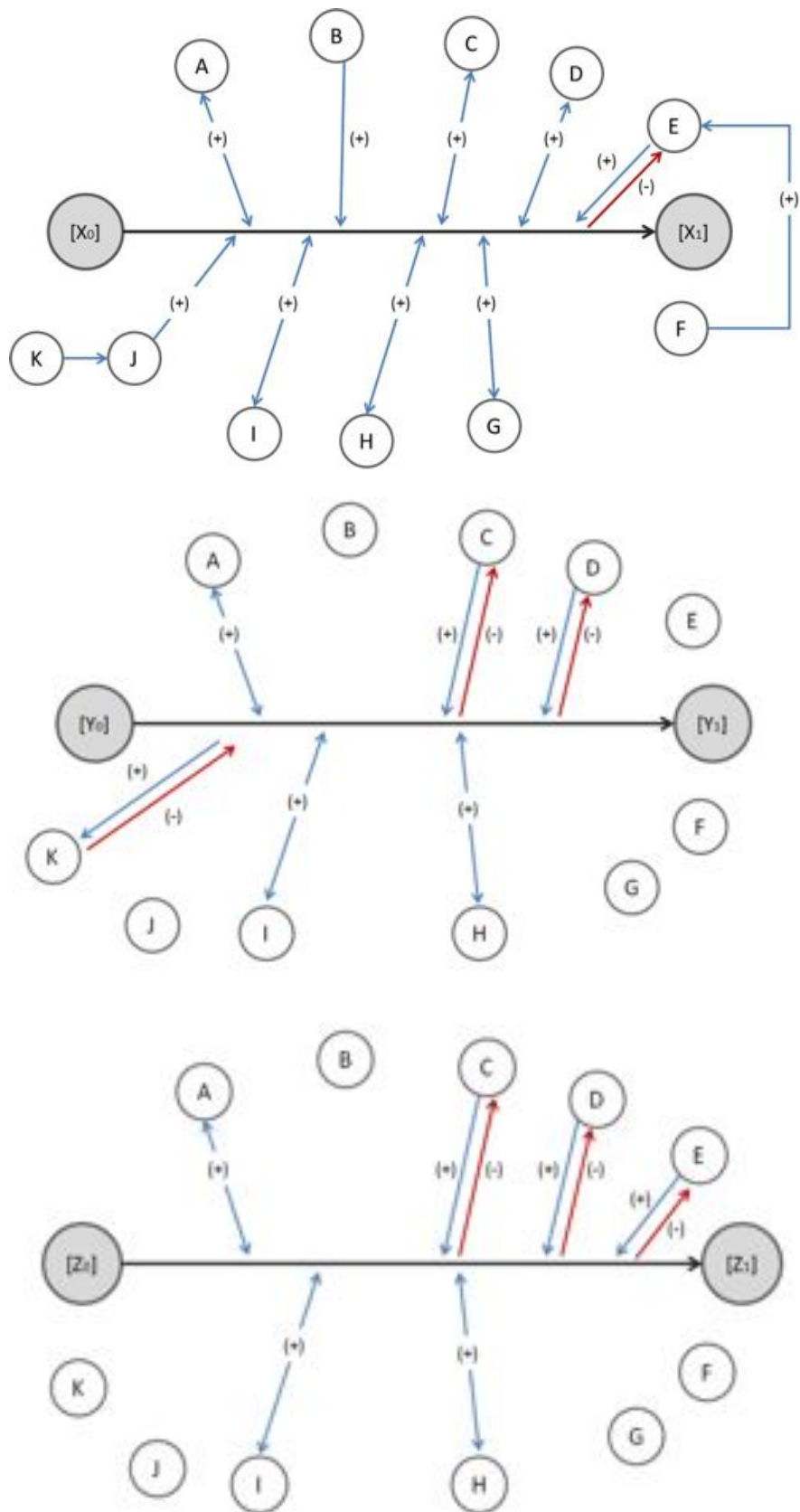
Though these variables are qualitative but for computational simplicity, we can consider that the normalized quantitative values of X, Y and Z are continuous and mutual perpendicular to each other. Hence the time-dependent trajectory of [X, Y, Z] lies in $[0, 1] \times [0, 1] \times [0, 1]$ with boundary condition as $X_0=Y_0= Z_0 = 0$ and $X_1=Y_1= Z_1 = 1$. Interestingly we have to find an optimized trajectory from $[0, 0] \times [0, 0] \times [0, 0]$ to $[0, 1] \times [0, 1] \times [0, 1]$. Here the rate of change in X, Y, and Z depends on the variables from the set {A, B,..., K} by empirical relations.

$$\frac{\partial X}{\partial t} = \Phi_X(A, B, C, D, E, G, H, I, J)$$

$$\frac{\partial Y}{\partial t} = \Phi_Y(A, C, D, H, I, -K)$$

$$\frac{\partial Z}{\partial t} = \Phi_Z(A, C, D, E, H, I)$$

Moreover the phenomenological variables {A, B,..., K} and/or its rate of change also depends on the variables X, Y and Z. Using empirical understanding the "phenomenological-system dynamics model" can be viewed as:



The simulation of the model is done in AnyLogic (version 6.5.1 Professional) to generate different scenarios.

Annexure 4: Elements of a Vision of India 10 to 15 Years Hence

(Gathered by Members of the Planning Commission)

- 1. India becomes an equitable society.**
- 2. Marginalized people are mainstreamed.**
- 3. Inclusion through widely dispersed and empowered entrepreneurship.**
- 4. Systematic development of capabilities.**
- 5. India builds on its cultural heritage and values.**
- 6. Good governance, rule of law, good public service delivery.**
- 7. Indians work together more effectively.**
- 8. Implementation! More “finishing stones”, not just pronouncements and “foundation stones”.**
- 9. Good infrastructure, construction and maintenance.**
- 10. India becomes a strong power in the world: economic power (and military power)—a secure nation and not “prisoners of geography”.**

Annexure 5: The Role of Innovation

India is the second fastest growing economy in the world, but as the pace of development increases rapidly, the country faces an increasing challenge to ensure that future growth is sustainable and inclusive. There are several dimensions of innovation, all of which will contribute to sustaining India's growth. While the idea of innovation is traditionally discussed in connection with breakthroughs in science and technology, innovations of other kinds can play just as important a role in enhancing delivery of services and enabling improved access to goods. These forms of innovation can take place within government, where the roles of public institutions must be reexamined, and in the private sector, where business models must evolve to allow for lower cost products and equitable returns to all stakeholders.

Innovation in Institutions and Systems

The Prime Minister, addressing the National Development Council on July 24th 2010, said, "Finally, I would like to emphasize that as we proceed with our ambitious plans, which require substantial deployment of resources, we must keep in mind the need to spur innovation as a driver of national performance...The Government too must innovate both at the Centre and in the States. There is a strong case for each institution in government to try to re-invent itself to reflect changing needs and circumstances and changing expectations."

Innovations in institutions and their systems can be made at three levels: procedures of work, processes for producing results, and the structures of institutions. Procedures execute the steps in a process. Process design determines what steps are necessary, and in what order, to improve outcomes. Finally, structures of institutions enable—and constrain—the processes that can be performed within them.

The first wave of innovations is typically limited to automation of procedures without changing process design. The next wave of improvements through deployment of information technologies, focuses on 'process re-engineering', realizing larger gains by crafting new configurations of processes. The third and most fundamental level of change comes from an analysis of the purpose of the institution and from rethinking what processes it needs to fulfill its purpose.

Government and Innovation

The government's innovation agenda must have both an internal and external dimension. Internally, democratic governments in the center and in the states require innovations in their own institutions and processes, to fulfill their core purpose. Externally, government must stimulate the creation of a vibrant innovation ecosystem in which business and social entrepreneurs can flourish. Government's internal innovation agenda is described in this section. Its external agenda is outlined in the later section on India's innovation ecosystem.

Democratic government, in its classical definition, is government Of the People, For the People, By the People. Therefore, processes are required to ensure that government can perform all three functions properly. Innovation is particularly critical in the areas of communication and consensus building. Government functionaries and people's elected representatives must listen to people more effectively than they have, and they must communicate to them more credibly too. Innovations are also required in processes to obtain consensus, which, in pluralistic India, is a greater challenge than in more homogenous societies. Many reforms and policies of Government are presently stalled because, while some stakeholders support them, others, fearful of negative fall-outs, oppose.

A current example of innovation in government is the 'Backbone Organization' ("BBO"), being developed by the Planning Commission to facilitate the implementation of the country's most pressing priorities in Manufacturing. The need for a BBO emerged from the recognition that the biggest hurdles in the successful implementation of Manufacturing reforms have been a lack of proper *consultation* and *coordination*. Concretely, this means building a dense network of consultative and participatory stakeholders and aligning key stakeholders to work together towards a common vision. One challenge in accomplishing these objectives is working within India's constitutional framework of federal government with devolved power structures, which places limits on the ability to compel policy changes from the center. Recognizing the uniqueness of this challenge, even the design of the BBO is being conducted in a collaborative, innovative fashion, through consultation with leading political scientists, stakeholders, multilateral organizations and experts in conflict resolution.

Innovation in business

Deeper and more sustainable inclusion is also a function of people's ability to participate in the creation of growth. Therefore, we need an economy whose growth is driven by businesses For the People, By the People, and Of the People too. Businesses which innovate to provide affordable goods and services to the poor are For the People. Innovations in business models that provide more jobs to people to lift them out of poverty are then businesses By the People. For fuller inclusion in the benefits of growth, innovations are required in enterprise design by which the producers become owners too. Such are businesses Of the People.

Three distinctions of the emerging *Indian Model of Innovation* are worth noting. Firstly, it focuses on frugality without compromising quality. For instance, extremely low cost eye surgeries, which do not compromise on surgical standards at US \$ 50 compared to US \$ 1650 in the US. Secondly, innovations are focused on organizational and process models that deliver to people the benefits of technologies that may be developed elsewhere. Delivery models of mobile services have expanded the reach of telephony with the cheapest tariffs in the world. Thirdly, innovations in the process of innovation itself reduce the cost of developing innovations. The open source drug discovery process being applied by the CSIR to develop drugs for treatment of tuberculosis has cut down the costs and time for drug development.

This new paradigm of innovation, focused on producing 'frugal' cost solutions with 'frugal' costs of innovation, in which India may be emerging as a global leader, contrasts sharply with the conventional approach, mostly focused on increasing inputs of Science and Technology and R&D and measurement of the numbers of papers and patents produced. Frugal innovation is focused on the efficiency of innovation and on outcomes. This is particularly important in India, because innovations imported from the developed world are often financially out of reach of citizens near the 'bottom of the pyramid', and ecologically unsustainable on a large scale.

Strengthening India's innovation ecosystem

Recognizing the importance of innovation for India's progress, a National Innovation Council was created in 2010 to strengthen India's ecosystem for innovation. The Council examined the strengths and weak links in India's current ecosystem. It

benchmarked institutions and processes in other countries, and created a plan for strengthening the Indian ecosystem.

The plan includes the creation of an India Inclusive Fund to provide risk capital to small start-ups with innovative ideas for addressing India's needs in health, education, and other public services to make them more affordable and accessible. A platform for sharing good ideas and for connecting idea generators with investors and business service providers has been created. A cluster support program to connect small enterprises with universities and technical institutes is being implemented. Various schemes for stimulating creative thinking amongst young people have been designed. These initiatives on multiple fronts are combined under the umbrella of India's Decade of Innovation. This national innovation strategy was selected, by the European Institute for Creative Strategies and Innovation, for the Hermes Innovation Award 2012 as the best humanistic policy of innovation.

Innovation in all spheres, opening up new avenues for India

Innovation is going to play a very important role in the Indian development discourse because it can offer a new approach to a system that is currently over-burdened by the multiple demands on it and with limited resources at its disposal. Enhanced focus on innovation can have an impact much beyond the realm of Science & Technology in diverse areas such as health and education delivery, governance, enterprise development and much more. Both public institutions and private sector business models must evolve to address the uniquely Indian challenges of financial inclusion and ecological sustainability of large-scale consumption. Collectively, this can herald a generational change in the country and can illuminate the path to a more inclusive and sustainable growth paradigm.