

Impact of Science on the Economics of Tea Industry

3rd International Conference on
Global Advances in Tea Science
Held at Kolkata November 20-22, 2003

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Chairman, Tea Board

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Director Bose Institute

Organizing Secretary, 3rd International Conference

Chapter 1

WELCOME BY CHAIRMAN TEA BOARD

N.K. Das*

Mr. N.K. Das was born in Assam on December 15, 1952. He studied at St. Edmunds College Shillong, graduating from Guwahati University. Subsequently, he did post graduation in history from Delhi University and obtained M.Sc. in Development Studies from the University of Bath, U.K.

After joining the Indian Administrative Service in 1976, Mr. Das served in the states of Assam and Meghalaya in various capacities, including Commissioner & Secretary Tourism Govt of Assam and Divisional Commissioner of Lower Assam. He was Regional Director of Central Silk Board. Mr. Das served as Chairman cum Managing Director of Assam Tea Corporation, before taking over as the Chairman Tea Board in July 2000.



Mr. Saptharishi, Mr. Bajoria, Dr. Jain, Prof. Yamanishi, Ladies and Gentlemen;

At the outset, on behalf of the Organising Committee, the Tea Board, the Bose Institute, the International Society of Tea Science, let me welcome you to this important conference. I particularly welcome all our foreign guests who are here – Prof. Tei Yamanishi and her 5 colleagues from Japan, Dr. Hallam from the FAO, Dr. Zhu and his three colleagues from China, Mr. Mijinga and his colleague from Tanzania, Dr. Sivepalan and his colleague from Srilanka, Ms. Delimonthe & her husband from Indonesia, Mr. Monjur Hossain and his colleague from Bangladesh and Dr. Melican from the UK. My special welcome to you, Shri Saptharishi, the Additional Secretary Ministry of Commerce & Industry who has spared his valuable time to be with us today. I would also like to welcome the captains of the Indian tea industry and scientists from tea research institutes TRA, UPASI, IHBT and IIPM.

I would not like to elaborate much upon the condition of the tea industry. Like all the commodity

markets, the tea industry is going through a terrible crisis. The manifestation of this depressed situation has been rather profound in the recent years in India. Nevertheless, it has thrown up new challenges so that we need to re-look into the strategies for economic rehabilitation of the tea industry.

The tea industry of India has a great tradition, and has imbibed the culture of the people who are engaged in cultivation of tea crop. We must ensure that this important culture and tradition remain with us as a part of our heritage. We thought, therefore, that this important scientific conference should concentrate on topics, which relate to economics. There is a lot of work that has been done and we constantly need to do on fundamental research of the tea plant itself. But the issues regarding marketing and promotion are the areas we need to concentrate upon, particularly because of the tremendous competition that the industry faces today from aerated beverages.

This year also happens to be the 50th year of the Tea Board of India in its present *Avtar* (state or form). So, I would like to elaborate upon the Tea Board and its organization. Although the history of

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organized tea industry in India goes back to the 19th century, it was only in 1903 that the then Government of India at the request of the tea industry passed the Tea Cess Act to raise funds for tea propaganda in India and abroad. In the beginning it was intended to utilize the funds only for propaganda abroad, but the then Viceroy of India Lord Curzon, who realized the importance of developing the domestic market for tea consumption, directed that a provision be made in the Tea Cess Act for propaganda within the country also. A Cess Committee consisting of 20 members administered the Fund. The Committee was composed of representatives of the tea industry including the Chambers of Commerce. For the first time in 1903 a levy of 2 annas per 100 lbs of tea was fixed under the Cess Act.

In 1937, the name of Tea Cess Committee was changed to the Indian Tea Market Expansion Board. To regulate the planting of tea in India and its export, a separate body known as the Indian Tea Licensing Committee was also set up by the Government of India under the Tea Control Act of 1933. This Act was passed in pursuance of the International Tea Trade Agreement to which India was one of the signatories. After signing the second International Agreement, the Indian Tea Control Act of 1933 was replaced by the India Tea Control Act of 1938.

In view of the importance of the tea industry in the national economy, the Govt of India after independence enacted the Central Tea Board Act in 1949 and set up a body under the control of the Government for development of the industry. Accordingly a new Board called the Central Tea Board replaced the Indian Tea Market Expansion Board. In 1953, the Tea Board Act of 1953, which came in force in 1954, replaced both the Central Tea Board Act of 1949 and the Indian Tea Control Act of 1938. The Tea Board constituted under the Tea Act was, however, formally inaugurated on April 30, 1954. The functions of propaganda and

promotion activities, relating to tea on the one hand, and control on the cultivation and regulation of export of tea on the other, came under the same body viz. Tea Board of India.

Today the role of the Tea Board has dramatically changed from a regulatory and control body to one that is concentrating more on the promotion of tea as well as development of the industry as a whole. The Ministry of Commerce of the Govt. of India, which is the controlling Ministry, has over the past number of years extended considerable amount of assistance in the form of subsidies and also loan through the Board for various activities.

The areas being addressed by the Board today include productivity optimization, processing, packaging, product diversification, market diversification, schemes for augmenting farm income, human resource development programmes and, of course, the areas of R & D in terms of helping the research activities both at UPASI TRI and TRA Tocklai. We also do a lot of collaborative research work with a number of universities across the country including the Universities in Himachal, Assam and UP. We also work closely with the agricultural universities and they handle many of our extension and training programmes for small growers. Over the years, the budget of the Tea Board has increased. In fact, the IXth Plan allocation of 156 crores has increased to 350 crores for the Xth Plan, thanks to the efforts of officials in the Ministry. This huge increase to almost double the budget allocation has been provided for assistance to the tea industry.

I know that a lot more needs to be done but today's tea situation requires that the industry and the government work together in a coordinated fashion to develop this industry and to make it self sustaining. There are a lot of structural imbalances within the industry, which have become

unsustainable in the long run. One of these areas is the age profile of the tea bushes in India, which has gone up and is not going to sustain us. So we need to look into how best these issues can be tackled so that the productivity in the industry as a whole increases. Apart from that, in these seminars and conferences, we need to look into the economics of plantation activity as well as the areas of tea marketing.

I would like to particularly thank Dr. N.K. Jain of the International Society of Tea Science, Dr. Maqsood Siddiqi of the Bose Institute and members of the

Bose institute who have worked hard behind the scenes to make this conference happen (without them we could not have met here today). Once again, on behalf of the Tea Board as well as the tea industry, I want to convey my particular thanks to Dr. Jain and Dr. Siddiqi for organizing the Conference.

I once again welcome all the delegates to this inaugural session and the following seminar. I hope that all of you will go back with the feeling that something really substantial has been achieved at the Conference. Thank you very much!



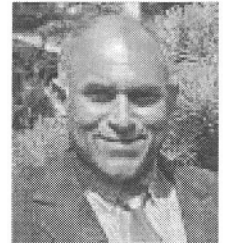
Chapter 2

INTRODUCTION TO CONFERENCE

N.K. Jain*

Secretary, International Society of Tea Science

Narender kumar Jain was born on December 20, 1933 in erstwhile Punjab. After his early education in Karnal and Jagadhri, he joined Banaras Hindu University where he earned his Master's in Agronomy with record marks in 1956, joined staff and earned USAID Fellowship to obtain Ph.D. in Crop Production in 20 months at University of Illinois in 1961. His first job outside his alma mater was at Jute Agricultural Research Institute before shifting to Government Agriculture College, Kanpur as Professor of Agronomy at the age of 30 years. He headed Technical Service in ICI's IEL for 3 years before leaving for Kabul for a year. In 1972, he joined as the first appointed Indian Director of the oldest Tea Research Institute Tocklai, rejuvenated it to its pristine glory in 12 years and reflecting the growth in research-cost-benefit ratio to 1:200. In 1984 he founded the CSIR Institute of Himalayan Bioresource Technology at Palampur, H.P. which transferred knowledge to increase tea production in Himachal 3-fold and the valuation 10-fold in a decade, apart from helping launch a flourishing Rs. 100 million cut-flower industry in Kangra Valley. After retiring in 1994, he completed a Tea Compendium as Scientist Emeritus and founded the International Society of Tea Science, publishing International Journal of Tea Science. Dr. Jain has 35 research publications, one compendium, 15 Ph.D. students and 3 international conferences to his credit. An institute builder, Dr. Jain's main strengths lie in taking with conducting field experiments, spotting talent and shaping well-rounded human beings/scientists.



Ladies and Gentlemen,

Allow me to introduce the conference to you under the following heads:

1. Genesis
2. Objectives
3. Organization
4. Measure of satisfaction level
5. Information Sharing Network

GENESIS

Six fortuitous happenings led to the decision of organizing this 3rd International Conference on Global Advances in Tea Science under the title of "Impact of Science on the Economy of the Tea Industry. These events were:

- The President of ISTS Dr. Ashok Jain enquired of me if there were any recent advances in tea research, relevant to the current problems of the tea industry, after we organized the 1st and 2nd Conferences 7 year ago in Beijing and at

Delhi in 1996. I listed about a dozen recent research findings, which were relevant to the current problems of the tea industry.

- My friend Dr. Maqsood Siddiqi, Director of Bose Institute asked me over a cup of tea in India Habitat Center what are the burning problems of the tea industry which require scientific solutions. I replied that the cost-price squeeze was killing the tea industry in India. He suggested the title of the Conference, as "Impact of Science on the Economy of the Tea Industry.
- Mr. L.V. Saptharishi, Additional Secretary in the Ministry of Commerce, Government of India was keen to hold an international scientific conference. But none of the scientific institutions in India agreed that this was the most opportune time to risk holding an international conference, though Tea Board offered to fund it.
- Tea Board of India, which was established in 1953, was contemplating the best manner to celebrate their golden jubilee, which happened to fall in 2003.

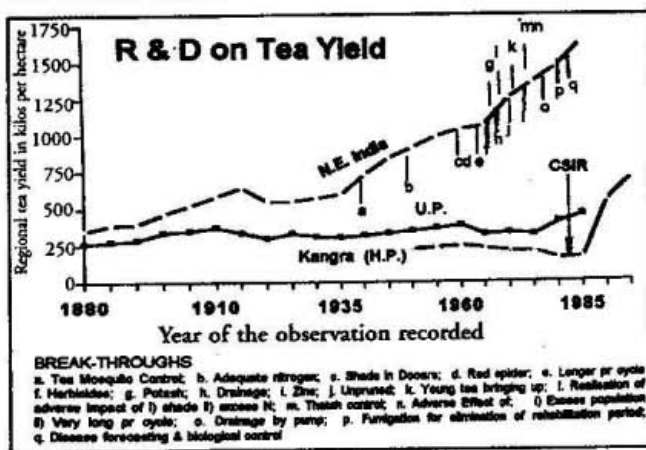
- Tea Board did sanction money in May 2003 for holding the Conference jointly by ISTS and UPASI. But the latter was reticent. Later events proved that UPASI's fear of financial crunch was not misplaced. However, after some wait, the ISTS decided to go it alone (fools rush in where the angels fear to tread) and hold it jointly with the Tea Board, during their Jubilee year.
- The stumbling block was the withdrawal by the sponsors of the full amount sanctioned. I was ready to cut the losses and run but Dr. Siddiqi stood firm and took the command of a successful conduct of the Conference as the Organizing Secretary, provided that temporary arrangements could be made for funds, which were arranged from personal resources. All of you joined to give a helping hand and made it possible to come here today for this very unusual conference.

RATIONALE OF THE CONFERENCE

Track Record of Tea Research

Till about 5 years ago, the tea industry wanted the research scientists to increase crop productivity. The scientists' performance fulfilled the expectations of the client. Figure 1 depicts the yield graph for last 120 years against breakthroughs in research in North East India.

Fig. 1. Yield and breakthroughs in tea in Northeast India



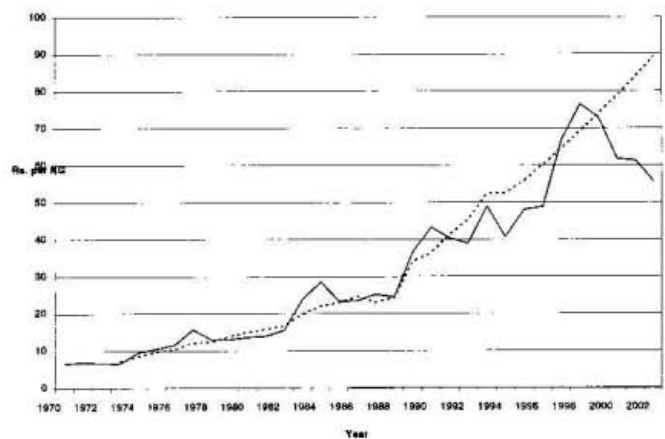
Source : Global Advances in Tea Science 1998

The graph of country performance clearly brings out the successful track record of research in this region, in comparison with the dismal yield records of U.P. and Himachal tea without research support though all three regions started at the same level of productivity a century ago. While yield in U.P. remained static over 100 years, the application of research results in 1984 by the CSIR in Himachal bucked the trend of declining yields with age.

Paradigm Shift

The tea industry sought solution in better marketing for declining international prices and lower revenues but the marketing innovations showed limited impact on estate revenues. The unprecedented cost-price squeeze became ever more severe with widening difference between the rising costs of production and declining tea prices (Fig. 2), which threatened the very existence of the tea industry in India.

Fig. 2. Movement of costs and prices of Indian teas - source IJTS 2 (1&2)



The data in Table 1 show that while the cost escalated in a linear manner, the prices came down unpredictably in successive years over the last 5 years causing an estimated loss of Rs. 33/ per kilo of tea produced. It became evident that new ways must be found in science to alleviate this

unprecedented crisis of humungous proportions before a permanent damage is done to the structure of the industry.

Table 1. Cost price comparisons of indian tea (1973 to 2002)

Year	Actual Cost	Actual Price	Profit/Loss
1973	7.1	6.59	-0.51
1974	8.47	9.51	1.04
1975	9.71	10.59	0.88
1976	10.48	11.61	1.13
1977	12.06	15.7	3.64
1978	12.42	12.95	0.53
1979	13.81	13.01	-0.8
1980	15.05	13.6	-1.45
1981	15.85	13.94	-1.91
1982	16.61	15.59	-1.02
1983	19.92	23.91	3.99
1984	22.01	28.58	6.57
1985	23.02	23.34	0.32
1986	24.59	23.45	-1.14
1987	23.04	25.12	2.08
1988	24.11	24.36	0.25
1989	34.03	36.62	2.59
1990	36.3	43.24	6.94
1991	41.29	40.29	-1.00
1992	45.35	38.88	-6.47
1993	52.28	48.93	-3.35
1994	52.5	40.69	-11.81
	Projected Costs*	Actual Prices	Estimated P/L
1995	55.82	47.99	-7.83
1996	60.05	48.77	-11.28
1997	64.46	66.87	2.41
1998	69.05	76.43	7.38
1999	73.82	72.8	-1.02
2000	78.77	61.71	-17.06
2001	83.9	61.26	-22.64
2002	89.2	55.52	-33.68

* $y = a + bx^2$ where $x = \text{year}$, $y = \text{computed cost}$

Source : IJTS Vol. 2 (1&2) 2003

OBJECTIVES OF THE CONFERENCE

The ultimate objective of the conference is to respond to this shift in the focus of tea industry, and consequently the tea researchers, from *crop productivity* to *economics* of operating tea estates as viable units.

The main areas of deliberations in the conference, which will increase the sense of urgency in seeking scientific solutions to the current problems of the tea industry, are listed in Table 2.

Table 2. Objectives of the conference

- Delineating an effective strategy of action
- Cost reduction in field and factory
- Improving crop realization, through
 - Phytosanitary standards
 - Quality up gradation
 - Value addition through
 - Product identification
 - Product diversification
- Information sharing net work
- Tea — Chemo protective effect of human health

Strategy of Action

An overview paper by FAO will delineate a workable strategy to tackle the worsening economic situation. David Hallam, who is the Chief Guest and the first invitee at the Conference, will present his keynote address to delineate an effective strategy of action to meet the current crisis.

Reduction in the Cost of Production in Field and Factory

An analysis of the elements of the cost of production by F. Rahman will show their relative contribution to the COP. The largest cost item is the expense on plucking operation, which is being discussed by V.S. Sharma and Lubna Delimonthe. Role of NABARD in providing financial support for development of tea industry in India will be discussed by M.R. Sharma.

Cost Reduction in Factory

The quality of made tea can be improved or destroyed even from the best plucked shoots during processing. The establishment of processing factory costs as much as the planting infrastructure on a tea estate and accounts for about half the cost of a tea estate. Energy used in a factory is the single

most costly input in tea processing. Presentations by Nigel Melican, Pawan Kapoor, Mohijit Sen and Dasappa show the possibility of cost reduction in tea processing without sacrificing quality.

Improving Realization

- **Quality up-gradation:** Tei Yamanishi will focus chemical basis of tea quality. Quality improvement with better processing techniques will be discussed by Nigel Melican and Pawan Kapoor. Kanzo Sakata will present new researches, which show the possibility of changing grassy flavor of CTC teas to floral note by a different processing technique.
- **Phytosanitary measures** to minimize contamination will be discussed by Banerjee, Muraleedharan, Ramarethinam, Dutta and Bao-you Han. Growing tea without affecting environment is the theme of a joint paper by Sivepalan & Nalini Gnanpragassam. Papers read by Jayant Patel, Das Biswas and Gupta will present their practical experience of chemical-less tea /agriculture, Anita Pandey will speak about the role of rhizosphere microbes in tea growing.
- **Value added products** from tea are the focus of the presentations by Karan Vasisht, Linzhi, and Mridul Hazarika. Pharmaceuticals from tea will also be covered by Hara and Juneja during Health session

Information Sharing Network

Xiang-Yong Zhu analyzes the publication pattern of tea scientific research in China over the years. Peter Baker presents a comprehensive blueprint of tea information sharing network for cost effective communication of results of research to the tea scientists and tea growers and the problems faced in optimizing it. Shigeri Kodomari will focus on the role of museums, which has received a lot of attention in China, Japan and Taiwan, in tea research communication network. Computer is a significant tool in informatics. It has also been

harnessed for an efficient information and e-auction system, set up by the Tea Board under the title of "INDIA TEA PORTAL", which will be the first and largest of its kind. A. Basu of Accentures, Tea Board Consultants will present parameters of this system.

Chemo Protective Effect of Tea on Health

It will be discussed in two sessions on the last day. B.N. Dhawan compares the health giving properties of tea with "rasayana". Jhawar speaks about utilizing health effects of tea for improving tea sales. Health sessions will have several speakers viz. Y. Hara, L.R. Juneja, Jaswant Singh, Yogeshwer Shukla, Tanya Das and S.M. Hadi.

Poster Papers

Fifteen poster papers have been registered for presentation in this conference. A scheme has been drawn up to present awards for excellence to two poster papers – one in production & processing and another on health.

ORGANISATION OF THE CONFERENCE

1. Inaugural Session
(N.K. Das, N.K. Jain, C.K. Dhanuka, L.V. Saptharishi, M. Siddiqi, David Hallam)
2. Cost Reduction in Field – Technical Session I
(F. Rahman, V.S. Sharma, L. Delimonthe) Chair P. Sivepalan
3. Cost Reduction in Factory – Technical Session II
(N. Melican, P. Kapur, M. Sen, S. Dasappa) Chair N.F. Tankariwala
4. General Papers – Technical Session III
(M.R. Sharma, J. Patel, B. Banerjee, Anita Pandey) Chair F. Rahman
5. Phytosanitary Measures – Technical Session IV
(N.Muraleedharan, S. Rethinam, B.K. Dutta, B.Y. Han) Chair P.S. Baker

6. Upgrading Tea Quality – Technical Session V
(Tei Yamanishi, Linzhi, M. Hazarika, K. Sakata)
Chair Nigel Melican
7. Environmental Stability – Organic Tea –
Technical Session VI
(Nalini & Sivepalan, Das Biswas, Karan Vasisht)
Chair Y. Hara
8. Information Sharing Network –Technical
Session VII
(P. Baker, S. Kodomari, A. Basu, X.Y. Zhu)
Chair N.K. Jain
9. Protective Effects of Tea on Health – Technical
Session VIII
(B.N. Dhawan, R.S. Jhawar, Y. Hara, L.R.
Juneja) Chair M. Siddiqi
10. Protective Effects of Tea on Health – Technical
Session IX
(J. Singh, Tanya Das, S.M. Hadi) Chair B.N.
Dhawan
11. Plenary Session for Summary and
Recommendations.

EPILOGUE

Evaluation of the proceedings at the end of 60 hours of deliberation in the conference will help us rate the quality and depth of presentations in relation to the objectives of the conference.

We hope that you will enjoy and benefit from the presentations at the conference.



Chapter 3

WELCOME ADDRESS

C.K. Dhanuka*

Chairman, CCPA & ITA

Mr. C.K. Dhanuka is Chairman-cum Managing Director of Dhunseri Tea Industries Ltd which operates 8 tea estates in Assam. Mr. Dhanuka is Director of several companies and Vice Chairman South Asian Petrochemicals Ltd. His hobbies include Tennis, swimming and Music.

Mr. C.K. Dhanuka was President of the Indian Chamber of Commerce and of Tea Association of India (T.A.I.). He is Executive Committee Member of Indian Institute of Plantation Management and FICCI. He is Chairman of FICCI Eastern Regional Council. Mr. Dhanuka is currently Chairman of the Indian Tea Association (ITA) and Chairman of the Consultative Committee of Plantation Associations (CCPA).



Mr. Saptharishi, Mr. Hallam, Mr. Das, Members of the Steering Committee of the Conference, Guest Scientists, Delegates, Ladies and Gentlemen:

I am grateful to Mr. N.K. Das, the Chairman of the Tea Board and the organizers of this important Conference, to have given this opportunity to me as the Chairman of the CCPA to address the delegates today. On behalf of the CCPA and the tea industry, I would like to convey our heartiest congratulations to the Tea Board, which is celebrating 50 years of service to the tea community. The Tea Board is also primarily responsible for the implementation of the government regulations and policies relating to tea. In many ways it has transformed its earlier role to become an effective facilitator for the growth and development of the tea industry. Various activities of the Tea Board that now form a part of its portfolio, which covers a wide range of activities and touches on export promotion, monitoring of auctions, financial support for field & factory development, supporting research institutions, collecting and disseminating statistics, and

supporting a host of other activities. Over the years the Tea Board has strengthened several areas of activity. With changing times, the Tea Board has attuned itself to the real requirements of the tea industry. I take this opportunity of wishing the Tea Board many more years of useful service to the tea community.

The organizers have aptly put this conference in perspective by stating that the tea industry is passing through a very serious economic predicament. Hence, this conference is addressing issues such as cost reduction, efficient input management, strategies to improve realization, development of value added products, and an appraisal of the tea & health research programmes, all of which throw up holistic solution themes for the industry to pursue. The Inter-Governmental Group on Tea constituted under the aegis of the FAO (who, I note, is also part sponsoring this conference) last met in Colombo in August 2003. It is interesting to observe from the FAO Market Situation Outlook Document, which has been prepared for this season, that the most immediate issue of concern was uncertainty and low prices in the market place. In the FAO's view, stagnant

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consumption in certain markets has contributed to the softening of prices. Fundamental oversupply situation persists in several markets and an overall price outlook painted by the FAO is not bright. It was in this context that the FAO advocated new strategies for enhancing consumption, value addition, reduction in production and marketing costs, and specifically observed generic promotion as a strategy, which must be pursued with vigor and determination. While noting that increase in cost of production is the area of concern, some producer countries have attacked costs through increased mechanization, improvement of marketing channels etc. The FAO has cautioned that this may compound the oversupply situation and the preferred solution must lie in the increased

demand for the product. I have no doubt that this conference will usefully debate some of these issues and evolve solution themes for various segments of the tea industry.

The 3rd International Conference with an impressive gathering of distinguished experts and researchers from India and abroad brought together the rich pool of scientific knowledge on various aspects of tea industry. It is entirely appropriate that Kolkata is the host of this Conference, for not only does it remain the hub of the tea trade in India, historically also it is a seat of traditional scientific inquiries through institutions of national and international renown. I take this opportunity to wish this conference all success.



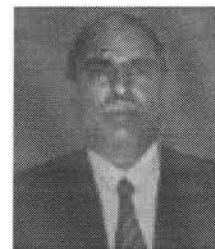
Chapter 4

INAUGURAL ADDRESS

L. V. Saptharishi*

Chief Guest

Mr. L.V. Saptharishi is a distinguished member of the Indian Administrative Service. His areas of achievements are establishment of Falta Export Processing Zone in 1983-85; development and diversification of jute industry 1986-91, conception formulation, implementation of the largest-ever funded UNDP National programme for diversification of jute sector which harnessed many R&D institutions and worked through many traditional and non-traditional industrial units; left a mark as the senior professional head of Marketing in International Jute Organization at Dhaka.



As Director General of the National Institute of Fashion Technology (1997-2000), he developed the institute to its pristine glory and was Founder Chief Executive of the International Foundation of Fashion Technology. Mr. Saptharishi has traveled widely on assignments for international organizations like UNDP, FAO, UNIDO, ITC-UNCTAD/GATT, CFTC and Swiss Development Corporation. He was the Designated Authority for Anti-Dumping Investigations under the WTO arrangements in India during 2000-2003.

Madam Tei Yamanishi, our distinguished Guest of Honor from Japan for this conference, my esteemed colleague Shri Das, Chairman of Tea Board, Dr. David Hallam, IGG, FAO, Shri Bharat Bajoria immediate Past President of Indian Tea Association and CCPA, Mr. C.K. Dhanuka, Chairman of ITA & CCPA, Dr. N. K. Jain, my redoubtable and esteemed scientist friend for many years and Secretary Organizing Committee, Dr. Maqsood Siddiqi, Director of Bose Institute, distinguished scientists, delegates, members of the tea industry, senior officers and executives from Tea Board and other friends attending this conference:

At the outset, I would like to express my sincere thanks to the Chairman of Tea Board and the Secretary of the International Society for Tea Science, for having invited me to be present on this occasion and inaugurate this conference. I do not know whether I will be of any service to you in

my future capacities. But possibly due to the association I had for over a period of three years when I was of some help, you are honoring me and I am grateful to all of you.

You will be surprised to discover like I did, the similarities in economic behavior between apparently dissimilar plantation crops – tea, coffee and rubber. I recall the worst time we faced was in the beginning of year 2000 when rubber prices had crashed. We were pulled up for contempt of court for not fixing minimal price as demanded by some of the growers in Kerala. We were almost driven to the wall. But due to certain measures we had initiated, combined with some external factors, we overcame the prevailing situations then. I was responsible for bringing out natural rubber from the red into the black.

I realized that natural rubber of India in the QR free regime should start looking outward, and not looking inward just catering to the requirements of the domestic user industry only. At that time of self-

*L. V. Saptharishi, Additional Secretary, Ministry of Commerce & Industry, Govt. of India

sufficiency, the domestic industry did not come forward to balance the interest of all the stakeholders — between themselves and the raw material sector. One had to do a re-thinking of a paradigm shift in respect of that commodity.

The paradigm shift that we deliberately designed for natural rubber, which I presume would hold valid in the continuing times, was like Indonesia, Malaysia or Thailand who consume and also export natural rubber. We decided that India also should consume and export natural rubber. However, there was a resistance both on the part of the domestic natural rubber growers, who were accustomed to the sheltered market, for attempting these forays in the outside market, and also on the part of the domestic user industry who were conveniently getting rubber at almost throwaway price levels. In that situation some of the forward-looking entrepreneurs, both processors and producers, started getting into the export market. In late 2000-2001, 5000 tons of rubber was exported: this grew to over 55000 tons last year. By the end of the current financial year they hope to reach more than 60000 tons of exports. Today in markets like Germany, Russia, United States and China, India is regarded as one of the major suppliers of natural rubber. The rubber grower is confident of having market opportunities within in the country and abroad and the international price as well as Indian domestic price of rubber are moving in tandem.

As far as tea industry in India is concerned, I am not talking about an exact replica of the situation. The largest producer of tea in the world is India, where 80% production is domestically consumed and only 20% is exported, whereas the situation was otherwise two decades before, when China, Kenya, or Sri Lanka stepped into the picture in the international markets. Now even to hold down to this 20% exportable surplus for tea and to obtain minimum value for this commodity, we are struggling and confronting a plethora of problems

in the international markets. In the domestic market the situation is getting compounded, not so much on account of resistance towards the drink but on account of falling prices and the lower remunerative level for the producers. The cost of production is galloping even for the small growers who supply to the bought-leaf factories. The organized industry is also facing similar problems particularly keeping in view the far greater commitments that it has, including social responsibilities and other factors. We are in a situation where from we do not know how to come out.

In areas where both the tea cultivation as well as manufacturing are integral to the socio-economic life of the community, you cannot close down the operations. You cannot abandon and deplete these gardens, leaving them bare. You cannot also tell the population that we will not supply tea. It is in such a situation that one has to come out with some solution or other from a medium and long term point of view.

When we look at it from the long term point of view of science, quality and technology, all these would seem to make definite sense in finding an ultimate solution. But the industry asks what the immediate or medium term solution is? For this you have to go back, say half a decade ago, to the situation when everything was hunky-dory and the industry was earning profit, generating surpluses, and was generally comfortable. My question is what you could have done when everything was fine? Did you at that point of time think in terms of long-term solutions so that the rosy picture then could have been sustained? But that is the logic in which the industry operates. So I do not like to apportion blame to the tea industry only but also to the host of players who have a role to play both in the medium as well as in the long-term context.

Two issues have been raised to address the problems, one with reference to quality and the

other with reference to price. I would briefly touch upon the quality aspect first.

There is a widespread complaint that the Indian tea quality is somehow deteriorating even though India was the leader for decades for quality. It is not merely the quality *per se*, as differently understood by different people, but factors relating to quality. You will naturally notice that you have got to do re-engineering of the quality concept, which is not an easy task. That's where the scientists have a role to play. Applied and basic scientists adjunct to the tea industry should start addressing all issues from the farm to factory and marketing levels. It must be realized that somehow a de-linking has taken place over a period of time in the context of cost whether so much of investment in science and technology would be warranted when we are going to get only so much in terms of yield or returns. Therefore, there has always been a kind of resistance / reservation on the part of the industry to go in whole hog for application of those sciences and those technologies, which would, in the opinion of our impartial and objective scientists, will take the industry forward. You have to address the problem at specific levels.

When you go through the papers that are going to be presented over the next two or three days, you will be amazed to see that there are several areas where you can start applying your mind and tell your lower level functionaries to get the best out of the available solutions. This is a question of building blocks for the future of the industry, re-engineering the term called the quality. You would find that while addressing this re-engineering task, as you start moving from where you are in an uncomfortable position, you would find automatically and unconsciously, that certain benefits start coming in. Only when you are affected like this, that these issues become very important. When you are doing well you presume everything will be all right. But

when everything goes wrong, this is the time to address the questions being raised and discussed in this conference. Fortunately, historically and traditionally the tea industry is today one of the highly professionally organized industries in the country. Unlike in other sectors where migration is very fast, and as a result of adversity, the talent gets depleted very fast; here the people have chosen to remain in the tea industry. When new problems arise or new situations develop and you find that you are unable to move out of the paradigm, this is the time for you to look at the new questions being raised or new solutions being offered by them.

Three expressions are very important in the title of the conference, which talks about science, economics and industry. Industry needs science for mending its economy. You have to closely examine, debate and come to a conclusion, if the findings in science, are really going to be of benefit to you in improving the economics of tea industry. And if the ITA, UPASI, TAI, other industry associations or leaders of the industry take up this exercise, you will find that in the long run there is a meaning in science, economics and industry cohabiting in order to make tea industry progress faster. Any negligence of the impact of science on tea industry is not going to be of help. In another context, you may wonder why so many other traditional industries, also called old economies, like cement, chemicals, petrochemicals and steel, are bouncing back. On close examination, you will find that new technologies enabled by science are embracing the operations of these economies. As a result, manufacturing operations, handling of the equipment, utilization of raw material, evolving of new product mixes, etc. are being renovated for the whole group of industries in the old economy. The substantial improvement of share market indices for the old economy today have something to do with the developments that are taking place today.

Now I wish to dwell on the other important aspect of price. Every commodity or every product from other segments of the economy commands a price. Nobody can buy anything below the cost of production because it is simply not sold below the cost of production. Unfortunately, we have come into a situation in the case of coffee and tea where these two commodities are being sold below the cost of production during the last three years. The question arises as to how others, who are also in the free market operation and not encumbered by administered prices, are able to take care of minimum return on investment and remunerative price at a reasonable level. In the case of tea or coffee, a study is called for.

I mentioned it to the International Coffee Organization's Executive Director, Mr. Naptha Ozaria at Bangalore last week. He said that there used to be an indicative price for coffee when the pool system and the international quota system existed. These systems did not talk about minimum price but talked about indicative price for coffee. Indicative price always took care of cost price, the cost of production and also the cushion with regard to ROI for the producer, and that was how it functioned for over 40 years or so. When the pool & quota system was dismantled, coffee growers all over the world were very happy. Giants like Columbia, Brazil or other South American countries were able to take care of the producers' interest only by operating this system. Indicative price was available to the growers and there was no question of the other end of the spectrum, viz. roasters and processors who added value to the coffee, hijacking the interest of the producers. But India is only a minor player as far as coffee is concerned. Look, what did we do?

In the name of market reform we threw away the baby with the bath water. The good things that were part of the indicative price mechanism were given

up. As a result the coffee sector is in deep crisis. Now we have to think very carefully whether such a system, indicating the price at which tea will be made available to the consumer, is to be brought in. You have to think whether you can best serve the interests of the growers by selling tea in the private sector arrangement, or by adopting auction system or through any other method of tea marketing.

My question is why the tea industry should be subjected to this kind harassment where the producers are not able to get what they deserve, and the consumers keep getting it at a comfortable price for them. For the last three years or so, prices of all other commodities have increased and the consumers have not complained. In the case of tea, which is retailed at various places, any amount of price is charged, but as far the basic consumer price is concerned, it remains at the same level. The producing community has a right to demand minimum price. How you demand it in the context of free market scenario, needs to be carefully addressed. If you do so you will get remunerative price.

So, in a conference like this, which talks about science, economics, quality and price, the industry has to re-invent its own position in order to get what it deserves. It will get it because consumers just cannot stop consuming tea. They will continue to consume tea, provided you price it right. Sugar that used to sell at Rs. 7/- or Rs. 8/- a kg, is sold for Rs. 18/- per kg in the ration shop, while in the open market it sells at Rs. 20/- and above. But in the case of tea the price realization is coming down and down for the producers.

I have placed before you these thoughts for deliberation and request you to prepare a plan of action for the future. I am once again grateful to the organizers for having given this opportunity and I am sure there will be many other occasions when I can meet all of you and have interactions.



Chapter 5

MARKET BALANCE, PRICES AND STRATEGIC ACTIONS IN WORLD TEA MARKET

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INTRODUCTION

The objective of this paper is to set the context for many papers, including many technical and scientific contributions, to follow in the conference. It aims to provide a market perspective, and even more generally a world market perspective, on developments in the tea market. It will review recent trends in the demand, supply and prices of tea, focusing particularly on the crucial issue of market balance or balanced market growth, which must be achieved if tea prices are to be maintained at remunerative levels. In relation to achieving balanced market growth, it examines certain strategic actions towards this end which are currently being taken or are under active consideration. It focuses on black tea, rather than green. Black tea has a rather different market situation and currently faces more difficult strategic challenges than green tea that currently enjoys a strong market.

RECENT TRENDS IN MARKET BALANCE AND PRICES

Figure 1 shows the balance between world production and consumption of tea. It can be seen

that for most of the past four decades tea production and consumption have been more or less in balance. However, after the price peak of 1997 a tendency for production to exceed consumption appears to have emerged with consequent downward pressure on prices.

World tea production has tended to increase to break previous record levels, rising above an estimated 3 million tonnes in 2002 in spite of reduced output in a number of key producing countries. There is some evidence of cut-backs in production in some countries – India for example – in response to falling tea prices. However, global production remains significantly higher than in 1997-99. Some producing countries are also major consumers – India is the world's leading consumer of tea. Consumption growth in these producing countries and in the transition economies of Central and Eastern Europe and in certain Near and Middle Eastern countries has been essential to market balance, but for a variety of reasons has slowed in the last few years. Consumption growth in the OECD countries has also tended to be slow and, therefore, the world market prices had to adjust. Exports have increased faster than production, and could only be accommodated by falling world

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prices to absorb the additional supplies on world markets. Given the price inelastic demand for tea, export values increased less than export volumes.

Fig. 1. World production and consumption of tea

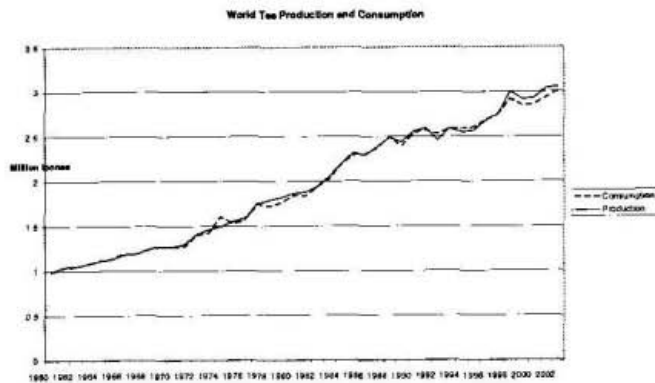


Table 1. Tea production (thousand metric tonnes)

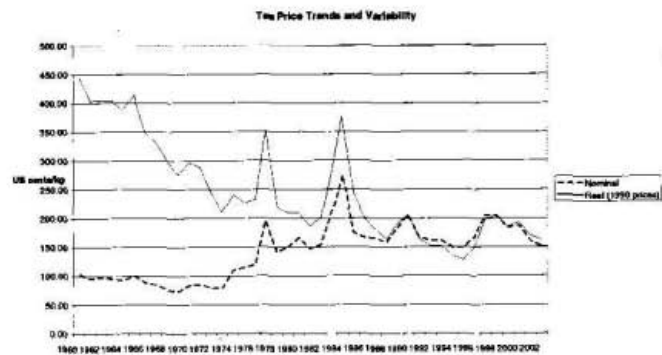
Country	1997-99	2000	2001	2002 ^{1/}
India	836.2	846.5	853.9	826.2
Sri Lanka	280.7	307.8	296.3	310.0
Indonesia	160.5	157.4	161.2	157.0
Bangladesh	51.0	52.6	57.3	56.8
Kenya	254.6	236.3	294.6	287.1
Malawi	40.9	42.1	36.8	39.1
Argentina	53.3	63.0	60.0	62.0
China	674.5	703.6	721.5	735.0
WORLD TOTAL	2887.2	2925.5	3039.0	3043.9

1/ Provisional.

Source: Sugar and Beverages Group, FAO.

Figure 2 shows plots of nominal and real (expressed in 1990 US dollars by deflating using the index of manufactures unit values) prices. It can be seen that real tea prices have trended steadily downwards, with this trend broken periodically by sharp but short-lived peaks, the most recent peak occurring in 1997. This pattern is fairly typical behaviour of commodity price series.

Fig. 2. Normal and real tea prices



Secular relative decline in agricultural commodity prices is expected as technological progress reduces costs and induces supply expansion at a faster rate than population and income growth-expand demand. At a general level, all commodity prices are affected by the same basic factors, namely the market fundamentals of demand and supply, but these can change through time as a result of changes in technology, consumer preferences, market structures, policies or institutions. The price inelastic demand for most agricultural commodities means that lower world prices lead to lower export earnings for developing country exporters.

The implications of falling commodity prices are extensive. Remunerative prices are needed if production and exports are to be sustained and developed, and provide a platform for broader development. Low prices mean low incomes and hence no funds for investment, so low productivity and low incomes. However, there is also a clear and direct link between commodity export earnings, poverty and food insecurity. Food insecurity is a result of low household incomes and poverty, not just inadequate household food production: entitlements to food arise not only from food production itself but also from earnings from export crops. The vulnerability of the poor to fluctuations in export prices and earnings has increased as the liberalization of markets has shifted price risk from

governments to households. The effects of market liberalisation have also accrued not to growers but to trading companies.

The recent variability of prices is also apparent in the figure with the downward trend interrupted by periodic peaks on average every seven years or so. Variability is important since the duration and amplitude of price movements are relevant to the design of countermeasures to stabilise prices. If shocks are long-lived, then the costs of stabilisation in terms of storage and financing will probably outweigh any consumption or income benefits. The persistence of shocks in commodity prices has been explored in a recent IMF study¹. This found that shocks to commodity prices are typically finite in duration but long-lived. For tea, persistence (measured as the length of time until the effects of a shock decline to half the original magnitude) is quite short – only around one year in fact, which suggests that stabilisation feasibly might have net benefits in the sense that the costs of storage and financing etc. should be limited relative to the potential benefits.

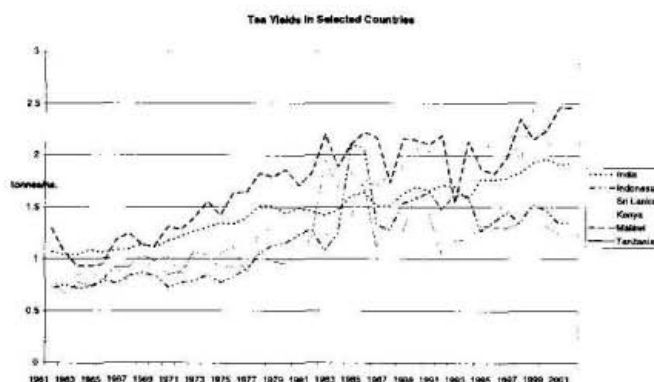
Sharp falls in prices of most commodities occurred in the second half of the 1990s. Tea prices held up for slightly longer than those for most other commodities due to the more advantageous market balance, but fell steadily from the peak in 1997 as production exceeded consumption. Exporting countries were shielded from some of the fall in prices by depreciation of their currencies against the dollar.

The recent FAO Medium Term Projections for commodities suggest that there will continue to be a tendency for tea production to exceed consumption in the short to medium term. If so, then downward pressure on prices will persist.

YIELD TRENDS, TECHNOLOGY GAP AND COST-PRICE SQUEEZE

A key driving factor behind increasing supply has been technical change increasing yields. Improved technology typically raises total factor productivity, lowers average costs and, hence, increases supply to markets. However, the low price elasticity of demand means that price declines tend to exceed average cost declines when such improvements occur. Furthermore, access to new technology is not even, and the adjustment costs are usually born by growers who are not able to adopt the new technologies and, thus, are excluded from reaping the benefits of improved productivity and reduced costs. Figure 3 shows differences in yield growth amongst some major tea producing countries.

Fig. 3. Differences in yield growth amongst some major tea producing countries



Of course, yield estimates give only a broad indication of those that lag behind, they cannot fully reflect the effects of changes in all factors affecting total productivity, including changes in factor prices and in efficiency improvements. Estimates of total factor productivity growth are needed to take these into account.

STRATEGIC RESPONSES

The recent downward pressure on tea prices arising from the emergence of excess production has prompted discussion in various international *fora*,

¹ Cashin, P., Liang, H. and McDermott, C.J. How persistent are shocks to world commodity prices. IMF Working Paper WP/99/80.

notably the FAO Intergovernmental Group on Tea, of what if any strategic responses the industry might make. These have included efforts to stimulate demand and to restrain supply. This section outlines considerations which must be taken into account in designing such strategies, based on a wide range of experience with other commodities.

Demand Promotion

Unlike for many other commodities, notably coffee, the emphasis in efforts to grow and balance the world tea market has been on increasing the growth rate of demand for tea rather than seeking to limit supply growth. One reason for this is that tea has never been subject to an international commodity agreement with economic clauses providing for market intervention through, for example, export quotas or buffer stock management.

One such promotional approach has been the 'tea mark', developed by the Intergovernmental Group on Tea and the Food and Agriculture Organization through a programme to stimulate demand through generic promotion emphasising the health benefits of tea using a symbol and strapline, the Tea Mark. However, the project has been constrained by the high costs of registering and licensing the mark. Few member countries subscribed to the scheme and it was financially impossible, and in any case inappropriate, for FAO to continue to meet the costs involved. The experience illustrates the difficulties involved in mounting international promotional efforts, although a further attempt is being made by the industry through the proposed formation of an 'International Tea Society'. The current status of this entity is not clear, and its viability remains to be demonstrated. However, the tea and health linkage is a valuable promotional one, as the US Tea Association's campaigns show, and it should be exploited and developed whatever the future of the Tea Mark. Interestingly, it is a promotional message being taken up by the coffee industry but it seems a greater challenge to exploit this in the

context of coffee given the adverse perceptions regarding caffeine intake.

From the outset it must be recognised that generic promotion is primarily a means of influencing longer-term trends in demand, not addressing short-run price variability. Nevertheless, there are certain common problems faced by internationally coordinated attempts to stimulate demand or regulate supply. Key amongst these is the need to secure continuing commitment to cooperative activities of participants who may see their interests as competitive. Experience relating to promotion of other commodities provides some useful guidelines. It is therefore necessary to emphasise activities likely to command general support, and the arrangements for finance and organisation should reflect a realistic response to current market conditions. Promotional messages are not the concern here, but rather how to organise and finance promotional programmes where there is not only the familiar free rider problem, but also where there are conflicts of interest between participants and tensions between generic and 'brand' interests. These controversies are common to any generic promotion for agricultural commodities, of course, as evidenced by the current debates and legal challenges to various generic promotion schemes across a range of agricultural products in the United States. All generic promotional programmes face three basic interrelated challenges: obtaining agreement on program objectives; generating financial backing for the programme; and sustaining promotional programmes long enough to generate the desired results.

Stakeholders in the industry must be the primary source of funds for market development activities. There is therefore a close link between the fortunes of the industry, financial support for promotion and the scope and nature of promotional activities undertaken. Promotion of this type is typically funded primarily by producing/exporting

organisations or countries, and generally on a *pro rata* basis relative to market share. However, at times of protracted low prices the capacity and willingness of producers to fund such programmes may be limited. Consumers/importers may also cooperate in promotion activities, in which case there will be a need for a financial formula for cost sharing. Budgetary limitations have led to a need for greater private sector contributions. Generally speaking the narrower the financial backing the more focused promotional efforts and greater likelihood of effectiveness. However, the narrower international participation, the more limited the funding base and consequently more limited the possible activity mix and geographical range. It is an ongoing balancing challenge to secure financing and support (especially where each stakeholder perceives a commensurate return on expenditure) for promotion campaigns. In such cases high emphasis should be placed on clear targeted campaigns and routine feedback to all participants on campaign progress. Where possible, feedback should identify the return for individual stakeholders to make it more meaningful to each one. It also forms an essential tool for participants to justify expenditure on generic promotion to their own stakeholders.

The funding possibilities obviously constrain what can be done and there is little prospect that conventional advertising campaigns to compete with global brands could be mounted or would necessarily find favour with all participants. In the face of financial constraints, including those posed by depressed commodity prices and revenues, promotional activity needs to be carefully targeted and guided by market research. There appears to be much scope for the promotion of demand in producing countries, for example. However, even here, not all market segments offer the same prospects. Increasing consumption among younger age groups in particular poses a particular challenge where per capita consumption is low and heavily advertised soft drinks are the main competitive

challenge. Possibilities of market growth in the high income developed countries may be relatively limited, although here specialist teas may have good prospects, indicating product differentiation as a potentially successful marketing strategy. The emphasis must be on general information provision which all participants acknowledge to be of value, or campaigns targeted on specific market segments where those participants with most to gain contribute most. In relation to the latter, generic programmes on a country-by-country basis need to be developed, reflecting the unique characteristics of each market. The expectation is that counterpart funding would be forthcoming, especially for the latter. The basis for promotional activity of all kinds is research and studies related to tea consumption. Among producing and consuming countries alike there is common interest in the coordination of a program of market research to generate an internationally comparable database of information on consumer attitudes and habits, and in some promotional committee acting as a clearinghouse for educational, informational and public relations material.

The scope of backing for generic promotion activities is an important determinant of the focus of activities and the marketing message or position. It serves as the basis for setting marketing objectives and targets. If the interests or priorities of backers differ one from another, it becomes increasingly hard to secure collective ongoing support, whether that support is conceptual, political or financial. Every marketing proposition must have clear and commonly shared objectives. In the case of Cotton Council International (CCI) responsible for internal cotton promotion, the industry agrees to overall objectives and priorities. Once these are set, specific country targets are developed internally as are the activities aimed to address those targets. This information is shared with the industry who agrees to them as a collective approach to promotion. The broader the financial and political

support for a generic promotion campaign, the bigger is the task of gaining support for activity proposals, securing funding, and reporting on how monies were spent and what resulted from that expenditure. Accountability is paramount for generic promotion since all stakeholders need to receive clear, ongoing evidence that monies have been spent efficiently and generated the targeted results. Back-sell communication is essential on at least a semi-annual basis to maintain support for activities that likely take several years to generate significant results.

Regardless of campaign objectives, the generic promotion campaigns depend on a long-term commitment by backers to allow sufficient time for results to be generated. A minimum of 3-5 years is a realistic time frame for most generic promotion activities. Defensive activities that are fundamentally issues management might achieve their objectives in a shorter period. Without exception the longer term the objectives of the project, the bigger the challenge to maintain political support and campaign funding. Maintaining support over the longer term is a clear challenge for all advertising and marketing campaigns. It can be even more difficult to convey the benefits derived from generic promotion to stakeholders when each has competitive and varied interests. Promotional campaigns need to include demonstrable effective use of funds; commonly agreed goals and realistic targets; specific measurable activities to track campaign effectiveness. In addition, generic promotion campaigns have the challenge of communicating to each stakeholder how those measured results impact the interests of that particular stakeholder to justify ongoing support. However, even the best conceived and managed campaign cannot always anticipate the effect of a changing market and the evolving consumer.

The experience of the development of promotional campaigns for other commodities provides some

useful pointers to the design and implementation of promotional strategies for tea. The difficulty facing collaborative action on the demand side as with action on the supply side is to organise joint activities amongst stakeholders who may see their interests as competing. There is therefore a need to establish clear strategic aims to which all can subscribe, and clear targets based on rigorous market research. Activities in targeted markets need to be adapted to particular local needs in collaboration with local organisations and in these cases those with most to gain should provide the bulk of funding. In periods of declining prices and restricted public budgets it seems inevitable that the private sector must play a greater role in market development activities.

Supply Control

The alternative to actions to increase demand is to try to limit growth in supplies coming on to world markets. As noted above, the international tea industry has typically eschewed this type of action. However, it continues to be raised as a possibility in discussions of development strategy, for example in the meetings of the Intergovernmental Group on Tea. In principle, as noted above, the apparent persistence of shocks to tea prices suggests that stabilisation may be feasible in the sense that the costs of storage and financing etc should be limited relative to the potential benefits. However, in practice interventions on the supply side have rarely been successful.

The experience with the recent attempt to limit coffee exports is instructive. The Association of Coffee Producing Countries (ACPC) promoted a retention scheme from 1 October 2000 to retain 20 percent of exports to maintain prices above 95 cents/pound and release supplies onto the market when prices exceeded 105 cents/pound. While 19 countries joined, including non-members of ACPC such as Vietnam, few actually retained any coffee at all: only Brazil, Colombia, Costa Rica and,

temporarily, Viet Nam cooperated. Exports and stocks continued to rise, and prices continued to fall. It appears from analysis with a partial equilibrium model of the world coffee market that prices could have been raised significantly in 2001, although not to the target level, even without full participation in the scheme. However, the most active supporters of the scheme would have lost revenues, while the free riders would have gained. It is not surprising therefore that even those exporters initially declaring an intention to participate withdrew their support. The main difficulty with such schemes is to devise an appropriate institutional structure to maintain general support and compliance and control free-riders, especially where consuming-countries are not party to the agreement, and where financing is uncertain.

Such schemes hark back to the international commodity agreements (ICAs) with 'economic clauses' which were widely seen in the 1970s as a solution to the problems of tropical commodities facing weak markets and variable prices. However, at that time support was forthcoming from the importing countries who wished to offset the threat of the use of the newly acquired producer power as revealed in the petroleum and food price peaks reached in 1972-74. Market interventions ended for sugar in 1984, for coffee in 1989 and for cocoa in 1993, while for jute and rubber the arrangements continued until 2000. The ICAs are not now widely regarded as a success, although the coffee agreement did succeed in keeping prices within the agreed range for some time. Today existing ICAs focus on measures to improve the functioning of markets, and there is little prospect of the resurrection of their economic clauses.

Nevertheless, interest persists in supply management by producing countries to counter the long-run fall in international commodity prices.² The ACPC coffee export retention scheme has already been mentioned, but a similar scheme exists for

rubber, and there has been active discussion of the need for such a scheme for tea. These 'producer-only agreements' involve export retention or international stock management schemes, or diversion of low quality into alternative uses. However, as the ACPC scheme illustrates, the experience to date has not been encouraging. It seems difficult to maintain the continuing commitment of the parties to the discipline of the agreement, while free rider problems persist with those suppliers outside.

In principle, the conditions for a successful – in the sense of raising prices or slowing their fall – producer-only agreement do not appear demanding. The basic requirements are:

1. The parties to the agreement should control a high percentage of production
2. Price inelastic demand
3. Modest price objectives
4. A high degree of commitment to a simple instrument

The conditions are not prohibitive and the share of trade that a group needs to command (which depends on elasticities of import demand and export supply in non-members) need not be impossibly high to achieve gains in export earnings by withholding some supplies from the market in the short-run. In the longer-run the elasticities rise and with them the critical share required for the successful operation of an agreement, but this should not rule out modestly aimed agreements for a limited number of years. It is not a requirement for an international agreement that it should be designed to last for ever; periodic re-assessments of the membership and tactics make good sense. In any case market intervention cannot be sustained in a one-sided way to counter the tendency for

² Maizels, A., Bacon, R. and Mavrotas, G. *Commodity Supply Management by Producing Countries. A Case Study of the Tropical Beverage Crops*. Oxford University Press, Oxford, 1997.

relative commodity prices to decline in the long-run. This can only be achieved by bringing about a permanently improved balance between supply and demand.

The first two conditions are generally relatively easy to fulfil since production of many commodities, although not tea, is geographically concentrated, and commodity demand is indeed typically inelastic. However, there is a tendency to be overambitious with respect to target prices and to be unwilling to recognise the need to adjust targets in line with changing market conditions, with politics rather than economics governing decisions. There are also difficulties in choosing the currency to denominate the target prices. If the target price is set in US dollars then devaluation of national currencies against this can offset falls in the dollar price. The devaluation of the Brazilian Real is one factor which led to growth in world coffee output in spite of falling dollar prices, for example. Above all maintaining commitment, including financial support to establish and implement a scheme, is the most difficult as the experience with the ACPC coffee export retention scheme and the tripartite rubber agreement indicate. The higher the target prices set the greater the incentive for low-cost producers to cheat, and for those outside the agreement to increase their production and market share.

Control of cheating and free-riders is much easier if the agreement has full participation of importers, which, by definition, a producer only agreement presumably does not have. Consuming countries and the multinational trading companies which buy and process many commodities are not likely to favour higher prices, although under the old ICAs importers saw it in their interest to participate. Participation of consumers is not only desirable from the policing point of view, it may also be a legal requirement that importers are represented under WTO rules, although the constraints on WTO members forming producer-only agreements are

not entirely clear. Administration of an agreement has also become more difficult after market liberalisation which reformed or removed institutional mechanisms for this.

Quality Improvement Scheme

The last session of the FAO Intergovernmental Group on Tea discussed a proposal for a quality improvement programme, which although portrayed as a demand enhancement scheme but would also have supply side effects by eliminating a certain volume of inferior quality tea from international markets. Under this scheme, tea failing to meet ISO standard 3720 would be excluded from the world market. The details, and particularly the policing arrangements, remain to be worked out, and an international working group has been established to develop the proposal.

A similar scheme has already been implemented by the International Coffee Organisation. The coffee Quality Improvement Programme was agreed in 2002 under Resolution 407 at the International Coffee Council, and proposed to prohibit from October 2002 the export of coffee failing to meet specified minimum standards in terms of numbers of defects and moisture content. Exporting member countries are expected to develop and implement national measures to implement the resolution.

If financing does not prove a problem, the tea scheme should have both demand and supply side benefits since higher quality might be expected to stimulate demand and command a higher price, while the elimination of low quality tea would reduce overall supply. However, the burden of implementing the scheme will fall most heavily on those producers with the lowest quality at least in the short-run until their quality is improved. At the same time, there is some concern that the ISO standard for tea may not be sufficiently stringent to be effectively constraining on volumes of inferior quality tea coming on to the world market and hence

have little real impact. Most importantly, however, as with the coffee scheme, effective policing to ensure full cooperation is essential. The tea industry is less well-placed to ensure this in the absence of a relevant international body. Furthermore, it requires active participation of importers against a background that inferior quality does find a market. In terms of enforcement, under the coffee scheme coffee failing to meet the specified standards can be refused the ICO certificate of origin by exporting countries, but the cooperation of importers in policing the scheme and informing the ICO of shipments failing to meet the quality standards is purely voluntary. The participation of importers requires their agreement on the quality standards to be specified and a willingness to give up some flexibility in the range of quality entering their blends. More generally, if superior quality is to be demanded and to command a higher price, consumers must be able to recognise quality differences and be willing to pay for them. Quality improvement schemes may therefore need to be supported by educative information and promotion activities.

Differentiation and Diversification

Product differentiation into speciality varieties should be able to achieve premium prices for tea, although such product differentiation opportunities are not open to all. More generally, organic and fair trade products can also command a premium price. The International Trade Centre has been active in researching market opportunities in these areas for coffee, through the Gourmet Coffee Project, for example.³ Similar initiatives might be encouraged for tea. So-called speciality teas, associated with a particular producing region, can continue to command a premium and enjoy market growth even when prices in general are depressed. Of course, not all producers can enjoy the benefits of favoured locations, but alternative bases for differentiation are also possible – environmentally

friendly production systems or organic or fair trade, for example. Exploiting such niche markets requires that segments offering higher returns must be identified and targeted, and quality maintained throughout the value chain. It may also be that the market needs to be educated to appreciate and be willing to pay for 'speciality' teas, through the various tea councils, for example.

In these areas there may be a role for government and for international agencies, but basically they require investment. The problem is who will reap the benefits of any such differentiation – traders, retailers, governments or growers. For some commodities, while international prices have displayed increasing variability across types as a result of increasing differentiation in final products markets this has not been reflected in prices paid to growers – in fact variance of grower prices has actually declined. So a growing share of total incomes in the value chain has accrued to economic agents downstream, including in the importing countries. This is at least partly attributable to the imbalance in market power between the two ends of the value chain: while growing is typically atomistic following abolition of marketing boards, downstream activities are concentrated. In coffee, for example, the top five roasters in Europe account for nearly 60 percent of coffee produced. For tea, the balance of power within the value chain and its implications for pricing and shares of total returns needs to be researched.

A value chain study is planned by the Secretariat of the FAO Intergovernmental Group on Tea. Value chain analysis provides a convenient framework to study the impacts of economic, technological and institutional changes through global marketing chains and the distribution of the incidence of those impacts and any gains arising from them between participants at different production and marketing stages. A "value chain" encompasses all the activities involved in making a product and delivering it to retail

³ International Trade Centre. *The Gourmet Coffee Project*. May 2000.

and the consumer. This is a broader concept than "supply chain" that refers to the upstream enterprises providing inputs to a particular stage in a value chain. Value chain analysis is based on a comprehensive characterization of input-output relationships from grower to retailer, and the coordinating mechanisms that guide activities at each stage. It can include consideration of technical transformations of product, pricing, costs and margins, number and size of firms at each stage, barriers to entry, market power and the sharing of benefits from innovation, product differentiation and diversification. Of particular concern is "governance", defined as the power to determine who participates in the value chain, what is produced, how and when, and asymmetries in market power. Typically for agricultural commodities, including fruits and vegetables, power has become concentrated in small numbers of traders and retailers in importing countries at the expense of the large numbers of small growers in exporting countries. This power asymmetry shapes the distribution of market revenues.

In the longer term a tendency towards oversupply in the tea market can only be addressed by encouragement of diversification out of tea production at least in marginal areas. Horizontal diversification into alternative crops is the obvious

direction, but may not be feasible in many tea areas. The important objective is to enhance income and employment opportunities, including outside agriculture. Vertical diversification can be a means of capturing a share of processing and distribution margins which have expanded even as prices of basic products have declined. Such vertical diversification faces a degree of tariff escalation and needs to overcome the barriers to entry which are a feature of the concentrated international market. Tea is perhaps not much affected by the outcome of multilateral trade negotiations on market access, export subsidies and domestic support, although there is some tariff escalation. However, market structure barriers are probably a more significant deterrent to vertical diversification. Again, the value chain analysis mentioned above should throw some light on to these issues. Ultimately, non-competitive producers must diversify out of tea production. This will require public assistance to growers to identify market opportunities and to obtain the necessary knowledge, skills and resources to exploit them. Even for competitive producers, price variability and exposure to price risk will remain even if the protracted slumps resulting from global overproduction and stagnant demand may be limited. Attention can then increasingly focus on management of these risks.

CONCLUDING COMMENTS

This paper has looked at the tea market situation and outlook, and at different strategic actions aimed at enhancing returns to tea producers and exporters. It is clear that industry-level coordinated activities are not straightforward to organise, especially in the absence of an international agreement and associated dedicated commodity organisation for tea.

In the absence of such a dedicated organisation the FAO Intergovernmental Group on Tea provides some institutional support to the global tea industry. Unusually for an intergovernmental commodity group, the Secretariat of this Group was instrumental in developing and managing the 'Tea Mark'. However, the limited resources available mean that in general the Group's focus is on providing an international forum for discussion and consensus building on any matters of concern to the global tea economy, and enhancing market transparency through monitoring of the market situation and outlook and analysing market developments. Such activities are essential foundations for strategic development.

Chapter 6

VOTE OF THANKS

Maqsood Siddiqi

Prof. Maqsood Siddiqi is the director of Bose Institute Kolkatta since October, 2001. He is a cancer research scientist and was the Director of Chittaranjan Cancer Institute, Kolkatta, before taking up the present assignment. He has been working on various aspects of cancer for the last 25 years and is recognized in his field of environmental carcinogens. His discovery of caffeine derived Nitroso compounds and their high implication in esophageal and stomach cancer in Kashmir has been internationally acclaimed. He has about 50 research paper publications in peer reviewed international research journals on various aspects of cancer. He has earlier been associated with Indian Institute of Medical Sciences in University of Kashmir, in Srinagar and the German Cancer Center in Heidelberg, Germany. His interests include chemo-prevention of cancer using tea polyphenols and other naturally occurring compounds as well as the etiology of environmental and genetically disposed cancer in India. He is well known in establishing a population based cancer registry in Kolkatta and for initiating community-based cancer screening programs in rural Bengal. He is a member of large number of professional committees and Academic bodies related to cancer research and cancer control in India and has represented the country in various meetings on cancer research.



Dignitaries on the dais, delegates, distinguished guests, ladies and gentlemen;

It is my proud privilege to welcome you on behalf of the Organizing Committee, the Bose Institute and also on my personal behalf before thanking you for your graceful presence. My thanks are due to all benefactors, supporters, sponsors of various events in the conference. My special thanks are due to the Tea Board of India, The N.T.R.F, and N.A.B.A.R.D. We are very grateful to LIMTEX, Tata Tea as well as Dhanshri Tea for sponsoring various lunches and dinners for the delegates. We are very thankful to Science and Technology Department of Government of India, Council of Scientific Industrial Research, Food and Agricultural Organization, The Hindustan Lever, The Himachal Pradesh Government, Tocklai Experimental Station of T.R.A., UPASI, I.I.P.M., I.H.B.T and many others who have given their support strong support during the organization of this conference.

My thanks are due to a large number of friends, colleagues, young men and women, volunteers

whose efforts have resulted in the reality of this conference today. I would be failing in my duty if I don't thank and acknowledge the support and unfailing courtesy I received from Chairman Tea Board, Mr. N.K. Das, Shri L.V. Saptharishi, Dr. N.K. Jain, Dr. Bharat Bajoria, Mr. C.K.Dhanuka and all other captains of the industry and participants. My thanks are due to Mrs. Suttapa Biswas who managed the event so efficiently despite innumerable constraints of time and infrastructural resources.

Ladies and gentlemen we have tried to do our best and make your stay comfortable. I seek your forbearance for any shortcomings on our part. In case you require any help I am sure the event volunteers will take care of that.

Ladies and gentlemen with these words I would like to thank you once again for gracing this occasion and I am sure your stay in Kolkatta would be intellectually very useful and you will enjoy seeing the town, specially for those who are coming here for the first time. I do not want to stay longer between you and the keynote speaker. Thank you very much.

**Director Bose Institute, Organizing Secretary, 3rd International Conference*