

Productivity Science

A Global Movement

**HISTORY OF
THE WORLD CONFEDERATION OF
PRODUCTIVITY SCIENCE (WCPS)**

**THE WORLD ACADEMY OF
PRODUCTIVITY SCIENCE (WAPS)**

Dr. A. N. Saxena



Dr. A. N. Saxena

Dr. AN Saxena is an internationally known productivity and management consultant. He retired as the Director General of the National Productivity Council in India in 1985. Thereafter he was chair Professor in the faculty of Management Studies (FMS), Delhi University.

Dr. Saxena represented India on the First International Advisory Council of the World Confederation of Productivity Science (WCPS).

In 1988, at the Montreal World Productivity Congress when the World Academy of Productivity Science (WAPS) was setup, he became its first Secretary General and at the Stockholm World Productivity Congress in 1993, he rose to become its President.

A Gold Medallist, a Fellow and a winner of the Special National Productivity Award of the Asian Productivity Organization (APO), he was empanelled as a Technical Expert under the Technical Expert Service (TES), and rendered professional expert service in Thailand, Malaysia, Nepal, Iran and Mongolia.

Dr. Saxena has an unbroken record of over 25 years of participation in World Productivity Congresses held around the world. He also rendered Consultancy Services in Turkey, Indonesia and Mongolia.

As a scholar, thinker and a writer, his next outstanding work has been the publication of two volumes on Planning & Promotion of Productivity (Indian Experience), besides management guides and training manuals.

This global publication, first of its kind on productivity science, seeks to highlight the origins, the vision and the mission and exposes the new horizons of Productivity Science in its wider spectrum of application in all aspects of human endeavor in pursuit of its goal of peace and prosperity through productivity.

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**WORLD CONFEDERATION OF PRODUCTIVITY
SCIENCE (INDIA)**

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With humble thanks to each and every productivity science promoter around the globe.

Dr. A. N. Saxena

Preface

“The important thing is this, to be able to do at any moment, to sacrifice what we are for what we should become.”

- Charles Du Bos

God gives his message through waves in our mind. If we catch them properly, think wisely and act prudently, success finally comes to us. This is not merely my conviction, but this is precisely what happened to me. There was a flash of thought in my mind, “Why should I not document the history of the World Confederation of Productivity Science (WCPS)?” WCPS is the only world body of Productivity Organisations around the world with which I have been actively associated since its early days, having had the privilege of being a member of its first International Advisory Council (I.A.C.) and its board and having had the good fortune to actively participate in its board meetings and attending 12 successive World Productivity Congresses and all international events held in the Asian region, an unbroken record of 25 years which enabled me to collect valuable information and documents, and to be a witness to its inner activities and updates that deserve to be documented for posterity.

Thinking aloud, I recalled Benjamin Franklin who once said:

“If you would not be forgotten as soon as you are dead, either do something worth writing or write something worth reading.”

I realized the same in my life. I do not claim to have done much worthy writing and therefore, let me console myself by documenting the history of WCPS which could provide useful information, could equally serve as a guide to the present generation of productivity practitioners, and be of some benefit to those who will spearhead the global productivity drive in the years to come.

I was greatly emboldened in this thought by remembering my university days when as a student of English literature, I studied John Milton, the

great English poet, whose two monumental publications ‘Paradise Lost’ and ‘Paradise Regained’ became Classics.

As history tells us, Milton was blind, and he used to dictate his verses to his daughter at night after she had completed her family responsibilities. However, to her great dismay when *Paradise Lost* was published, very few copies were sold. So, one day, in despair, the daughter told Milton, “Father, don’t you think we have burnt the midnight oil in vain?” To this Milton replied, “Though few they are, but select they are.” He said that he never meant this literary piece to be for the masses. It is also a fact of history that Milton thereafter wrote *Paradise Regained*, which sold out like hotcakes. Like Milton, I am confident that when the next document on WCPS/WAPS will be published, it will be full of more valuable content and will serve as a guide to Productivity Science practitioners with live case studies and success stories of application to attract a large mass of people to read and get engaged in proliferating the productivity science mission.

I am equally confident that some glimpses of the past history of the world body will ignite the passion for productivity in the newcomers who will become the stakeholders in the global mission of productivity science since they will be gifted with a much wider perspective, a deeper understanding, and a larger reservoir of energy and resources to pursue the global quest for peace and prosperity through Productivity.

Facts in life sometimes run counter to what we expect them to be. Expectations and desires do remain unfulfilled. Therefore, being merely an optimist by itself is like day dreaming or ignoring the ground realities. Let me therefore frankly admit that this stood as a roadblock in my way of thinking when I realized that I have no resources and with weak shoulders and depleting energy levels, at a highly advanced age should I embark on this mission?

It was at this stage that my experience of over 60 years in Management Education and Consultancy came to my rescue, which reaffirmed my belief.

Resources do not limit decisions. It is decisions that make up for the resources.

I further got emboldened by the fact that even explorers and excavators seldom complete the task they embark upon. But they certainly lay the path for others to follow. Human potential is within all of us. We all have the power of thought and a dominant will power. God has given us a

developed brain with two unique gifts: An Indomitable courage and an insatiable thirst. Without these two, this world would not have been what it is today or what we envision it for tomorrow.

There is always a gap between facts and fiction. Pious hopes and pontifical preaching do not feed people. Even good ideas and well-meaning intentions remain sterile unless backed by ground realities and sustained by hard work. Frustration and inertia are normal phenomena which can be dispelled only with conviction and courage, pursued with a sense of determination. Above all, there is hope that keeps us ignited in what we do. People who have nothing, have hope. Hope always opens up new vision and vistas that can transform even Utopias into reality.

When I was a student of statistics, my professor once told us that Questioning is the starting point in all human activity and that an experiment is a 'sacred invitation for the universe to appear, to manifest'.

Well begun is half done, is a lesson that we all learnt in family and at school. We were also taught that fear can be overcome with determination and that no question can remain unanswered. Even the darkest of the clouds are there to disappear.

I finally decided to take up the task in the belief that let me do what best I can. In any case I am not going to lose anything and at best whatever time is left with me in my life will be well spent for a good cause. Like war heroes who never leave a vacuum, I am sure some more intelligent, more enthusiastic, more resourceful and more dedicated people who believe in the philosophy of Productivity Science will take up the task and take it to a grand finish.

Historically, the term productivity science is not very old, but the philosophy and the spirit of productivity science has been there since the beginning of creation and will continue till eternity. It is this spirit that makes it incumbent upon us to consider productivity science not merely as a pedagogical issue having its roots in Industrial Engineering but being based in the ideals of peace and prosperity unleashing tremendous opportunities as against its narrow ambit of profit-seeking efficiency or overcoming crises or war-like situations.

To me, productivity science represents value aspect entering the portals of innovation and creativity, to promote arts and science, to reflect humanity in social and spiritual life, thereby delineating it from the narrow definition of human nature or as a calling. It was Cicero who said 'Serving

a just and a noble cause rewards with more than real happiness than any other venture in life’.

Our civilization has tracked through a perilous journey to reach the current stage of development since people at all times have tried to create a better life for themselves and their children. Recalling my long involvement with the World Productivity Science movement and as an optimist, I am convinced that epigrams and philosophical quotations also have a converging point, but in the ultimate analysis it is the attitude which counts.

History tells us that great empires crumbled because of the attitude and the spirit of the people. There were always ages of prosperity and times of decay but if a Nation was diligent and united in spirit and outlook, no problem, no misfortune was too big to be handled by plain hard work and effort.

In productivity science while we seek to unravel what makes people happy and excited about work that is challenging, interesting, as well as that is hard and difficult and that leads us to experience the inner satisfaction that comes from completing a task that has taken a test of skill, talent and time to lead to a sense of satisfaction and fulfillment of a task which makes people more forward-looking.

British Economist W.Stanley Jevons offers a selectionist approach to the human mind’s ability to provide insights into the environment. Productivity Science unfolds that imagination and abundance of guesses at truth which are among the first requisite of discovery, but this can’t happen without erroneous guesses and those that prove to be true. The weakest analysis, the most whimsical notions, the most absurd theories may pass through the alert brain, but nothing is really absurd except that which proves contrary to sustainable logic and experience. Let us therefore not reject an idea simply because it is not universally applicable.

New ideas do not immediately yield successful results. It is not just the designs, processes and products, but an idea that grows from interaction between people and language or conversations. And no wonder, insight and imagination are the two qualities that are necessary for distinctive competencies.

Economists have always linked productivity with GDP/GNP. However, GDP/GNP are no longer considered as the sole measure of growth and development. Development is not development of things; it is development

of people, their potential, their innovative qualities and creative capabilities to make the system self-reliant. It is not to make the poor wealthy but to make the poor productive; to increase man's innovative capabilities and resourcefulness; to enable him to be more concerned with developing the self, the society and the quality of life universally.

In the final analysis, productivity science represents the quality of life that comes out of distributive justice. In fact, as the concept of "development" changes, productivity science takes up new dimensions, calling for new methods of production and measurement of quality of life. From a statistical concept of measurement, it has moved to National Net Welfare (NNW) and how this net welfare is reflected in the life and living of the people. This dimension of productivity science is essential for working out the future course of action for productivity science applications in all walks of life.

Advances in Science and Technology and the triumph of market economy have unleashed competitive pressure, unparallel in world history has forced command economies to dismantle trade barriers and begin re-structuring. The softer side of competitiveness therefore reflects the shift towards a knowledge-based economy. Increasingly, value addition depends upon human dimension of competence that is innovation and knowledge. Consequently, rapid transformation is taking place from post-industrial society to information society and to digitization.

All this is a precursor to a new culture of Societal Technology in which technologies will come together to create a new thrust and ethos of revitalization and will lay greater emphasis on the quality of environment, quality of work life, competitive character of the economy, improvement in the quality of products, processes and services by opening a vast landscape for productivity science application.

Human and Social welfare are the bedrocks of any civilization. They are the outcome of cooperation and community participation reflected in the quality of life of the people. productivity science seeks to foster cooperation, consultation and interdependence among the people. If we ignore them, there will be more splinter groups and hostilities in the world of ideas and actions. The most intricate problem in resolving this lies in harmonizing the very different requirements of the logic of 'work' and 'worker' which can be developed only through tolerance. There can be no cohesive world until cooperation has displaced confrontation. History is a

testimony that no country or nation had ever risen from poverty and went to a better way of life without cooperation of all stakeholders.

I foresee a productivity science Revolution coming about in the near future. It is going to be fundamentally rooted in the belief that productivity science is about removing barriers and reallocating resources to high-yielding activities; that lead to greater competitive advantage, increased job satisfaction and positive employee engagement, rather than job losses or downsizing.

In productivity science we seek to traverse new horizons through scientific research. This requires that we make a paradigm shift from input-driven growth to output-driven growth model, based not on the scarcity of resources but abundance of knowledge reservoir that mankind has. And there is no magic about productivity science. The drivers of productivity and competitiveness are changing from efficiency and quality to innovation and enterprise with value-creation on the top of the agenda. For this we must invest in skill upgradation and focus on 'lean' strategies that involve customers, retailers, distributors and manufacturers. To make it purposeful, it must achieve a degree of goodness, progressive management, good human work environment and equipment with concern for green productivity.

In the new millennium, we are on collision course with the world's eco- systems and resources. In the coming decades, either we will find ways of meeting human needs with technologies, policies and cultural values or the global economy will collapse. The World Watch Institute also states that it is difficult to think of a better description of productivity than as a synthesis of technologies, policies and cultural values.

In one of my articles on Productivity and Management, I stated that destiny demands that we leave the Planet in better shape than we inherited. My colleague John Parson, a distinguished Fellow of the World Academy of Productivity Science (WAPS) and founder figure of PAN-African Productivity Association from Australia, reacting to it added:

"I could not agree more with Dr.A.N.Saxena but I believe that in the words of Albert Einstein, "The World that we have made as a result of the level of thinking we have done thus far creates problems that we cannot solve at the same level they were created".

Before concluding this write up, let me say that I feel fortunate to be a part of a great Productivity Science Movement serving a just and a noble

cause that gives a sense of happiness and makes me feel:

How pleasant it is at the end of the day,

No follies to have to repent.

But thank God, and be able to say

My time has been properly spent.

`God's ways are different than man can think of'. We all live on this planet in the hope that 'Tomorrow Shall Be Better' which productivity science seeks to work for and for which we owe it as our duty to do what best we can to promote the lofty cause of "Peace and Prosperity Through Productivity".

Dr. A.N.Saxena

Message from the President of the World Confederation of Productivity Science

Every organisation has certain things it wishes to do, or to achieve – its mission and its objectives, but organisations are also creatures of their history which has shaped their structure, their governance, their culture, their values and therefore has played a major part in development of the mission and objectives.

This is true of multinational business organisations, of charities and of NGOs like WCPS, which rely on volunteer activity and support.

WCPS has a key underlying mission which can be described as bold or naive (and possibly both at the same time, to create:

... peace and prosperity through productivity.

We firmly believe that improving productivity increases wealth, and if that wealth is shared appropriately, we create the conditions for a fairer society and a more peaceful world.

WCPS has a rich history involving some key individuals who have led the organisation through periods of growth and decline, and through periods of growing relevance and influence. As befits an organisation with ‘World’ in its title, these individuals have been spread across the globe and have ensured that the values of WCPS include a respect for regional histories and cultures, and a recognition that productivity development needs to recognise these different histories and cultures.

This book has been put together to recognise the history of WCPS and the contribution of these key individuals. Though it is a historical document, it sets the foundation for future development. WCPS looks to the future with confidence and with a recognition that we must continue to develop and change to meet the changing conditions and environments

in which nations and regions, (and especially our network partners around the globe) must develop approaches to productivity development which recognise and respect the past, but which aim to build a future which creates a better life for their citizens and which contributes to the WCPS mission.

John Heap

President,
World Confederation of Productivity Science

Roll of Presidents of The World Confederation of Productivity Science (WCPS)

1. DR. JOSEPH A FRADEY (U.K)
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Roll of Presidents of World Academy of Productivity Science

- | | | |
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| 6. | DR. THOMAS C. TUTTLE | (USA) |

Why The History

There is no living creature, no human activity, and no organization, that hasn't got a history, because of our global friend - time. The supreme sponsor of history is time. We all know that time is the only constant. But in its modern approach time is three dimensional: time is time; time is energy and time is money.

Time and history are inseparable twins where one is, the other exists.

History is the branch of knowledge dealing with past events – civil, philosophical, political, social, economic, of a country, continent or the world - ancient, medieval or modern. In its new definition it has vastly extended to cover events and occurrences in diverse disciplines including science, technology, management and scores of other branches. History of productivity science is therefore legitimately an integral part of this process.

It is my conviction based on my long association of over sixty years with both national and international productivity movements which has prompted me to pen down this first document of the history of the World Confederation of Productivity science WCPS and its most important arm, the World Academy of Productivity science, (WAPS).

How Important is History?

History is like the rear-view mirror in our car. One can drive without the rear mirror but it is unlawful, dangerous and impractical; a rear-view mirror is not only good for safe driving, but also necessary to look at, from time to time in order to see what is happening at our back. However, it is not good to look back all the time in the rear mirror. If people do that, they will sooner or later, have an accident.

People who ignore history will fail; even organizations will fail, governments will fail to make correct decisions and give valuable directions to national policies, and in any case, the advice, decision or direction will go wrong, or will be of short-term benefit only. To me, history gives

analytical knowledge and capability of making sense of both the large picture and the small picture.

It was Napoleon who once said that the outcomes of the greatest events in history are often determined by a trifle or a trifle being disregarded.

The power of the written word is often overlooked, and we find out very quickly what damage one single wrong word, at the wrong time, to the wrong person, can do, and how many words are necessary to correct this. Let us not underestimate the power of the written word, the power of printed communication, because one single good word can save millions of people, encourage thousands of human beings in despair and equally create hope, faith and love.

While we need information and communication, we also need transformation. Our productivity science mission is not a fearful message; it is a message that the world belongs to the enthusiastic people who keep their cool, who want to build a planetary code of ethics capable of inspiring our actions and of infusing into our mind the highest meaning of total productivity.

Action is what produces results; knowledge and wisdom are only potential powers, until they come into the hands of somebody who knows how to convert them into effective processes.

Despite all the negative realities in this world about famines, drug abuse, AIDS, economic inequalities, open wars, and natural catastrophes, our faith in productivity science is the courage to face reality with resolute determination. A family, a nation, a world without communication will soon be a dead family, a dead nation.

And never doubt that a small group of committed people can change and make this world better. Indeed, it is the only thing that ever has done that.

The history of WCPS by comparison, is young. And yet, I decided to create the first document of this world body with the conviction similar to a Chinese proverb, the palest ink is better than the best memory.

If no use is made from the past, the world will remain in an infancy of knowledge.

Every educated person or student has to deal with history because many explanations or foundations are only in history. It is a part of our culture. In any case, without history we would not be able to understand the present objectively.

Why Productivity Science History?

We call productivity a science because we are striving for universal laws in productivity matters. It has emerged as a systematized knowledge; is concerned with universal socio-economic issues which are vital for humanity. And, it is our vision to capture and disseminate how productivity science knowledge creates societal values and thereby enhances productivity. We believe that it is the unknown future which helps humans with more productive Ideas.

Despite this simple definition when it comes to its applied aspects, productivity science is confronted with vexed issues which certainly deserve clarification.

Science means getting at facts and trying to understand them. What the scientific approach does is to give a specific and detailed line of endeavour which has a probability of bringing about the desired result. Science helps to uncover the truth, discover what things are and reveal how to regulate them. And yet, the legacy of mankind has been and continues to be the handicap of learning from experience. It may be quite interesting to know that the great electronic expert of time did not think up a telephone. They not only did not think it up, they even refused to buy the patent. They said it was a worthless invention. It is still more interesting that a dial telephone was invented by an undertaker, the signal system on rail road by a dentist, rubber tyres by a veterinarian and a get long gun by a doctor.

Any scientific approach therefore demands that we not only stay competitive but also register a steady growth. It was Francis Bacon who told us that knowledge is power. However, this is relevant only in contemporary terms. In the new setting, knowledge acquisition is the process of fueling the growth engine of technology. The softer side of this is building relationship of trust and tapping the intelligence and creativity of the people. No wonder, the dictum is “innovate or evaporate”.

The marvels and the magnitude of scientific discoveries was aptly described by George Bernard Shaw, in his Preface to ‘Saint Joan’. Medieval Doctors of Divinity, who argued about how many angels could dance on the point of a needle, cut a very poor figure beside the modern physicist, who has settled to the billionth of a millimeter in the dance of electrons.

It is a great travesty that science and technology have enabled humans to break barriers of speed and sound and enabled them to land on the moon. This has developed a misguided belief that conquest of nature has

made humans supreme since. It stands futile before the fury of nature. We cannot change the behavior of the universe and the laws of nature; we have to adjust and grow.

As humans, we are a part of a united social system, living together on this planet and we owe it to ourselves to shed indifference, callousness and arrogance. Freedom does not grant liberty to destroy nature. Consequences are observable.

It is true that we cannot turn the clock backwards. The world cannot do without food, fuel and other goods and services that have been already provided and certain living standards have been acquired. It is equally true that if we continue to persist in what we are doing, nature's dispensations are clear.

God created life not to be destroyed but to be endured, to live peacefully and in harmony with nature. It was Mahatma Gandhi who said that there is enough on this planet for the needs of the people but not enough for the greed.

To seek understanding with hope and courage is humanity's true badge. It is also the greatest gift of science and technology. We as a generation, have our obligation irrespective of our individual pursuits in life. We need vision to see the best, courage to face the facts, adaptability to change and avoidance of misunderstanding to become a partner in great undertakings. If we do not wake up, posterity will not pardon us.

We are After Welfare, not Warfare.

In productivity science, we believe what really produces welfare is the intellectual and moral solidarity of mankind, and in doing so we have an abiding faith that no single generation can achieve this goal but at best can pursue the path for peace, social justice, eradication of poverty, and prosperity for all. We further believe that no single person can learn to integrate himself into the whole mystery of this wonderful universe (Total Productivity Culture), the mission we are driving hard to pursue.

I always thought that when I would grow older, I might get wiser. Well, it did not happen to lessen the pain to find solutions to the world problems.

*Poor fool, with all this sweated lore,
I stand no wiser than I was before.
Man's conversion is beyond my reach,
Knowing the emptiness of what I preach.*

In history, all mundane events are the result of the operation of a law. Every moment in the skies or upon the earth proclaims that the universe is under governance, but we still don't know what the various powers or productivities are (e.g. brain power, psychical powers, gravity, intellectual energy, cosmic productivity, etc.). And yet with certain powers we can recognize the way in which they manifest, but we still don't know the reason.

*For nature, keeps her veil inviolate,
Mysterious still in open light of day,
And where the spirit cannot penetrate
Your screws and irons will never make a way.*

There is a much deeper reason to discover why mankind for thousands of years has been unable to solve global problems of achieving peace.

The desire to do something good in this world is the deepest desire and driving force behind the World Confederation of Productivity Science and its activities. It seeks to feel rewarded by the pleasure of having contributed to the stock of knowledge on such an important subject of productivity science to lessen human suffering on a global scale with an abiding faith that "tomorrow shall be better".

Since change is the basic characteristic of organizations, individuals and societies, we need ideals and aspirations in order to survive and progress in life. I see productivity science in the twenty-first century for WCPS/WAPS as a union of wisdom and special care for society's welfare, lasting peace, and improvements in quality of Life, human attitudes and increased global communications.

I am confident that WCPS and WAPS are poised to become a powerful catalyst for mankind in all facets of human history, a true total productivity science culture. And, the credo of WCPS/WAPS lies in their dedication to the totality of all sciences.

The main positive thing in life is Action, that's why I conclude this with a quote:

*Yesterday is history,
Tomorrow is mystery,
Today is a gift,
That is why we call it the 'present'*

Dr. A.N. Saxena

The Early Beginnings

In my search to compile the early history of the World Confederation of Productivity Science (WCPS), I addressed letters to distinguished personalities of the eighties and the nineties seeking information on its origins.

I was fortunate to receive valuable material from Dr. Krish Pennathur a father figure in the formation of WCPS, who organized the first-ever World Productivity Congress in Bombay in 1973. The other personality is Mr. John Heap, current WCPS President, whose two letters dated 8th August and 30th August 1996, addressed to Dr. A. N. Saxena gave very valuable information. (Ref. Federal News Industrial Engineers U.K., August 1968 and letters dated 8th and 30th August 1996. Annexed).

The first document from Dr. Krish Pennathur gives information on a very important event, the Second National Engineering Conference held at the University of South Wales on 12th and 13th August 1968. The conference was declared open by Federal President Merv Muller with Dr. Jos E Faraday as the key speaker, when for the first time it discussed the theme: "Productivity is our Business". This select gathering comprised of over 100 delegates from the Commonwealth Countries.

Of special significance is the fact that during the closing session of this conference, an announcement was made by Mr. Marv Muller with Federal Secretary Ron Becker of Australia on behalf of the Institute of Industrial Engineers, endorsing the suggestion of Dr. Jos E Fraday to organize a World Productivity Conference at the earliest in 1969, on the theme "Productivity and the World Standard of living".

The two letters from Mr. John Heap dated 8th and 30th August 1996, clearly bear out that WCPS was the brain child of Dr. Jos E Faraday when he was the head of Productivity Division at the BOAC (British Overseas Airways Corporation - now British Airways). Quote:

“Unable to sleep on a flight back from the U.S.A. he thought up the idea of a loose association of organizations throughout the world, concerned with productivity. At that time, he was also the Chairman of the Institute of Management Services (IMS) in the U.K. which he used as an Administrative vehicle.

There were three main aims:

- To exchange information;
- To exchange publications; and
- To hold a Congress every Four years.

Slow but significant progress was made with the first two, but organising an international congress from the scratch was more difficult. That is why the first Congress was held in conjunction with NITIE and the Indian Institute of Industrial Engineers in Bombay, to help and get the organization backing with numbers. Ted King was able to get a grant from the Commonwealth Foundation in London to pay for the attendance of representatives from Commonwealth Institutes which gave sufficient numbers to hold a formal WCPS Council meeting.

Undoubtedly, the forerunner of all the Congresses was the event held in London in April 1969. This was the first time that a global gathering of Productivity Experts had been held. The theme was “Productivity and the World Standard of Living” with the keynote speakers mentioned below:

- Professor Alex W. Rathe, a past President of the American Institute of Industrial Engineers (representing the USA)
- Sir Walter Scott, probably the most distinguished name in management in the Southern Hemisphere [representing Australia]
- Dr. J.R. de Jong, the President of the European Work Study Federation, (representing Europe)
- General B. D. Kapur and Brigadier K. Pennathur from India representing the Asian point of view.

Altogether, 32 speakers from 12 different countries created an event that could be described as truly intercontinental and as the congress concluded with an address by the Admiral of the Fleet, the Earl Mountbatten of Burma, which proved to be a memorable event that led to the start of a long chain of World Productivity Congresses.

Full marks were given to Jack Cowderey and his Organising Committee and to John Mauritz and Helen Paul by Marv Mueller in his closing remarks which, to everyone's enjoyment, described the early days of Australian Industrial Engineering and its growth.

Of special significance during the closing session was the announcement made by Marv Mueller, with the Federal Secretary Ron Becker, on behalf of the Institute that signified his approval of a World Confederation of Productivity Science by signing an agreement with Dr. Jos E. Faraday, Organiser of the World Conference, with General Secretary, Mr. Ted King, who thanked the Institute for its support and congratulated it on leading all other Institutes for obtaining their early approval.

The Great Idea

The great idea of a World Productivity Congress came to fruition when Dr. Krish Pennathur, the founder of productivity arts and science in India came forward to host the First World Productivity Congress in Bombay in 1973 on the theme 'Productivity Science for the Progress of Mankind'. No wonder, the First World Productivity Congress became the triggering point of all successive World Productivity Congresses.

At this first World Productivity Congress, Dr. Joseph E. Faraday as the first President of WCPS lauded the efforts of India in not only organizing a well-attended Congress from Commonwealth Countries but equally for having good representation from U.S and Australia.

At the conclusion of the Congress, a declaration was made where after Dr. Joseph E. Faraday handed over the baton to Dr. Krish Pennathur, who became the Second President of WCPS until the Sydney Congress in 1977.

The Second World Productivity Congress in Sydney in 1977, was admirably organized by the trio comprising Dr. William Wrennall, Dr. Walter Aigner and Mr. John A Backer with a band of their colleagues. At this Congress Dr. Krish Pennathur made a passionate speech to outline the scope and the wide canvas which productivity science needed to cover.

In his Keynote address, Dr. Walter Aigner, a leading practitioner of productivity application in 'QUNTAS' and author of his global publication 'Productivity is Everywhere' presented a framework for launching a massive productivity drive in the Oceania Region.

At the close of the Congress, Dr. William Wrennall was elected as the third President of WCPS to hold charge until the Detroit Congress in 1981.

The third World Productivity Congress was held in Detroit with the support and initiative of the American Institute of Industrial Engineering. At this Congress, the WCPS President Dr. William Wrennall gave a review of the Sydney Congress in 1977 and the initiatives taken since then. He outlined the road map for WCPS. This Congress was especially addressed by Dr. Walter Aigner, President of WCPS Australia, who spoke on the vital theme "How to Motivate Excellence". Some other notable speakers at this Congress included Prof. Yoshihiko Tanaka (Japan) who spoke on Productivity and Quality; Mr. Li-Yeu Shue (China) on Quality Control and Mr. W. Freeman on Workers' Health. Some productivity science issues were followed by lively discussions among the delegates on problems their respective countries were confronting.

It was at this Congress that a decision was taken to organize a Productivity Forum in Washington DC to review the progress made and to formulate future plans for expanding productivity activities in the U.S. Before the closure of the Congress, President Dr. William Wrennall declared the unanimous choice of Dr. James L. Riggs as the new WCPS President to hold office till the next Congress in 1984.

In his maiden speech Dr. James L. Riggs came up with the idea of holding the fourth World Productivity Congress in Europe and preferably in a neutral country. The suggestion was welcomed by Dr. Martin T. Tveit from Norway who offered to host this Congress in Oslo in 1984. He further came up with the idea of strengthening the productivity centers in member countries by extending professional support and expertise of WCPS.

The three World Productivity Congresses Bombay 1973, Sydney 1977 and Detroit 1981 paved the way for Global participation from various countries and to bring WCPS on a firm foundation. And no wonder the Oslo Congress declaration 1984 became the Magna-Carta of WCPS.

The Evolution of Productivity Science

“It is important for a profession to respect its past and those who contributed to it.”

- Emerson & Naehring

In the first half of the twentieth century, specialists engaged in productivity improvement were known as industrial engineers or work study officers. The term industrial engineers originated in the U.S.A. and the practitioners in the U.K. were known as work study officers.

“In December 1912, the originators of industrial engineering and the early pioneers of its development gathered at the annual meeting of the American Society of Mechanical Engineers in New York City. The roster bore such names as Frederick W Taylor, Frank Gilbreth, Henry Gantt, Henry Towne, Huego Diemer, Dexter Kimball, H.K Hathaway and others.” (Emerson & Naehring 1988).

Currie (1972:8) considered “industrial engineering” and “work study” as “equivalent terms” but Harris (1977) and Willemse (1974) considered work study as a narrow specialization and part of industrial engineering as interpreted by the American Institute of Industrial Engineers.

Russel Currie (1972:10) sees method study and work measurement being extended and thus integrating work study into the evolving concept of productivity science. Faraday in the revised edition of Currie (1972:10) develops the idea: “A number of management techniques kind of work study have, in the final analysis, the same objective as work study”. According to Faraday, the practice of those techniques in forward-thinking organizations is being combined in one management function or department. The term used for this unit is management services.

Faraday, however, distinguishes such activities as transport and catering as quite different in concept, although they can properly be described as

management services. Therefore, he believes productivity services would be the more logical term.

‘Thus evolves the term Productivity Services and for the academic concept- Productivity Science’ (Currie 1971:10 and Burman in Whitmore 1975:vi-i). The practitioner is a productivity scientist and the international bodies are The World Confederation of Productivity Science, (WCPS) and The World Academy of Productivity Science, (WAPS).

Krish Pennathur, in the introduction to his WAPS Monograph-1 reminds us that productivity can best be described as ‘The elimination of waste in all forms’.

Pennathur’s six pillars of productivity science are:

- Society
- Government
- Technology
- Quality
- Marketing
- Capital

In the early part of the 20th Century, productivity practitioners typically occupied themselves on improving the productivity of manual workers with varying degrees of success. This is where Taylor and others carried out their early investigations. The spectrum of techniques applied was often limited to method study and work measurement. Practitioner skills were often technical rather than social and technical.

Examples of failure to achieve expected productivity gains were regularly quoted in the press, magazine articles and books.

Currently, consultants in the U.S.A. are being sued when promises of productivity improvement are not achieved and lawyers and insurance brokers sense a new source of income.

My thesis is that productivity science has come of age at a faster rate than we have learned to apply the science and art. To quote the Malcolm Baldrige award winner, Solectron’s chairman, Winston Chen, “Technology changes so fast that we estimate that 20 percent of an engineer’s knowledge becomes obsolete every year”.

Technology is only one of several knowledge parameters that suffer decay. Common truths of the past, such as large batch sizes, inventory as

an asset, bigger is better, maximize equipment utilization, the past can be used to predict the future, and organization design theories are no longer common truths.

Move into the Unknown

In the recent past, extrapolation of the past predicted the future. The Age of Unreason and Discontinuity cannot rely on experience to the same extent. Experience, by definition, is yesterday and thus dated. The future by definition, is unknown.

Many of the decisions for success are not the result of experience, nor of logic. They come from outrageous and illogical ideas, by obnoxious and illogical individuals, who cannot prove their point. Experience-based management incumbents are unlikely to give their support to the necessary paradigm shifters.

The concepts of discontinuity, the physics of chaos, industrial dynamics, empowered team structures, lean manufacturing, under-utilized capacity policies and six sigma limits are counter-intuitive to many of us. The fact that they work, is irritating and generates denial, with those whose occupancy is not performance-related.

Productivity scientists do not find the tools for these situations in the models presented earlier.

The New World Of Work:

The world of work is changing rapidly, and we ask the questions: How is the world of work changing? What are the implications for us? More specifically, what do we have to do to:

- Improve our success rate?
- Extend the range of implementations?
- Achieve quantum productivity improvements?
- Develop to meet the requirements of the new productivity science?
- Determine what are the skills and knowledge requirements of the new productivity scientist?
- To be more productive?
- Learn how to improve the success rate of productivity improvement tasks?

Since we are in a rapidly changing world, some of the standard approaches to productivity improvement need review. There is a need

to supplement classical productivity techniques in the curricula for the education and training of productivity scientists.

Stevenson, 1977:11, at the World Congress in Sydney, referring to Tertiary Education for productivity, said "...because the future is so uncertain a lot of course material should be aimed at more certain present needs". This seems to be education for obsolescence.

Wrennall's research in 1980 found the most important competencies from industrial respondents, out of a list of 153, as:

- Overall business performance.
- Assessment of capital projects
- Productivity measurement
- Work measurement
- Motion study
- Method study
- Office and plant layout
- Labor utilization
- Report writing

These can still be considered core skills but may not be considered enough by academia or industry today.

The Strategic Era:

"My tactics you may see, but my strategies you may not."

Sun Tzu in The Art of War

Competitive Advantage

The nature of competition has changed. The new productivity methods are heresy to the old school or seen as nothing new. The Taylor approach to manufacturing productivity concentrated on labor productivity and incentive wage plans. Industrial engineers searched for incremental improvements using problem solving techniques. More recent approaches have sought to identify a firm's success criteria and provide for them. Manufacturing is now seen as an 'adding value' activity and the source of competitive advantage. Improvement is seen as a discontinuous function requiring strategic planning approaches with problem solving as a maintenance function. Pursuit of productivity as a continuous function

provides diminishing returns.

Operations strategy is now seen as a competitive weapon with new productivity ingredients for world class performance.

Just in time, with its range of elements, is the strategy that was developed by Ohno of Toyota following the study of Henry Ford's Detroit Methods and the United States supermarket concept. The JIT strategy is a waste-free one with emphasis on zero defects and inventory elimination. The results of applying this strategy are now well known.

There are of course consequences in achieving the benefits. Virtual elimination of defects and high inventory turnover:

- Cannot be successful in isolation
- Are partial strategies
- Are not comprehensive
- Are interim solutions
- Are results, not causes

Successful strategies must be customized and revised as necessary to maintain a firm's distinguishing profile and competitive advantage. For productivity change agents to give a lead in the strategic sense, we must develop and apply new skills and knowledge.

Qualifiers, Winners and Losers

Terry Hill, 1985 introduced the concept of Qualifiers, Winners and Losers in his book on manufacturing strategy.

Qualifiers meet the specification for the job or the product. They give the license to practice, are door openers, and may lead to an audience.

Winners result in acceptance, orders, implementation, a job and reputation enhancement. They indicate worthwhile differentiators. Losers destroy our credibility. They are defects in product or service. Ethical defects or an unwise word can close the door on us. Loser causes are most serious. We do not only go back to zero, we incur a handicap.

Identifying winners and eliminating losers is a role of productivity scientists.

Productivity in a Strategic Era

Observations of manufacturing operations in many countries; findings from many projects; and exchanges of experiences and ideas with leaders

in the field indicate that:

1. It is important to make a total review of a company's operations.
2. Changes should be synchronized.
3. Productivity gains must be quantum and incremental.
4. Conventional wisdom is typically suspect.
5. The fundamental elements of success are people and time.

Time as a Competitive Weapon

Those of us with a “methods and measurement” background may say we have always known the importance of time reduction for productivity improvement, so what is new?

- The emphasis now is on the total time cycle of adding value to materials and elimination of time-wasting non-value adding activities.
- All transaction and operation time paths are examined and improved because they are interrelated.
- Manufacturing modes and product profiles are matched to yield proactive and time-responsive manufacturing capacity.
- Reduction of direct labor costs is of diminishing advantage. In fact, cost reduction is a one-way street.
- Manufacturing design and work team development are an integral part of a learning organization.
- The criteria for achieving success are subtle.
- Organization flattening is required.
- Explicit management is counterproductive.
- Traditional productivity and accounting measures are inadequate and often damaging.
- Reducing manufacturing complexity contributes to reduced time paths.
- Manufacturing focus is a broad span from workplace to the site level.
- Care should be exercised in applying productivity techniques that are function-mode dependent.

- Product-focused cellular operations are proving to be highly productive.
- Shop floor work teams are quicker to accept and appreciate the new demands than the management.
- Experience in developing advanced time-based strategies is scarce.
- Time and quality are highly correlated.
- Those firms with skills in accelerating productivity improvement can maintain a competitive advantage.
- Experience has little to offer to the management.

Benefits of Productivity Strategies

A strategic approach to productivity can mark the difference between a world-class manufacturer and an errant. Some of the benefits are:

1. They provide a basis for strategic rather than tactical advantage.
2. Productivity gains of more than 50% are typical.
3. Strategic advantage is sustained profitability.
4. Speed to market of existing and new products and services results in a larger market share.
5. Strategy is intellectual rather than capital-intensive.

Strategy Transitions

An organization needs to continuously review and revise its strategies to retain its advantage against competitors. The adjustments will be internal to the organization and external to meet market opportunities and specific customer needs.

The internal emphases will vary as the company matures. In the establishment phase, a firm will concentrate on qualifying as a supplier.

A company with a design advantage may go for market share and a high margin initially, to finance research and maintain its technical advantage. This will of course attract competition and product-cloning. The competitor will try to compete on price and service having lower research costs to bear. This is typical in the electronics and pharmaceutical fields.

As companies mature, the strategy may be rapid growth and a greater market share with economies of scale and price competition. Simultaneously,

there will be an increase in management size, organizational complexity and a reluctance of the founders to delegate.

Mature organizations, having passed the qualifying and survival stages, will focus their operations and change their management style and organization structure. In this period, they will experience a change from entrepreneurial to intrapreneurial development and will have tolerance for paradigm shifters. More sophisticated manufacturing strategic analysis and the ability to make fast changes will result in responsive manufacturing and accelerated ongoing advantage. There will be holistic productivity gains, from qualified suppliers to delighted clients/customers. Information systems enablers will result in accelerated productivity gains.

The Age of Discontinuity

Productivity tools, earlier in twentieth century consisted of corrective measures such as method correction and method redesign. Design for the future was based on historical trend projections. The past was considered to be a guide to the future. We now live in an age where our society, politics, and economy preface a different “recent future”.

The forces creating tomorrow’s world, and thus the planning basis of our productivity efforts, are the forces of discontinuity.

Peter Drucker, 1969, considers four major areas of discontinuity. These are:

1. “the explosion of the new technology, that will result in major new industries;
2. the change from an international economy to a ‘world economy’;
3. a new sociopolitical reality of pluralistic institutions which poses drastic political, philosophical, and spiritual challenges;
4. the new universe of knowledge based on mass education and its implications in work, life, leisure, and leadership.”

Some of us are reacting to the future created by others. The most successful organizations are not refining their forecasting techniques, but creating their own and sometimes our winner, Dr. Feynman, quoted in Gleick 1994, used to ask his research students, “Will your future”. The implication is that, we should be contributing to the future. “The Nobel prize research will extend existing knowledge, or will it make a real difference?”

The Age of Paradox

Productivity scientists should not just be receivers of projects and problem-solvers. They should be influencing the success of their firms or clients. Miller: 1990, in his book, *The Icarus Paradox*, compares what happened to the fabled Icarus with the fate of many companies. "...their victories and their strengths often seduce them into the excesses that cause the downfall. Success leads to specialization and exaggeration, to confidence and complacency, to dogma and ritual." In other words, we are most vulnerable at the height of our success.

Charles Handy, 1990, considers that:

1. Changes are different this time; they are discontinuous and not part of a pattern.
2. It is the little changes which can make the biggest differences to our lives; it is the way in which our work is organized which will make the biggest difference to the way we live; and
3. That discontinuous change requires discontinuous upside-down thinking to deal with it.

For us, it means the new way of doing things is going to be different from the old not just an improvement on it. Stacey, 1992, claims that the key to success lies in the creative activity of making new maps, not in the imitative following and refining of existing ones. This is what Hammer and Champney describe as starting with a clean piece of paper.

Point (2) above is related to the "butterfly effect", where small changes in system inputs have a disproportionate effect on the output.

An Integrated Approach:

If productivity is synonymous with competitive distinction, which is my thesis, then it becomes necessary to incorporate strategic approaches into the productivity sciences.

It also follows that the approaches to productivity improvement developed in the early twentieth century are inadequate for today and tomorrow.

When Push comes to Pull

Productivity science needs to address the following areas:

- Operations strategy development
- Sizing and operations mode design

- Design of dynamic organization structures
- Resource renewal
- Design for requisite simplicity
- Time compression and timeliness
- Total quality management
- Strategic facility design
- Information systems as enablers

The Business Process Reengineering Pyramid (BPR):

This should include the following:

- Business positioning
- Business re-engineering
- Integration
- Implementation/Operation/Evaluation

Hammer and Champy, emphasize that reengineering focuses on redesigning business processes, not organization units. Unfortunately, the process re-engineering cycle is not always followed and reiterated comprehensively. Parts, comfortable parts only, are changed.

Change is difficult to implement. If changes are not made, we will continue to do well, those things we are designed to do and the point that we cannot afford to perform on any dimension at an unacceptable level. For competitive forces to operate the level of pain from no action, must be greater than that from action, and the driving force must exceed the external force.

Socio-Technical Systems

“The tendency to treat the technological and social organizations of an industrial unit as separate systems has sometimes led to difficulty when technological change has been introduced without adequate appreciation of its social repercussions according to Rice, in Trist and Murray, 1993, pg. 106.

Trist first used the concept of socio-technical system when studying the socio-psychological and technical problems of the introduction of increased mechanization in coal mining in Britain. Trist published this work in 1951 yet many of us have still not risen to the higher level of the skill necessary in the social content of our work.

The term has since been extended to designate a general field of study concerned with the interrelations of the technical and socio-psychological organization of production systems. A comprehensive coverage is given in Volumes I and II of *The Social Engagement of Social Science*, A Tavistock Anthology, edited by Trist and Murray.

We are now faced with demands for social and technical skills. Our classical productivity techniques training was evident by the lack of emphasis on what we called the cuddly sciences. Yes, this was so and said in 1974 by Hammond and Willemse, even though the socio-economic concept was developed from research conducted by Trist and others at the Tavistock Institute in 1949.

Unfortunately, human behavior at the individual, team, organization, national or international level cannot be predicted with the ease with which physical phenomena can. Ramsay, 1973 pgs. 31-34, debates the dilemma of an engineering and non-engineering educational base for productivity scientists. He argues that non-engineering graduates would be limited to non-engineering problems. The question should be, "Can non-science-based practitioners be productive in a scientific environment and conversely, can engineers be productive in a socio-technical environment?" The answer is that multi-disciplined individual practitioners and multi-disciplined practitioner teams can operate successfully in a range of work settings.

Sayles and Chandler, 1971, quoted in Wrennall, 1980, draws our attention to the new fields that require analysis of communications between people on different levels and different directions, studies of systems and complicated patterns of relationships and new procedures enabled by computer information systems.

"In such situations many of our highly touted national management techniques break down and new non-engineering approaches are necessary for the solution of these 'systems' problems."

Summary:

The new productivity science is concerned with improving an organization's competitiveness. Competitive advantage cannot be cloned; it must be unique and dynamic and subject to continuous learning. As one sage and consultant Cliff James said, "focus on what counts, not on the fringe".

Corrective action and deductive logic are pedestrian. Creative and innovative breakthrough thinking should be evident in every productivity-enhancement project.

As Dr. Yury Boshyk said at the World Productivity Assembly in Singapore in October 1994, quoting the British army song,

*We're on our way to somewhere
We don't know where we're going
But we'll get there just the same.*

I do not know of an ideal model of a productivity scientist. Models are out of fashion anyway but let us keep updating our field and ourselves. Whether we are titled as work study officers, industrial engineers, systems analysts, management consultants or productivity scientists, we can also be innovators and paradigm shifters - mind you they are terrible people to manage!

We are now in the transformation business, with the core components of people, process, strategy and information technology. Productivity scientists need the matching core skills to perform as agents of transformation and change.

(Dr. William Wrennall, U.S.A.)

Founder Fellow and President of WCPS 1977-81

The Concept of Productivity Science

Introduction: In the years since the Second World War, there have evolved certain practices which have been described as management techniques, and whose object has been to assist managers, supervisors, and the like to be more efficient. The principal techniques are Work Study, Organisation and Methods or O&M as it is called, and Operational Research.

Work Study evolved from the limited concepts of time study and motion study. Time study was concerned with the use of a stopwatch to time work, and with rating and relaxation allowances provided, the time a job should take. This was used principally as the basis of output bonus schemes in the early days.

Motion study concerned itself with workplace layouts and evolved certain principles to enhance output whilst reducing fatigue.

O&M began from a study of office systems and machines with a view of simplification. Operational research is held to have originated in studies by scientific principles of problems encountered in the fighting services during the war; hence, “operational” research.

As is often the case in human affairs, these practices enjoyed a vogue and became fashionable, but remained distinct. Indeed, a regrettable degree of partisanship in the proponents may be said to have been developed. On this “social scale”, O & M people felt themselves superior to Work Study people and to “OR” people, sometimes considering themselves superior to both. Maybe this rivalry was not entirely a bad thing as it stimulated each to greater development.

In the past few years the true nature of these techniques has evolved, and it can now be said that their part in the overall management picture is at last being understood. To comprehend this, it is necessary to look at management itself.

Management and the Evolution of the Specialist: The Concise Oxford Dictionary (fifth edition) defines management as “trickery” and “deceitful contrivance”. The British Institute of Management recently invited definitions of the word. Among those selected as valuable were:

“The organisation, control and co-ordination of personnel and processes to produce optimum results”; “The profession responsible to society for the optimum use of resources of men, money and materials”; “Balanced unity of effort to achieve optimum utilisation of resources to give economic profit whilst maintaining group harmony”; “The achievement of major objectives by making optimum use of the abilities, potentialities and aims of other people”.

E.F.L. Brech offers the definition, “Responsibility for judgement and decision in effectively planning and controlling operations towards known objectives attained through efficient co-operation of the personnel concerned”.

Sir Ewart Smith and R. M. Currie offered this definition, “The organisation and control of human activity directed to specific ends”.

As illustrated by these examples, it is probably not possible to be certain that the same concept is conveyed to all people by the use of a sequence of words. It is therefore proposed that the meaning of the word be explored using two analogies.

Specialist Fields of Management: Many of these specialist fields of management have become professions or occupations in their own right. For example, accountancy, the personnel function, packaging, etc., represented by professional institutions and bodies.

These specialist fields of management can be divided into two categories, namely those that occur in a chronological sequence for the actual production and disposal of whatever is being manufactured, and secondly, the others. The first category would include research, development, design, construction, operation, inspection, selling, warehousing and transport. Of course, in many organisations some of these may be grouped. For instance, there may be a research and development department, etc. The other fields have probably developed because they span the various fields in the first category.

Productivity: The relationship of the output of any process to the input of these three resources can be termed the productivity of the process. If any activity finds it impossible to describe its output in intelligible terms,

then there are good grounds for doubting if its existence is justified. Productivity can therefore be measured in terms of the output expressed in some way per input of resources. The measurement of output over say a year, can be taken in any convenient term, but preferably something that is easily determined, and which adequately reflects the work involved. The resources can be expressed in terms of “re-source man years”. Materials can be converted to equivalent man years by dividing the monetary expenditure on materials, rents, services, etc. by the average industrial income for the year and capital, similarly but dividing still further by the number of years of amortisation—the devices suggested by Sir Ewart Smith and Lord Beeching in their paper “Measurement of Effectiveness of the Productive Unit” published by the BIM in their Winter Proceedings, 1948. Manpower can obviously be expressed as “man years” and the sum of the man years and the two equivalent man years gives the “resource-man-years” expended in a year to obtain the output of that year.

The use of resource man years as the unit in which the sum of the input of resources is considered preferable to money terms as it avoids the creeping inflation of money values.

The prosecution of any activity can only be said to be under control when there exists some indication of how well or how badly it is being conducted. Human affairs are such that poor conduct is very likely to lead ultimately to extinction.

The Total Productivity Index (TPI): Conventionally, productivity indices are usually taken as applying to the manpower input only. To emphasise the nature of this index based on all resources, the term Total Productivity Index is suggested. The Total Productivity Index outlined above probably offers the best measure of efficiency that is available in management. Indeed, 100 per cent efficiency could be regarded as producing the prescribed output with the minimum use of resources possible at any given point in time. The index can be regarded as a direct measure of the rate of improvement in efficiency. It is unlikely however, that it will be possible to calibrate the index in terms of efficiency. This could only be done if the actual minimum use of resources at any one time could be determined and so equated to 100 per cent efficiency. None the less, the Total Productivity Index remains as the measure most directly proportional to efficiency.

The TPI therefore comes into its own as a measure of managerial efficiency. The responsibility of a manager can be defined as to produce

the prescribed output with the minimum use of resources. A good manager produces his output with an expenditure of resources approaching the minimum, an inferior manager does this with much greater expenditure. The TPI is thus a measure of management and offers for the first time some means of measuring this most important feature. Hitherto, only quantitative judgements have been possible. People have had the impression that one manager was a good manager, another an average one. Now quantification is possible, even if not in absolutely precise terms. This is the real importance of the Total Productivity Index.

It was Galileo who first realised the importance of measurement when he wrote:

“Count what is countable,
Measure what is measurable
And what is not measurable,
Make measurable.”

The index in terms of output per input of resources referred to a base of 100 and applicable throughout the whole scale of human activity makes management measurable.

The Place in Management: And what is the place of those various techniques we were talking about at the beginning of this paper? Although evolving differently, they have an underlying unity which is a simple one. They all have, in the ultimate, the object of reducing the input of resources necessary for a prescribed output.

When this common objective comes to be realised, it is an obvious step to combine these activities into one function, and this is what has been happening in enlightened organisations.

This then is the genesis of “management services” which seems to be the currently popular term for a department embracing principally: work study, O & M, operational research, electronic data processing, ergonomics, and possibly some other techniques.

Productivity Science: I plead for the term “Productivity Science” for the concept and “Productivity Services” for the name of the function in an organisation. I believe the terms are specific and most logical.

And finally, may I attempt to distil this whole subject, as I see it, to the following simple articles of the Philosophy of Productivity Science or the Code of the Productivity Scientist:

Management is the organisation and control of human activity directed to specific ends.

Specific management makes decisions as to the area of activity, the features of that activity to be prosecuted and the quantity of those features.

Management then creates the output, tangible or intangible, which prescribes those features by an appropriate process.

Any prescribed output is created totally using three resources only, namely manpower, materials and capital equipment.

The output per unit input of these resources may be calculated for any period and when subsequent values are related to a base period value, the ratio may be called the Total Productivity Index.

Productivity Science is that field concerned with advising managers systematically how they may reduce the input of the resources they need to deploy, to create their prescribed output.

Various procedures and practices have a systematic approach to this as their objective. Among these are Work Study, Organisation and Methods, Operational Research in the most part, Ergonomics and others. Any such discipline which has a systematic elevation of productivity as its objective is part of productivity science.

The systematic approach of the disciplines in productivity science distinguishes them from others which may achieve the same objective by trial and error, experience, intuition, ingenuity, etc.

A person trained in one of the disciplines who engages in it as his business is a productivity scientist.

Work Study is one of the major disciplines in productivity science and must play a very great part in the activities of a productivity services function, which is the function of applying productivity Science to an organisation.

(Dr. Joes A. Fraday)

Founder and First President of WCPS

World Confederation of Productivity Science (WCPS)

The early pioneers of the productivity science movement had a vision which got reflected in its global perspective and organizational structuring. Rightly therefore, the WCPS was conceived as a worldwide international association with few legal rules and constraints. Accordingly, the structure, the management and the corporate form is simple. Running funds are secured through donations and support by members and earnings from confederation activities.

Over the years, this vision has vastly changed to cover diverse disciplines and a more positive approach through strategic planning reflected in its expanded role and responsibilities.

WCPS became a registered body in 1994 under Canadian law as an association “devoted to the promotion of the Science of productivity in all spheres of activities throughout the world”.

The functioning mechanism of WCPS is managed by an International Advisory Council (IAC) and a board of directors.

MEMBERSHIP

Participating Members

A participating member of the confederation is any person desirous of furthering his knowledge on productivity in order to promote and improve the productivity of the confederation’s activities as well as the productivity of the other members’ activities and who proposes its candidacy for such purposes.

Every participant in any of our World Productivity Assemblies or World Productivity Congresses may automatically become a participating member after having fulfilled the necessary filing requirements. A participating member shall not be entitled to receive notice of any annual or special meetings of the members of the confederation nor shall it be entitled to vote at such meetings.

Active members

An active member of the confederation is any person desirous of furthering his knowledge on productivity in order to promote and improve the productivity of the confederation's activities as well as the productivity of the other members' activities who, in the opinion of the board of directors possesses all necessary requirements and skills to take an active part in the confederation's objectives and who proposes his candidacy for such purposes.

An active member's candidacy shall be subject to the approval of the board of directors.

The number of active members shall always be equal to the number of directors of the confederation.

The active members may participate in all activities of the confederation. They shall have the right to receive notice of all the meetings of the members, to assist, and to vote at such meetings. They shall be eligible to be elected as directors on the board of directors of the confederation.

Associate members

An associate member of the confederation is a body, corporate or any other nonphysical entity desirous of furthering its knowledge on productivity in order to promote and improve the productivity of its activities as well as the productivity of the other members' activities, and which proposes its candidacy for such purpose. Our most important associate members are the National Chapters that constitute the framework of our confederation.

An associate member can, on written advice given to the Secretary General of the Confederation, designate an individual as a representative of such a member. Such individual shall then become a participating member of the confederation and would be entitled to the same rights.

Honorary members

An Honorary member is any person designated as such from time to time by the board of directors of the confederation, in recognition inter alia of remarkable services rendered to the confederation or for his contribution to the goals pursued by the confederation, or for any other reason that the board of directors may deem fit for the purposes of such designation.

An honorary member shall be entitled to participate in all activities of the confederation. Such member may also attend any general meetings of

the members of the confederation but shall not be entitled to vote at such meetings.

Board Of Directors

The assets and the affairs of the confederation are administered by a board consisting of a minimum number of three (3) and a maximum number of thirty (30) directors. The majority of the directors in function shall constitute the quorum. Each director is entitled to one vote at such meetings.

Directors of the confederation shall be elected among active members of the confederation.

International Advisory Council

The board of directors may appoint advisors of the confederation, based on their high skills and competence and on their contribution to the objectives of the confederation. The board of directors also has the power to terminate their appointment. The advisors so appointed by the board of directors shall act through a committee called the International Advisory Council which shall be involved in promoting the aims of the confederation, and without limiting the generality of the foregoing, it shall be responsible for recruiting new members all over the world and shall advise the board of directors on any question submitted to it requiring specialized knowledge. There shall be no remuneration for the advisors of the International Advisory Council. The chairman of the International Advisory Council is the chairman of WCPS.

Network Partners

WCPS acts as the hub of a network of regional and national productivity institutes and organizations that share the WCPS purpose and vision and are committed to building a supportive infrastructure. These organizations are “reducers to practice” - they take productivity knowledge and turn it into real and effective productivity improvement practice.

Network Activities of WCPS

- maintains a network of international communication that favours the sharing of knowledge and experiences in the field of productivity
- provides to entrepreneurs and industrialists, opportunities for international alliances with foreign counterparts
- popularizes and circulates scientific information about productivity

- holds a World Productivity Congress every two years
- holds a World Productivity Assembly
- World Productivity Conferences are the Olympics of productivity, built to last and be a continuum
- World Productivity Assemblies are regional events with global participation

Target Audiences

- Productivity experts
- Business executives and company managers
- Researchers - national leaders
- Statesmen
- Labor- and employers' groups

Network Countries

Australia, Botswana, Brazil, Canada, Chile, China, Costa Rica, Egypt, Ethiopia, Estonia, Finland, France, Germany, Ghana, Great Britain, Greece, Iceland, India, Indonesia, Iran, Israel, Japan, Latvia, Malaysia, Mauritius, Mongolia, Nepal, Nigeria, Norway, Peru, Philippines, Poland, Singapore, Slovak Republic, South Africa, Sweden, Tanzania, Turkey, Ukraine, Zambia. These have further expanded to countries around the world. Details of the set up and activities of the network partners is given separately.

Academy And Fellows

The sister organization of the WCPS, the World Academy of Productivity Science, is a network of individuals selected and recognized as knowledge creators, thought leaders, wisdom sharers, who have and are making significant contributions to productivity and quality development, and to value-creation.

WCPS (the Confederation) and WAPS (the Academy) are not-for-profit organizations and apart from a small core staff, all officers and personnel are volunteers who give their time because of their commitment to the purpose, to the missions and to the values of the organization.

The Vision

The vision of WCPS is to

- Influence change [transformation]
- that improves social, economic and environmental outcomes for people [peace]
- by advancing the understanding of productivity [productivity]
- by implementing productivity principles [productivity]
- to promote the rights and needs of people worldwide [individual]
- to foster the interdependence of societies and the natural environment [society/world]

WCPS seeks to influence change that improves social, economic and environmental outcomes for people by advancing the understanding of productivity science and by implementing productivity science principles to promote the rights and needs of people worldwide and to foster the interdependence of societies and the natural environment.

Some Results so Far: The World Confederation of Productivity Science, as the only global productivity science promotion body, has significantly contributed to increased productivity in six continents during the past four decades. These results are measurable in terms of tangible improvements in total wealth, poverty reduction, environmental improvement and social outcomes. Other less tangible benefits have been, improved life satisfaction, greater perceived sense of personal safety and security, and improved optimism for the future. These results hold for women and men in all major religious and cultural groups. Some steps taken are:

Global Leadership: The WCPS has exerted leadership in global coordination and cooperation and has helped create global consensus on the implementation of sustainable productivity improvement models.

Using its advanced network development and facilitation methods, the WCPS has become the “go to” organization for linking policy makers around the world with cutting edge, integrated management models and the expertise of its rich talent pool.

Strategic Management: WCPS has developed and implemented its strategic vision to promote peace and prosperity through productivity and shown that this is not a naive view. It has built a strategy and effective implementation mechanisms to effectively leverage its global talent base to generate revenue that sustains the organization. More importantly, this strategy has guided the organization to build credible and effective delivery mechanisms to assist policy development at the national, regional and state/provincial levels. WCPS leadership has been diligent in modifying and adjusting its strategy as the world changes.

Customer Focus: The WCPS has demonstrated a clear understanding of the needs of its customers. WCPS understands that it only has credibility when it operates through its affiliate National Productivity Organizations. While it views its customers as both the NPOs and national policy makers, the WCPS has worked to position its NPO affiliates as credible providers by empowering and enabling them through its models, methodologies and access to global talent pools.

Measurement, Analysis and Knowledge Management: As a fact-based organization, the WCPS has developed effective performance measurement systems, aligned with its strategy, and used the metrics to guide its strategy implementation efforts. It has also effectively utilized measurement data to convince its customers of the need to implement comprehensive productivity strategies. One of its principal strengths and a fundamental tool has been its systems for identifying, capturing, and disseminating knowledge in order to accelerate productivity growth rates of organizations and nations.

Human Resource Management: WCPS has effectively demonstrated how to optimize the efforts of a full-time paid core staff, a volunteer group, and a large network of recognized experts. In addition, the WCPS has successfully demonstrated approaches to develop and share the intellectual capital of its national productivity organization network (NPOS).

Process Management: As an organization, it has developed structured business processes that are continuously improved. These

processes make use of evolving information technology to support its global networking and knowledge management efforts.

WCPS has perfected the process of strategic partnership development and management. This has led it to leverage the resources of global organizations with its small organizational structure. Its own productivity in terms of the social, environmental and economic results have been exemplary.

WCPS MISSION: WCPS as a global, not-for-profit network of organisations and individuals committed to the development and dissemination of knowledge and effective practice relating to the development of productivity science as it relates to multiple stakeholders and specifically to social, environmental and economic productivities.

WCPS' aims in relation to social, environmental and economic productivities:

- continue to develop the global network of concerned and committed individuals and organisations
- stimulate research, discussion and debates
- facilitate the sharing and dissemination of knowledge, and the translation of experience to other cultures and contexts
- recognise good practice and personal achievement
- enable and enhance the abilities of partner organisations to develop infrastructure, policy and practice.

WCPS exists to be available to and to work with constituencies and stakeholders engaged in productivity issues to gain greater insight, understanding and ability to make decisions and take actions that have a beneficial impact on their lives in particular and the world at large. Towards this the actions taken are:

Global Harmony: Promotes improved quality of life and human dignity through increasing global understanding of the rights, worth and needs of all people, the interdependence of societies and the natural environment.

Promotes to influence positive change that improves social, economic and environmental outcomes for all people.

Presence: To be available and attentive to our constituencies in such a manner that we enable them to gain more insight; enable their lives

to be more meaningful and enable their decisions and actions to have a more beneficial impact on the world. We collaborate with like-intentioned organizations to enhance our global presence and potential impact.

Wisdom: To enable the ability developed from values, education, experience and insight to create and contextually and properly apply knowledge and understanding in thoughts, decisions and actions. To find the means to share that knowledge and understanding effectively with key constituencies.

Transformation: Promote the transformation and improved performance of individuals, organizations and institutions through the application of values-base, through scientifically grounded performance improvement methods.

Technology: Develop and apply scientific knowledge to create breakthrough and sustainable performance improvements that generate quality of life improvements. To find ways to make the benefits of these breakthroughs accessible to people at all socio-economic levels.

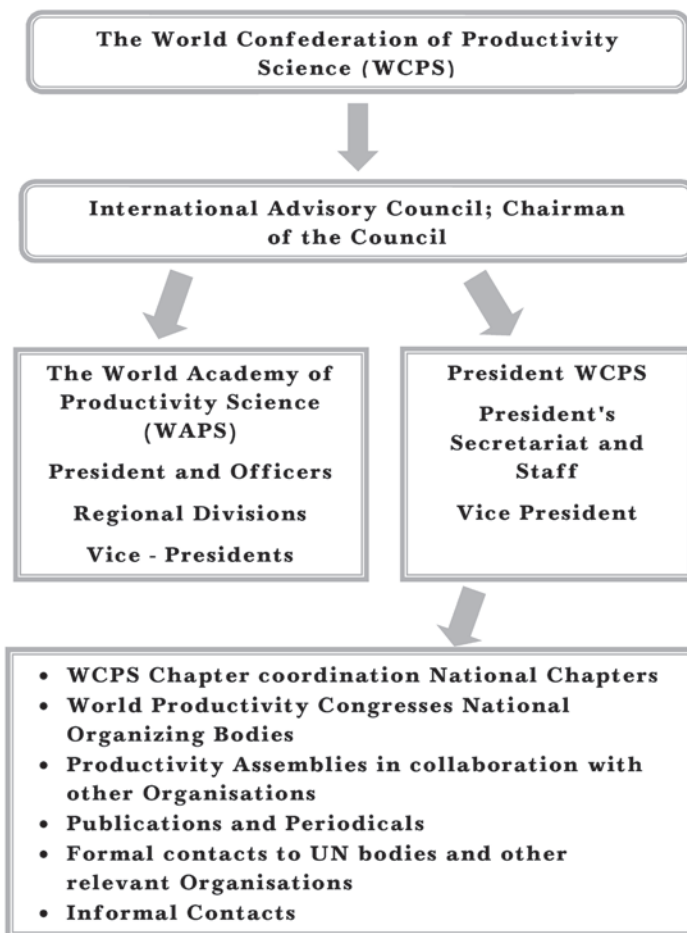
WCPS Strategies

Strategies are broad courses of action i.e. “means rather than ends” that enable an organization to accomplish its goals, fulfill its mission and move towards its vision.

Strategies refer to those courses of action to which the organization will devote resources during a decade.

While strategies lead to achievement of the goal, it is not necessarily a one- to-one relationship between strategies and goals, as one strategy can conceivably contribute to more than one organizational goal. The steps taken are:

- share the wisdom built on education and experience
- apply the knowledge and understanding
- promote the transformation and improved performance of individuals, organizations and institutions through the application of values-based and scientifically grounded performance improvement methods
- develop and apply scientific knowledge to create breakthrough and sustainable performance improvements that raise the quality of life for individuals and societies at all socio-economic levels



The Era of A Rising Graph

The Landmark success of three World Productivity Congresses: Bombay 1973, Sydney 1977 and Detroit 1981, paved the way for WCPS to launch a productivity drive to widen its base by establishing Network Partners. However, it was the Oslo Declaration of 1984, which for the first time came out with a comprehensive definition of productivity in its expanded form to define the frontiers of productivity science as under:

“Productivity is more than science, technology and management techniques, being also a philosophy and an attitude of mind that rests on the strong motivation of people to constantly strive towards a better quality of life”.

In fulfilment of this broader statement, the World Productivity Congress reaffirmed its belief that all nations must be encouraged to concentrate their efforts on implementing methods that bolster productive performance through the creation of a network of cooperating individuals and associations that:

Calls attention to critical productivity issues, both regional and worldwide;

Provide practical services that demonstrate specific ways to improve goal-setting, decision-making, and operations;

Conduct comparative studies to reveal more about the complex nature of total productivity;

Improve the body of knowledge through research and analysis;

Promote education about the importance of productivity, starting with the very young and extending to all ages, spreading existing knowledge and technology to all participants;

Enlist productivity specialists from industry, government, universities and professional institutions into a supportive information-sharing organisation.

Proclaims that participants at the WCPS-sponsored fourth World Productivity Congress in Oslo, Norway, shall:

Continue their personal dedication to the productivity movement and will share non-proprietary findings for the benefit of all;

Strive to raise public awareness of the importance of productivity gains for the attainment of a higher standard of living, recognizing that the state of worldwide productivity deserves immediate concern, improvement being vital to survival;

Endorse the development of an organisation, which has the mission of strengthening communications and soliciting cooperation among all who are productivity-minded.

Organise communication channels, information media, and appropriate activities Including, but not limited to, academic research, practical demonstrations of research results, and dissemination of information about such processes as performance measurement at individual, group, and total organisation levels, productivity audits, methods to raise quality, adaptation of technology to meet national needs, workplace improvements, management practices, workforce motivation, and quality of life, and to nourish the cause of productivity science.

To achieve these goals the fifth World Productivity Congress held in Jakarta in 1986 took a major decision to establish a World Academy of Productivity Science (WAPS) as its most important arm to raise a cadre of productivity scientists as Hon'ble Fellows of the Academy. It further reaffirmed its belief on the Oslo Doctrine and resolved as under:

THE JAKARTA DECLARATION:

We reaffirm the principle and goals of the Oslo Doctrine and understand that our personal commitment is required to nurture and implement the Oslo productivity objectives.

We also believe that the importance of human resources to the productivity movement needs greater emphasis, since people constitute the driving force for national and world development.

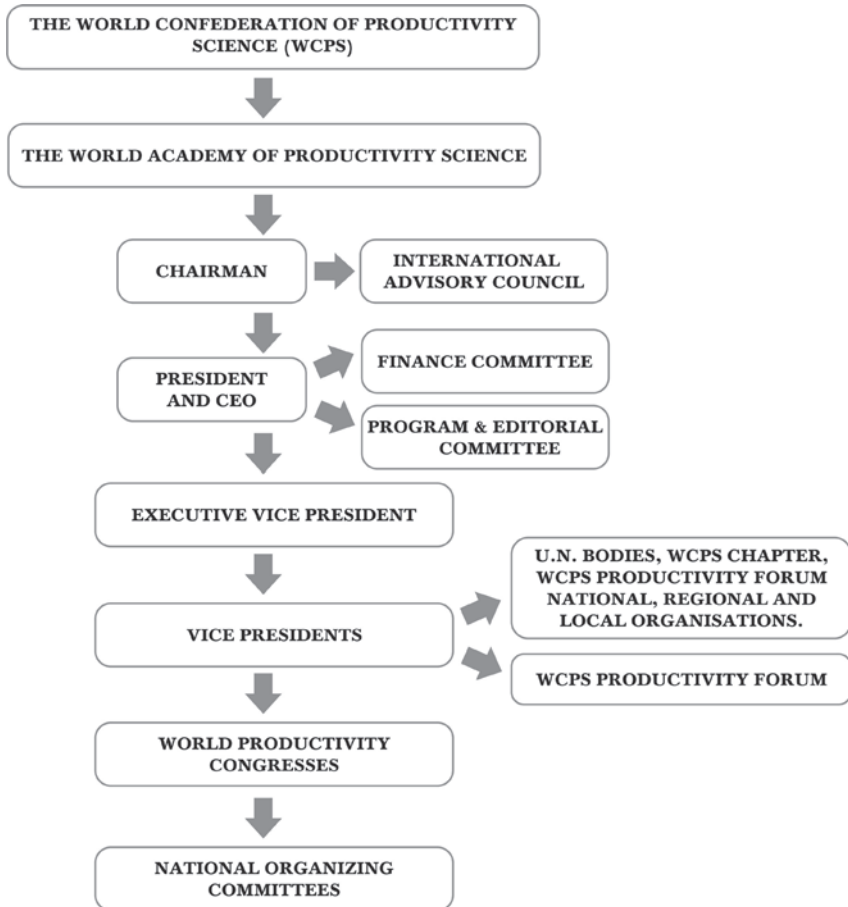
Therefore, we dedicate our efforts to make everyone more concerned about productivity. All people should realize what productivity advances can do for them and what they can do to advance productivity.

Furthermore, we will seek ways and means of multiplying the results of productivity gains to achieve greater gains, including means to support

expanded activities of the World Confederation of Productivity Science.

Since productivity advances directly benefit the creators, raising the quality of life for all, and eventually increasing the national prosperity, we declare our resolve to pursue these aims individually and collectively, and be prepared to report all accomplishments at the sixth World Productivity Congress in 1988.

GENERAL WCPS STRUCTURE:



All nations must be encouraged to concentrate efforts on implementing methods that boost productive performance through the creation of a network of cooperating individuals and associates that:

Call attention to critical productivity issues, both regional and worldwide;

Provide practical services that demonstrate specific ways to improve goal-setting, decision-making, and operations;

Conduct comparative studies to reveal more about the complex nature of total productivity;

Improve the body of knowledge through research and analysis, that promotes education about the importance of productivity, starting with the very young and extending to all ages, spreading existing knowledge and technology to all participants;

By enlisting productivity specialists from the industry, government, universities and professional institutions into a supportive information sharing organization;

The eighth World Productivity Congress held in Montreal in 1988 was a watershed in the history of WCPS as it took policy decisions, and established a World Academy of Productivity Science, incorporated under Swiss law with a board and a governing structure. Consequently, Dr. Krish Pennathur became the First President, Dr. Martin Tveit the Vice President (International Relations), and Dr. A.N. Saxena its Secretary General. The Academy was chartered to publish quarterly news as the mouthpiece of WCPS/ WAPS.

It was at this congress that WCPS decided to organize Productivity Assemblies and Regional Conferences in different parts of the World. However, much before this, the first Conference was held in New Delhi in 1998, followed by Ankara Conference in 1991, an HRD conference in Singapore in 1994, Jakarta in 1994 and 1995 and Johannesburg in 1996.

In order to give a fillip to the productivity science activities in the African Continent, it resolved to establish a Pan-African Productivity Association (PAPA) with the support of international agencies and participating countries like South Africa.

This Congress further resolved that there should be a five-year review of the WCPS 'Vision' and a statement to this effect as approved by the International Advisory Council (IAC) incorporating changes in the global

scene should be notified at the next congress.

To give effect to this policy decision, the First 'Vision' statement 1993-1998 was presented as reproduced below by Mr. Jean Claude Lauzon, WCPS President at the Stockholm congress 1993.

VISION 1993-1998

1. WCPS continues to be a strong organization where the best minds of the world gather on a regular basis to exchange and discuss their findings.
2. WCPS continues to be a non-political body where members from the UN member countries are welcome.
3. WCPS continues to support, help and guide chapters/countries and institutions in organizing world-class events on a regular basis (assemblies once a year and congresses every two or three years).
4. WCPS has become a world-recognized source of information about productivity through all WAPS and WCPS members. This recognition benefits all members directly and indirectly.
5. WCPS is better funded and maintains a strong and productive world secretariat.
6. Missions and roles of both WAPS and WCPS are more clearly defined so that synergy may be used to the benefit of both bodies for the advancement of the productivity science.
7. WCPS has a clear five-year strategic plan to meet overall goals and annual business plans for more specific objectives and targets. Business plans would address issues such as membership, publications, chairmanships in colleges and universities, etc.

Such challenges were met with the help of every person closely linked to WCPS and its members make sure that these goals are met.

WCPS

WCPS is a unique jewel in today's world where everything is run and managed for money. WCPS has no budgets, no funds and no official status. However, since its birth, in 1969, it has lived and grown to become a world-recognized efficient yet informal body of leaders.

Successes repeated time after time with our major events, assemblies and congresses, are a true reflection of Walt Disney's famous maxim "If you can dream it, you can do it."

Such successes will occur in the future if we can continue to operate smoothly, to rely on the best minds of the world to participate in our journey and be capable of creating teams to face up to each challenging situation.

Once again at the Edinburg Congress in 1999, it was decided that a vision document, beginning 21st century should be worked out, taking cognizance of the fact that WCPS/WAPS will have to align its activities with the emerging needs of productivity in a connected world and that this should be formally presented at the 12th World Productivity Congress at Hong Kong/Beijing in 2001.

This exercise was done in a most meticulous manner and it became a global document titled “Productivity in a Connected World”.

Productivity in a Connected World

As part of their planning and preparation for the next World Productivity Congress (Hong Kong/China, November 2001), the World Confederation of Productivity Science held a ‘think tank’ session in Boston, USA.

Participants were senior members of the WCPS and a group representing the Hong Kong/China hosts of the Congress. However, importantly, there were a small number of ‘external’ facilitators/catalysts to make sure that in drawing up the draft programme, they addressed current productivity issues, and issues of interest and concern to potential delegates.

The meeting was held in the Ernst & Young Center for Business Innovation, which provides ‘think tank’ facilities for the consultancy. One of the facilitators was Chris Meyer, the Director of the Center and the co-author of the recent book *Blur* and the just-about-to-be-published *Future Wealth*. He was joined by Alan Grant, of Boston Consultancy Exchange Partners and by John Jordan, another member of the Center for Business Innovation. Rather than discuss the (less interesting) planning arrangements for the Congress, the group concentrated on the views that emerged from the session on the changing world in which we live and its impact on current and emerging productivity trends. The result was the synthesis of the various views put forward, and included thoughts, material and issues raised by both the facilitators and the rest of the members of the meeting. This itself shows the changing nature of the environment and signals the kind of issues as a profession. Each point is made briefly to give it some more thought and to develop policy/action around it!

The Information Age

Chris Meyer started by describing a discontinuity in economic development - the shift from the industrial age to the information age. He did this by drawing the life cycle of each of these ages and using this to suggest that we are currently at a point where the industrial age is reaching its plateau of maturity, but that the information age is at a period of maximum growth and development.

This leads to emerging new forms of business and business organisation. These new forms can lead to a significant change in performance but require new performance measures. As yet, we do not have appropriate yardsticks for these new forms. For example, Chris suggested that a measure of innovation might be the percentage of company revenue that arises from products less than one year old - but is this an adequate measure?

Value perception

The changing nature of products, and the increasing sophistication of customers, means that concepts of value are changing. The value of a product now often lies in less tangible attributes. For example, a buyer of a new car may particularly value the keyless entry, the traction control, the in-car navigation system, etc. The value of these intangibles is subjective but can be very high - in terms of shaping the 'buy decision'.

An alternative (though not new) view of value suggested was based on scarcity and availability. When what was once scarce becomes plentiful (e.g. network bandwidth) or what was once plentiful becomes scarce (skilled labour), organisations are slow to respond. For far too long, they act as if the former situation still applies, then they are often forced to over-compensate and over-react because of the delay in adapting.

Talent is now scarce and therefore expensive. Law firms in the USA are paying recent graduates, salaries that are higher than those earned by state attorneys-general.

New forms of business

An example of a new (though actually very old) form of business is barter. If Yahoo and The Economist do a deal on providing content from The Economist on the Yahoo website, no money may change hands - Yahoo gains content (and readers are more likely to stay with the website and read the associated advertising); The Economist gains exposure and (hopefully) more subscribers.

Such transactions would not figure in current productivity models - yet obviously consume inputs in the creation of value. Such transactions also may not enter the taxation system - this may be very attractive for the parties involved in the transaction, but of considerable concern to governments.

The dotcom (.com) phenomenon created some discussion. These startups have to prove their longevity by evolving into real companies. Similarly, established organisations must embrace the technology, and the culture, of the internet and move their established companies to being dotcom companies. The two must learn from each other and form true, new (or at least effective hybrid) organisations.

Developing and rewarding talent

Over the last few decades the issue of job satisfaction has been raised several times, though many organisations have paid lip-service to enhancing it. Yet in a time of increasing competition for skilled labour and real talent, keeping employees satisfied, and developing, becomes very important. Also, perhaps luckily, in an economy that is getting richer and increasingly sophisticated, more people end up doing jobs they like (most of the dangerous and unpleasant jobs have gone or have been 'exported' to other parts of the world) and people are working harder and longer hours.

Organisations have to create value both with and for, their employees. In a fast-changing world, long-range plans become out-of-date all too quickly. An individual assigned to a project has to have the flexibility, and the autonomy, to adjust activity as the environment changes. Thus, it is much more important to recognise, nurture and value talent, than to back plans.

Outputs and Outcomes

The difference between outputs and outcomes was raised - this is particularly important for senior policy-makers, especially those in the public sector and in the government. For example, the outputs of a health service process might be measured in terms of illness addressed. However, the important strategic decisions taken with reference to health have 'wellness' as an outcome - not an output.

Connectedness

We are living in an increasingly connected world. Connectedness is something different from connectivity (which is generally seen to refer

to the ‘wiring’). Scott Sink, the President of WCPS, pointed out that in the terms in which we often really mean it, the world used to be highly ‘connected’. He cited the example of his father who in the 1950s was a florist with a small shop. He knew all his regular customers and would treat them and would respond to them accordingly. As organisations grew, this close contact (connectedness) was lost. Only now is technology providing the means to re-connect.

Connections now are more complex - a web (paralleling the technical, wired web) is a useful concept.

In a webbed world, the productivity of specific, individual organisations may be less important than the overall productivity of a complete web. Thus, we now see the world’s three largest car manufacturers co-operating on a web portal that gives them all access to their major suppliers - this web offers value to all. We have moved from supply chain to supply web.

Learning and adapting systems

We are even now moving beyond ‘new’ forms of working such as ‘mass customisation’ to exploit ‘learning systems’. For example, very soon car manufacturers will have the capability to download software into cars which will learn the driving habits of the driver and upload this information (via satellite) to a central computer. This computer will aggregate and analyse data from many cars/drivers and adjust the software which will be re-downloaded. The system has learnt and has been adapted.

Efficiency

Concepts of efficiency also change over time with different circumstances. The established input/output model does not hold; take as an example data networking where redundancy and over capacity (in the form of very high bandwidth) makes for efficient networking.

Recently, organisational efficiency (productivity) has concentrated on business processes - BPR being the prime example. Yet, in this new, wired world, our processes interact with those of our suppliers and customers - interfaces become important.

Control

Network connectivity creates new markets; an interesting phrase used was that “every market is a network; every network is a potential market”. Networks drive efficient markets - though not necessarily controlled ones.

‘Old’ forms of productivity assume a high degree of control; ‘New’ productivity has to accept changes in the environment and make provision for ‘externalities’; It must recognize that sometimes we cannot control, but merely influence. Further, we must decouple elements of former systems to allow more openness and flexibility.

As no World Productivity Congress was held in 2004, and the next one was held in only 2006, WCPS made a review and came out with a document: Before 2005:

Before 2005; we have created these results and now it is just a matter of manifesting them:

- Our Congresses and Assemblies are seen as the Olympics of Productivity. They are truly making a difference in the World in terms of sparking improvements in quality of life, quality of work- life, quality, productivity and innovation. The demand to host our Congresses is high; we have 10 years of Congresses and Assemblies in the development stage in addition to 4 years of Congresses and Assemblies in the execution phases.
- We are viewed as the organization that facilitates nations moving their productivity efforts forward most effectively.
- We are increasingly leading studies into root cause aspects of productivity enhancement (such as the changing nature of work) and our academy is seen as the eminent assembly of knowledge erectors on productivity.
- The climacteric, transformation of the 3rd millennium is exciting and painful for many. New knowledge and skills are required and people around the world look to the Confederation and the Academy as an effective and efficient way to learn these insights and to understand how to apply them.
- We have 15-20 “built to last organisations” from around the world that are partner/sponsors with us. They are endowing the Confederation and supporting its growth and development.
- We have an eminently effective and highly visible group of sponsors: leading politicians, academicians, consultant, researchers, authors who champion our cause because they believe in the work we are doing.
- Perhaps most importantly, we are making a difference with people, with leaders in countries all over the world who are

interacting with people in their countries. We are bringing hope of improvement where there was none; we are bringing Insights about how where there was confusion; we are bringing clarity and conviction around what is possible where there was submission to the current reality.

- We believe in the importance of a Confederation; a coming-together, a union, an interfacing and integration of individuals, groups and organisations for the benefit of some common purpose (the higher good). A coming-together to create a synergy that would not be created without the confederation; to promote dialogue via this confederation. The confederation's real strength is in the individual entities, not necessarily in the union. The Confederation aims to continue to increase the success of the individual entities, to facilitate their effectiveness and to create synergies that might not previously have existed. The power is with the entities, not with the confederation. The confederation enhances the impact of that power by 'bringing together' (interfacing and Integrating), when appropriate. The great knowledge-creators and their knowledge in economics, psychology, sociology, engineering (specifically industrial and systems), business/industry, government represents our foundation. The knowledge-creators of the past, the present, the future can be more effectively integrated to accelerate the improvement of productivity performance of our World.
- We value knowledge and those who create it. We honor the teachers of the past, the present and the future. We work to bring their teachings together to create a true synergy for the higher good of our world.
- We value reclusion to practice, the application of sound theory and concepts and research and approaches to make a difference as also more useful results for our world and those in it.
- We value choice, integrity, intellectual honesty, competence, and relationships.

Our Infrastructure for the confederation is simple and effective:

WCPS has a leadership team, a board, chapters, and an International Advisory Council. We have a charter and a set of by-laws to guide our decisions.

WCPS is the parent organization for the World Academy of Productivity Science. The Academy has a leadership team, a board, and an assembly of fellows from around the world.

Both organisations are about being a catalyst for the formation of “affinity group” (collegial groups of peers who come together to serve the higher good). Our infrastructure is designed to be effective and efficient.

WCPS and WAPS are formed as not-for-profit organisations and except for a small, core staff, our personnel are volunteers who gift their time and effort and talents because they believe in our purpose and our foundational principles.

The Missions that we are currently engaged in are:

Enhancement of the process for delivering a top-quality Congress to the World.

Completion of the building of the Academy; enhancing the nomination process; developing mechanisms for promoting metalogue among fellows; developing ways to engage fellows in the congresses and the assemblies.

Developing the process of host-country identification and establishment earlier in the cycle; establishing specific requirements for success for congresses and ensuring that host countries and also within-country sponsors meet or exceed those.

Improving the networking capability of the WCPS and the Academy; learning to utilize the Internet and other communication devices for creating a greater sense of community among our leadership.

Continue to develop chapters and leadership talent in the chapters; continue to network to the effective productivity enhancing organisations in countries and regions and serve to link them to the World.

Continuing to improve the staffing of our infrastructure; attracting and keeping highest quality leadership; maintaining continuity; ensuring constancy of purpose; creating alignment and attunement; and building our core capacities in terms of human potential.

Continuing to enhance and strengthen our Secretariat Office, our operations hub.

Broaden our value proposition to countries, strengthen it, so that our congresses and assemblies are viewed as the World Fairs of Productivity, the Olympics of Productivity,

Our Point of Arrival (vision) for the Confederation looks and feels like this: We choose to create the following results on or before 2010.

It was at the fifteenth World Productivity Congress held in Sun-City, South Africa, in 2008, that a review of three decades of concerted efforts was undertaken and a comprehensive vision, mission and values statement was issued. This is incorporated in the chapter dealing with “World Confederation of Productivity Science (WCPS)”.

In particular, this conference in Sun-City South Africa came out with a ten-year goal and challenges to surmount as under:

Opportunities

- Looking for advisory opportunities among network partners and developing countries.
- Develop WAPS to make it more powerful; to increase its influence in the world.
- Look for advisory opportunities for policy or development strategy-making for multinational corporations.
- Seek the support of the United Nations.
- Seek the support of the NPO member governments.
- Strive for strong support of large-scale multinational corporations.

10 Year Goal of WCPS

Goals refer to “ends” (i.e. outcomes or results) that WCPS desires to create as opposed to “means” (i.e. activities). They define what the organization is trying to accomplish. Goals are also distinct from targets which refer to specific levels of performance. For example, the goal might be “increased percentage of nations that have a viable national productivity center or its equivalent”. The target would be the specific level, for example 30%. The acronym SMART is sometimes used to guide the development of goals. SMART refers to goals that are “specific, measurable, achievable, realistic and time-bound”.

Challenges to Surmount

WCPS is conscious of the fact that even the best worked out strategies do not succeed if these are not supported by ground realities. Every strategy also needs to be modulated recognizing the impact of socio-economic and environmental facts. Broadly speaking, we can classify them into external and internal factors, which need careful assessment.

The current global situation is a positive proof of the failure on the part of regulatory agencies. It has also given a drubbing to the slogan of free economy. Another lesson that has come out is that inefficiencies in the long run cannot be absorbed in the system and that fiscal management, unless sustained by productivity parameters, can lead to serious consequences. Keeping these in view the following will need due consideration:

Organisations and Foundations: If a small beginning is made in this direction, it will catch up in the long run and create a base of support, both professional and financial.

1. That globalization has a significant impact on all economies including those that have not opened their countries completely.
2. That innovation must be based on economic fundamentals.
3. That any irrational exuberance is going to haunt us like the present crisis.
4. That excessive greed can lead to disastrous consequences, and
5. That growth must be inclusive and not limited to small segments of society or a privileged few.

The era of inefficiencies and quick fixes is over. It must be replaced by productivity improvements. If markets are shrinking and the employment scene is getting gloomy, cost reduction and capital investment will become crucial, and If capital investment does not take place, all efforts to improve the quality of life will get stalled.

Productivity Knowledge Base: Understanding and application of disciplines contributing to productivity knowledge base will require inclusion of human resources, environment science, biology as well as improved traditional fields such as economics and engineering.

Innovation and technology must be based on economic fundamentals. Any irrational exuberance can halt us. As such innovation and technology applications must stand the test of time.

Potential Partner Organisations: This is a fact that cannot be ignored and WCPS will have to look out for alternative resources and possibilities in the years ahead, including international funding agencies and donors. The situation warrants that we examine all possible sources, say donations, sponsorships, publications, research or activity-based support.

Others: With its national chapters and WAPS Fellows network, it should enlist 'Primary Promoters of WCPS'. They could be corporations or agencies.

Role of International Organisations

An Overview of International Productivity Movement

The modern productivity movement started gaining in scope and momentum in Europe after World War II within the framework of the so-called Marshal Plan – the official title of the same was **“European Recovery Program”**. This programme aimed at strengthening the economic superstructure, expanding European foreign trade, facilitating European economic cooperation and integration, and increasing the productivity of European economies.

To ensure the rational administration of Marshal Aid, all recipient countries were required to set up national productivity councils and centres under the auspices of the **Organisation for European Economic Co-operation (OEEC)** which emerged from the Marshal Plan in April 1948.

The first to be established was the **Anglo-American Council on Productivity (AACP)** which came into being in 1948. The council's purpose was to exchange views on how the United States industries could co-operate in assisting British industries to promote greater productivity and to organize joint (trade union and employer) Anglo-American productivity missions to the USA. The initial success of these missions and the outstanding recovery of the UK economy further accelerated the setting up of productivity centres in western Europe. All countries receiving American assistance established such national bodies and co-operated with the OEEC, and subsequently, the **European Productivity Agency (EPA)** was established in 1953. The EPA had two main functions: 1) to provide the national productivity bodies and other institutions with information and other services, and 2) to be a centre for study and discussion designed to guide European efforts towards continuing improvement in productivity and in the study of the social and economic consequences of technology development.

Until the 1960s the productivity movement was rapidly gaining momentum. Productivity centres succeeded in conveying to the western society the idea that enhanced productivity meant greater wealth and that labour and management should work together to create more wealth through greater productivity and the fair sharing of productivity gains. In 1959, the EPA stated in the Rome Declaration that “productivity is an attitude that seeks the continuous improvement of what exists”. Thus, the concept was well received and became one of the basic principles of the movement.

In 1960, the EPA was dissolved, being considered to have accomplished its mission, and its remaining activities were transferred to various OEEC committees.

In 1961, the OEEC was transferred to the Organization for Economic Cooperation and Development (OECD), of which the USA and Canada became members. The national productivity organizations continued to co-operate within this new structure until mid-1963 when they proposed to withdraw from the OECD framework. To continue cooperation at the European level, they had to find another organizational form. It was decided that they constitute themselves as an independent body. Thus, the European Association of National Productivity Centres (EANPC) was born in May 1966. The EANPC's mission was defined as being able “to facilitate and increase exchange of information and experience, and to arrange cooperation among participating bodies.” In almost 40 years of existence the EANPC has experienced significant member turnovers that reflect the state of productivity movement at each stage. Out of the thirteen founder-centres only four exist today in more or less the same form: the ELKEPA (Greece), the IPC (Ireland), the OLAP (Luxemburg), and the RKW (Germany). Some countries' centres withdrew. They were then replaced by other organizations (France, Italy, Norway or Hungary). Others have been merged or transformed (Denmark or Belgium). Three founding members (those of Spain, Yugoslavia and Iceland) withdrew their membership. Some new organizations joined the Association at different stages and left again: Czechoslovakia (1968-74), Portugal (1973-75) and Turkey (1973-83). Slight statutory modifications made in the mid-1970s permitted several non-European productivity centres to have closer relationships with the Association. Thus, a category of corresponding membership was established and Australia (PPCA), Canada and the United States became members at one stage or another. In 1992, the category of Associate Member was introduced. This enabled the centres in

the economies-in-transition in Central and Eastern Europe (Poland, Russia Ukraine, Slovak Republic, Slovenia and Bulgaria), and also the British BCPA and the South African NPI to join the EANPC.

Since 2003, the EANPC has embarked on the path of restructuring its activities with a view to better adapting them to an ever-changing political and business environment in the wake of the creation of the European Union, globalization, networking, information technology and other accelerating current trends. According to the new operating concept, the EAPNC will operate from now on through the **European Productivity Network (EPN)**, concentrating on knowledge-exchange between and among the member organizations by means of electronic information distribution and meetings which will be organized with a host member chosen to assume responsibility for all practical arrangements.

In the countries of **Central and Eastern Europe (CEE)**, it was only in 1990 that more consideration was given to establishing productivity centres, although in some countries of this region, the productivity movement has a longer history. Thus, in Czechoslovakia (formerly), the productivity centre was set up in 1968, in Bulgaria in 1973, and that of Yugoslavia (formerly) was one of the founding members of the EANPC in 1966. Economies of CEE countries were facing serious economic and social problems. Rehabilitation of economies, enhancing productivity and competitiveness became for these countries a matter of critical importance. Thus, national productivity bodies were established in Ukraine (1992), Hungary (1994), Moldova (1997), and Slovakia (1998). In some countries productivity bodies do not have an all-national scope, such as the Productivity Committee in Estonia, which was set up within the Federation of Estonian Engineering Industry. In other countries, they constitute a part of a larger organization, like the **Small and Medium Entrepreneurship Development National Centre of Armenia**.

Important contribution to the development of the productivity movement in central and eastern Europe has been done by Japan. Bulgaria was the first country to receive Japanese assistance which was used to establish the **Bulgarian Quality and Productivity Council (BQPC)** in 1985. In 1990, Japan announced a programme of cooperation with CEE countries, covering practically all countries of the region. Having previously launched economic recovery and productivity improvement programmes in Bulgaria, Hungary and Poland, the Japanese government

further extended their aid operations to the Czech Republic, Slovakia, Romania, Estonia, Latvia, Lithuania, Slovenia, Macedonia, Bosnia and Croatia.

The future of the productivity movement in this region largely depends on the ability of productivity organizations to successfully convey to all stakeholders the modern concept of productivity. They will also have to convince them that enhancing productivity will solve not only economic problems but also improve serious social concerns such as unemployment, poverty, decline in standards of living and medical care. One of the major keys to success will be their ability to unite all social partners, ensuring democratic social dialogue and pulling together towards mutually acceptable ends.

ASIA AND OCEANIA

The origin of the productivity movement in Asia goes back to 1955 when the first productivity centre was established in Japan. Three guiding principles formulated at that time by the **Japan Productivity Centre (JPC)** laid a solid basis for a stable and durable development of the productivity movement. It was agreed that labour and management must co-operate, and the fruits of productivity should be fairly distributed among labour, management and consumers.

The JPC has played an important role in familiarizing Japanese companies with the productivity movement. The companies developed and adopted original methods for improving productivity of production processes and management in general. Some tools developed in Japan such as Total Quality Control (TQC) and Just in Time (JIT) system are now internationally recognized.

In the 1960s, leaders of the Asian countries, encouraged by the recovery of Japan's post-war economy and its relation to the productivity movement, requested the JPC's assistance in acquiring productivity technology. Thus, the **Asian Productivity Organization (APO)** was established in 1961 to provide institutional support to productivity cooperation in the region.

The APO is a regional inter-governmental organization. It was composed initially of 8 countries with a modest range of activities. In the beginning, it mainly played the role of the mechanism in the promotion and transfer of Japanese productivity technology and knowhow to other

member countries. The APO gradually built up its own experience through study tours and networking, research and studies in productivity, organization of workshops, conferences and symposia, training courses, seminars and fellowships, technical expert services, publications and audio-visual training materials.

Today, the APO comprises of 19 member-countries and territories, each with its own national productivity body. Over the past 40 years, Asian NPOs have considerably evolved, have enlarged the scope of activities, have elaborated productivity strategies and have sharpened productivity tools and techniques. During this period, many of them were restructured and renamed, more than once in certain cases, to be better able to meet the challenges of the ever-changing situations both in their respective countries and in the world. The APO member organizations were established and developed as follows:

Bangladesh: The National Centre for Monitoring Labour Productivity set up in 1983, renamed as The Bangladesh Productivity Centre in 1987, and as the National Productivity Organization (NPO) in 1989 – a government body within the Ministry of Industries.

Fiji: The Fiji National Training Council (FNTC) set up in 1973, restructured and renamed as the Training and Productivity Authority of Fiji (TRAF) in 2002 – a statutory governmental organization managed by a board with tripartite structure.

Hong Kong (China): The Hong Kong Productivity Council (HKPC) set up in 1967 as a statutory, tripartite and multi-disciplinary body.

India - National Productivity Council (NPC), a founder member of A.P.O. was established by the Government of India, under the Ministry of Industry, as a tripartite body with equal representation of the government, employees and labour and representatives of apex professional bodies.

The purpose of NPC is to stimulate productivity consciousness in the country and to provide services with a view to maximizing the utilization of resources and minimisation of waste; to help secure for the people of the country a better and higher standard of living. To this end, NPC collects and disseminates information about techniques and procedures of productivity. In collaboration with local productivity councils and various institutions and organizations, it organizes and conducts training programmes for various levels of management in the subjects of productivity. It has also organized advisory service for industries to facilitate the introduction of productivity techniques.

Recognizing that for a more intensive productivity effort, the training and other activities of NPC designed to acquaint management with productivity techniques, should be supported by demonstrations of their validity and value in application, NPC has decided to offer a Productivity Survey & Implementation Service (PSIS) to the industry. This service is intended to assist industry-adaptable techniques of higher management and operational efficiency consistent with the economic and social aspirations of the community. PSIS is concerned with the investigation of management and operational practices and problems, measures of improvement, and their implementation. NPC has also established at Bombay a special Fuel Efficiency Services.

NPC publications include pamphlets, leaflets and reports of productivity teams. NPC utilizes audio-visual media of films, radio and exhibitions for propagating the concept and techniques of productivity. Through these media, NPC seeks to carry the message of productivity and to create the appropriate climate for increasing national productivity.

Indonesia: The Directorate of Manpower Productivity Development was set up in 1968 as the Department of the Ministry of Manpower. The Directorate coordinates activities of 27 Regional Productivity Development Units.

Islamic Republic of Iran: Although the Islamic Republic of Iran joined the APO in 1965, the **National Iranian Productivity Organization (NIPS)** was set up only in 1992 within the Ministry of Heavy Industries which appoints a board of three directors to govern the organization.

Japan: The Japan Productivity Centre (JPC), set up in 1955 and the Social and Economic Congress of Japan (SECJ), set up in 1974 merged in April 1994 to establish the **Japan Productivity Centre for Socio-Economic Development (JPC-SED)** – a non-profit, tripartite and non-governmental organization. The JPC-SED set up 7 Regional Productivity Centres and 2 Liaison Offices: in France and in the U.S.A.

Republic of Korea: the **Korea Productivity Centre (KPC)** was set up in 1957 as a non-profit, non-governmental organization. There are regional offices set up in 4 regions of the country.

Lao People's Democratic Republic: the country joined the APO in June 2002; the **National Productivity Organization** is presently being formed.

Malaysia: The **National Productivity Corporation** is a tripartite, federal statutory body enacted by the Parliament in 1991 to replace the National Productivity Centre originally set up in 1962.

Mongolia: The National Productivity and Development Centre (NPDC) was registered in 1992 as a non-governmental, non-profit and tripartite organization.

Nepal: The Industrial Services Centre set up in 1974, renamed as the Economic Services Centre in 1988 to become the National Productivity and Economic Development Centre (NPEDC) in 1994 – a public company governed by a Board of 6 directors, 4 of which are appointed by the Government, and 2 are shareholders.

Pakistan: The National Productivity Organization (NPO) was established in March 2001 – a non-governmental body acting as a facilitator for APO programmes in Pakistan; an APO member since 1962.

The Philippines: The **Productivity and Development Centre (PDC)** was set up in 1967 as a part of the National Economic Council and was transferred to the Development Academy of the Philippines in 1973.

Singapore: The National Productivity Centre of Singapore, set up in 1867, has undergone several restructurings and renaming to become the **Standards, Productivity and Innovation Board (SPRING Singapore)**, in 2002. It is a high-level governmental, tripartite, policy-making, standard setting, training and consultancy body.

Sri Lanka: The National Productivity Secretariat at the Ministry of Employment and Labour since 2002. Prior to that, from 1994, it was a section at the same ministry although the country became an APO member in 1966.

Thailand: the **Thailand Productivity Institute (TPI)** was set up in 1995 under the Ministry of Industry to replace the Thailand Management, Development and Productivity Centre. The TPI is governed by a tripartite Board of Directors.

Taiwan (China): The **China Productivity Centre (CPC)** was set up in 1955 under the Ministry of Economic Affairs.

Vietnam: the **Vietnam Productivity Centre (VPC)** was set up in 1997 under the Directorate for Standards and Quality (STAMEQ)

at the Ministry of Science, Technology and Environment, to replace the STAMEQ as national productivity body.

There is a large number of other productivity institutions in Asia that alongside with NPOs contribute to productivity enhancing in the region. Among them are the **Singapore Productivity Association**, the **Institute for Productivity Training** in Singapore, the **National Productivity Council** at the Ministry of Industries and Production of Pakistan and **Centres for Quality and Productivity Research** in academic institutions of Pakistan, the **National Wages and Productivity Commission of the Philippines** with the **Regional Tripartite Wages and Productivity Boards (RTWPBs)** in all 14 regions of the country, the **Japan Quality Council** and the **International Productivity Centre** in Japan. Several institutions were set up to deal with enhancing productivity in specific economic branches. Among them are the **International Rice Research Institute (IRRI)** in the Philippines, the **Centre for International Forestry Research (CIFOR)** in Indonesia, the **International Crops Research for the Semi-Arid Tropics (ICRISAT)** in India, the **International Water Management Institute (IWMI)** in Sri Lanka, the **World Fish Centre** in Malaysia.

Nowadays, APO's competence covers a large area of activities including the industry, service and agriculture sectors, with special focus on socio-economic development, small industry development, human resource management, productivity measurement and analysis, quality management, information technology, agricultural development and policies, resources and technology, and agricultural marketing and institutions. The following area are major APO-thrust areas.

- Green productivity
- Development of small and medium-sized enterprises
- Integrated community development
- Knowledge management
- Development of National Productivity Organizations

The APO is realigning some of the existing projects to focus more sharply on these thrust areas and to introduce new projects to adjust its activities to take into account the changing needs and priorities.

Since the mid-1990s, APO has been promoting the concept of Green Productivity (GP). In 1994, APO established the Special Programme for the Environment, expanded to the Office for Environment in 1999. A series of GP promotion initiatives have been developed, including upgrading of the NPOs' capacities to address environment concerns; raising environmental awareness and understanding of GP tools and techniques through green productivity promotion missions in different countries of the region; sponsoring human resources development programmes to enhance the institutional capabilities of NPOs to conduct environmental activities; integrating GP into community development programmes; developing GP demonstration projects; and conducting GP research projects. The spreading of the GP concept throughout Asia created the need for a coordinating structure. Thus, in 1999, the International Green Productivity Association (IGPA) was established in Taipei. IGPA's mission is to support and promote the introduction of GP strategies and technologies in the Asian/Pacific region through information dissemination, knowledge sharing, human resource development and strengthening public/ private partnership. The first challenge for IGPA is to set up an institutional basis for future GP promotion activities in the region. Therefore, IGPA launched the initiative to create a network of national and local level associations which will promote GP by implementing GP projects according to the specific conditions and the state of industrial environmental performance of each country. For the time being, Taiwan, China, Fiji, Japan, MP Province of India, the Chang Mai Region of Thailand and Malaysia have established such associations.

The experience in Asian countries provides telling examples which prove that a thorough, consistent and innovative application of productivity ideas based on the principle of social partnership achieves good results for economic and social development and contributes to the welfare of all stakeholders.

LATIN AMERICA AND THE CARIBBEAN

The countries of Latin America and the Caribbean started to develop the productivity idea in the early 1990s.

A few productivity bodies had existed before the 1990s, such as the **Barbados Institute of Management and Productivity (BIMAP)** and the **Brazilian Institute of Quality and Productivity of Parana (IBQP-PR)**.

They succeeded in developing a sound reputation in their respective countries for quality and cost-effective programmes in management training, consulting, business development, and entrepreneurship.

The first productivity body to be founded here was in Costa Rica in 1990 when the **Centre of National Productivity Foundation (SEPRONA)** was established in 1990 by a group of professionals concerned with productivity improvement. SEPRONA has been developing projects, offering consulting services and organizing training programmes for enterprise institutions and communities in Central America. Since 1995, SEPRONA is the Costa Rica network partner in the **World Confederation of Productivity Science (WCPS)**.

In 1991, with Japanese financial assistance, the **Regional Centre for Productivity (CEFOF)** for Central American countries was established in Costa Rica. In 1992, the JPC launched the 5-year technical cooperation project for human resource development in Central America as a fundamental basis to increase productivity and competitiveness. It was followed by another 5-year cooperation programme on “Regional Course of Productivity”, with the objective to disseminate knowledge acquired by the CEFOF to other Central American countries. This was extended later to the Caribbean countries. In 2001, the CEFOF, with Japanese support, started a new project on “Improvement of Productivity in the Enterprises of the Republic of Costa Rica”. The project would last for five years and is intended to enhance the technical development of Costa Rica and the Central American region and to consolidate the CEFOF as a Regional Centre for Productivity.

Columbia started introducing its national productivity movement by establishing regional centres of productivity, quality and competitiveness since 1996. Such centres were set up in Antioquia, Caribbean Colombia, Barranquilla, Cauca, Tolima, Oriental Columbia, Cali, Eje Cafetero, and Boyaca. In 2001, the government decided to consolidate the regional Pacific Productivity Centre in Cali into a **National Productivity Centre (NPC)**. Eight regional centres were included in **Colombian Network of Productivity Centres**, of which the NPC started functioning as a coordinating body. The NPC is supervised by the Ministry of Foreign Trade and the National Planning Department. 200 Colombian companies participated in the NPC programmes and this number will be increased to 5,000 according to the five-year action plan.

In 2001, Bolivia launched the Productivity and Competitiveness System which includes government private sector, labour and academia. The inaugural session during which the system was presented was attended by the President of the Republic, Ministers of Economic Development and Foreign Trade as well as by representatives of political parties and other national authorities.

Also, in 2001, Bolivia joined four other countries (Colombia, Ecuador, Peru, and Venezuela) to form the **Andean Competitiveness Programme (ACP)** under the auspices of the **Andean Development Corporation (ADC)**. Many other productivity-concerned institutions were mobilized in each of these countries without being directly or entirely involved in the productivity movement. These constitute a kind of national productivity network, and include ministries, chambers of commerce, various centres of technological development, innovation and research, banks, universities, institutes, foundations and associations.

Several other national productivity bodies have also been created in other countries of the region. In 1996, the **Barbados National Productivity Council** was established by the parliament of Barbados. In 1998, the **National Centre of Productivity and Quality** was set up in Chile. In 2003, the **Jamaica Productivity Institute** was established.

Another approach to upgrade company productivity and competitiveness has been adopted in such countries as Argentina and Mexico. Their main efforts were directed at creating vast export promotion programmes encouraging national companies to introduce new technology and innovations and to enhance competitiveness of their products. A number of bodies were set up or designated to participate in a joint national action, such as Bancomest S.N.C. (National Foreign Trade Bank) in Mexico and Fundacion Export AR. in Argentina, the main mission being to increase the total value of the nation's exports and to diversify its export base.

Presently, under the ILO PROMALCO Project and the ILO Caribbean Sub-Regional Office, assistance is being provided to the Caribbean countries in initiating national productivity movement and setting up tripartite productivity institutions.

Thus, over the past ten years, important institutional infrastructure to support the improvement of productivity has been created in many

countries of the region. This lays a solid foundation for the development of the productivity movement with a view to achieving positive results in enhancing productivity and competitiveness at all levels, of upgrading quality of life and of creating a proper productivity culture in the region.

AFRICA

The productivity movement in Africa is of a very recent origin except in the case of South Africa. **The National Productivity Institute (NPI)** of South Africa, founded in 1968, acts on tripartite basis as the national productivity organization and remains the leading productivity institution in the African continent. The **NPI** sees its role in enhancing South African productive capacity and global competitiveness, in boosting the economy and in creating jobs. The institute provides information, training, facilitation, consultation and productivity-issue monitoring to all social partners at all levels, from teaching productivity awareness to school children to delivering best-practice models to government departments and private companies. To better meet the productivity challenges in the country, the NPI is presently undertaking transformation of its mode of functioning from operation-oriented process to a project/programme-based cross-functional team approach. New programmes have been launched and are being embedded and are maturing into reputable and effective projects. Among them are: supporting National Strategic Initiatives Programme, Community Development Programme, Productive Behaviour and Competencies Programme, Positioning and Promoting Productivity Programme, Knowledge Management and Research Programme and Consulting Services Programme Governed by a tripartite council. The NPI has offices in Pretoria, Durban and Cape Town.

In Africa, the productivity movement receives strong governmental support. In 1997 for example, the first East African Economic and Social Policy Forum was held, with the theme “Productivity Enhancement and Competitiveness in the Globalized Market”. The Forum recommended setting up national productivity centres in Kenya and Uganda and strengthening the **Tanzanian Productivity Centre**.

In July 1999, the heads of states and the governments of the Southern African Development Community (SADC) signed the “Declaration on Productivity” which underlines the crucial importance of productivity enhancement to meet the challenge of ensuring improved living standards for the African population.

The **National Productivity and Competitiveness Council (NPCC)** was set up in Mauritius in 2000. Earlier, national productivity bodies were established in Zambia, Nigeria, Ghana and Botswana. The Botswana National Productivity Centre (BNPC) was established in 1995. It currently runs four successful programmes on productivity and quality awareness, public service, enterprise support and information and research. The centre currently conducts courses on productivity, providing consultancy services to private firms and spearheads the productivity movement in Botswana. The BNPC organizes a “Productivity Week” on a yearly basis and publishes a “Productivity Newsletter.” It assisted in setting up the **Botswana Productivity Association (BPA)** in 2000 and provides ongoing support.

All centres are tripartite bodies with national mandate and have similar objectives: to upgrade the competitiveness of their national enterprises through productivity enhancement. The core objective is development of a productivity culture. Their programmes are directed at promotion and development of greater productivity and quality awareness and consciousness, research and training, setting up consultancy and advisory services, the organization of conferences, seminars and productivity campaigns, publishing and the dissemination of information.

In 2002, the **Pan African Productivity Association (PAPA)** was established. PAPA will focus its activities on advocating the values of NPOs: assisting existing and emerging NPOs, creating awareness of the importance of productive capacity for economic prosperity, becoming an agent for capacity building, training, networking and ideas dissemination, and promoting the value of social partnership in productivity enhancement. The NPI of South Africa serves as PAPA’s Secretariat and the key driver to promote its activities.

The Role of the I.L.O. In Productivity Promotion

INTRODUCTION

In recent decades international activities in productivity improvement have greatly increased as a result of the following factors:

- Increased economic and technological co-operation between countries - This has resulted in the dissemination of modern management techniques and information and has therefore increased the need for common approaches to the evaluation and measurement of the effectiveness of the resources used.
- The increased need to make comparisons between different companies, sectors and countries for evaluation and policy-making purposes - This has resulted in the improvement of the statistical and data-processing bases, and their comparative unification.
- The increasing number of sectoral and national productivity institutions which organise their efforts on an international basis in order to exchange experience and information, measurement techniques, programmes, achievements and problems.
- The growing difference between developed and developing countries in economic and social development, and the scarcity of financial and material resources for direct transmission from the developed to the developing countries in the framework of international development programmes. International productivity improvement programmes have been recognised as an important factor in development, as they help to use all available resources effectively.
- Understanding of the importance of productivity improvement as an effective tool of international assistance to the developing countries by the United Nations and its specialized agencies - This has resulted in the setting up of institutional mechanisms for

working out productivity improvement programmes and putting them into effect in some developing countries.

These factors have contributed to the emergence and strengthening of international mechanisms for productivity co-operation. There are now more than 30 international organisations, federations and institutions, about 20 international governmental organisations and more than 40 regional organisations and institutes dealing directly or indirectly with productivity. The organisations concerned can be classified into five groups:

- The United Nations family: ILO, UNDP, UNESCO and UNIDO, which deal with different aspects of productivity promotion.
- Inter-governmental regional economic organisations of the European or Latin American Common Markets, OECD, CMEA (Council of Mutual Economic Assistance), etc.
- Regional organisations specifically dealing with productivity improvement and promotion among their member countries, such as the Asian Productivity Organisation (APO), the European Association of National Productivity Centres (EANPC), and the corresponding association for Latin American countries, called MECOPOR.
- International (or regional) professional associations dealing with management, engineering, work study, management development, etc.
- International and regional development banks and funds that finance national or regional projects dealing with economic and social development as well as productivity improvement.

These and other organisations undertake many activities in collecting, analysing and disseminating useful information on productivity and its related problems among their members. They carry out research activities, organise meetings, courses, seminars, symposia and conferences and help governments in working out national productivity improvement policies and programmes. The organisations also finance and implement many programmes. Thus, they play the following important roles:

Leaders: By virtue of their intervention in economic and social development, they are able to look ahead and work out long-term strategies and policies. Most of these organisations recognise the human factor as a major force for development. Human development is therefore a priority for productivity and management organisations.

Catalysts: They promote co-operation between member countries and their effort to increase productivity strengthens national and regional ties. In this role, organisations introduce new concepts and methods, undertake research on different dimensions and measures of productivity improvement, identify priorities in establishing objectives, share experience between countries and seek greater mutual co-operation.

Institution builders: They help countries to strengthen their professional capacity through human resource development programmes. They emphasise software development and productivity improvement at the macro-level, providing professional input to institutions in managerial and technological areas, building up technical expert services, undertaking surveys, study missions and research. They provide access to information and organise technology transfer through technical co-operation projects when necessary.

Clearing-houses: They organise information exchange between members all over the world and disseminate management and productivity concepts, knowledge and techniques. They report on the failure or success of different projects and experiences, and on technological and managerial innovations. They supply comparisons on productivity and give economic indices for different stages of development.

Human resource development agencies: They undertake major technical co-operation projects on education and training methods; they promote more productive employment of human resources, and the development of necessary skills and attitudes for productivity improvement; they train trainers and human resource development professionals.

Many other important roles could be identified in the promotion of knowledge, concepts, technology transfer and co-operation between member countries and institutions. To give a better insight into the role and practical activities of these organisations, we would like to give a brief description of a few major international and regional organisations in the field of productivity improvement and co-operation. They are: ILO, EANPC, MECOPOR and APO.

The ILO CONFERENCES

ILO conferences have repeatedly stressed the fact that living standards can be appreciably improved only by increasing productivity. The 1950 annual report expressed concern about productivity improvement and indicated a desire to expand ILO activity in this field. The next few years

saw the launching of the management development and productivity programmes, and ILO productivity missions were sent to several countries. Between 1950 and 1957, expert services were given to ten countries. The technique on which the initial teaching and practical work of the missions was centred was work study.

The first phase of the ILO management development programme was devoted to the productivity programme; almost the whole emphasis was placed on raising productivity and improving efficiency in production or operation. The second phase (after 1960) emphasised training in general and functional management, expanding enterprises and increasing productive employment. Most projects included the establishment of national management development and productivity institutions.

The current ILO concept of productivity is reflected in a resolution adopted by the International Labour Conference in June 1984¹⁰. In its opening statement it says, "... as a basic principle that production and productivity improvement must serve the well-being of the people". No longer does the term "productivity" bring to mind long shifts and exhausted assembly line workers. The basic objective of ILO programmes on productivity improvement is to assist member states to improve the quality of management both in the public and private sectors.

Since the early 1950s the ILO has assisted in strengthening national productivity management centres and related organisations in over 80 countries. It has also introduced several thousand training and consulting programmes and assignments. With this large pool of experience and expertise, the ILO is today assisting governments, employers' and workers' organisations in their efforts to enhance productivity.

In Asia, for example, the ILO assisted in the productivity year programme in Singapore in 1981, and also in India in 1982 as discussed earlier. The ILO's traditionally strong ties with the productivity movement in India go back to the mid-1950s when the ILO participated in the establishment of the National Productivity Council of India as a tripartite organisation having equal representation of employers, of labour and of the government.

All kinds of ILO programmes are directly or indirectly involved in productivity improvement through human resource development. For example, the ILO Vocational Training Programme, through its numerous technical co-operation activities, contributes to increasing productivity by assisting member states to strengthen their capacity to train workers.

The ILO Workers' Education Programmes help strengthen trade union organisations, particularly in social and economic participation. They develop the ability of union representatives to participate in decision-making at all levels. ILO activities on wages and incomes are concerned with sharing the benefits of productivity through the growth of real wages and consultation.

A key contribution of the ILO to productivity comes from its management development programmes that assist national productivity centres and management institutes to develop research, policy advisory and training services. The national centres in turn help governments in decision-making; they also help local enterprises to apply total approaches to productivity, including the effective use of all resources.

The ILO programmes of technical co-operation for Productivity enhancement offer the following services:

- Surveys covering the entire process of productivity measurement, improvement and gains-sharing at all economic levels. Training needs are identified, and training strategies are recommended to meet them.
- Management training in productivity improvement processes. Study, design and implementation of systems, procedures and techniques for productivity measurement, improvement and gains-sharing at any level from national campaigns to quality circles.
- Training in productivity management in critical economic sectors, particularly public institutions and enterprises, utilities, transport, construction and other enterprises concerned with the infrastructure, small enterprises, and rural development organisations.
- Surveys, planning and implementation of projects for the establishment or strengthening of training institutions.

The ILO contributes its experience and expertise to each technical co-operation project. This covers project planning and development, implementation and evaluation, training policy, organisation and method, execution and evaluation; and institutional framework-building and networking.

The selection, recruitment and supervision of highly qualified international and local experts and consultants for the execution of the project is also an important part of ILO assistance. The planning and

implementation of relevant international fellowship training programmes is frequently an integral part of the overall project design.

The ILO also plays a major role in international funding arrangements.

The ILO has an exceptionally well-developed body of knowledge and know-how in developing and implementing training methodology that incorporates the latest significant developments. Through a wide range of projects in developing countries, it has created a rich portfolio of management development approaches and techniques for adaptation in individual projects. Among them are action planning, notably, planning for improved performance (PIP); campaign-type action, such as the training-through-consultancy programme; performance clinics, inter-firm productivity comparison; modular packaging, particularly modular programmes for supervisory development; and other self-development techniques such as action learning.

A survey conducted in 1980 indicated that national management and productivity centres continue to attach the highest priority to consulting and training techniques for productivity improvement. The management development programme has maintained close collaboration with regional organisations concerned with productivity promotion, such as EANPC, MECOPOR and APO.

The ILO is also trying to improve the diagnostic capacity of training institutions and their ability to innovate and to respond to innovation. It is necessary to achieve a closer link between training and productivity. For example, analysis of staff training needs is encouraged in order to improve the productivity of investment projects. Blending of new and traditional technologies is one way to increase productivity while minimising the adverse effects of technological change. The ILO intends to continue studies on the effect of the application of science and technology and aims to develop training programmes based on those studies (micro-electronics, office automation, etc.).

Important future themes of ILO management development programmes in the field of productivity improvement are:

- Measuring productivity: this is an area of great concern to employers and workers.
- Organisation in view of its obvious link to wages and wage policies, cost-of-living indices and productivity gains-sharing; besides, productivity indices are among the most important management

tools for monitoring production processes.

- Strengthening national institutional mechanisms for productivity improvement and their role in training, research and productivity promotion down to the enterprise and shop-floor levels.
- Improving public awareness at all levels of management and society; productivity is not only an economic or technical problem, but also an individual's state of mind.
- Developing an international network of organisations, researchers and consultants, and promoting co-operation between them at the international and national levels.

The role of ILO in productivity promotion

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A Global Event

I. L. O. Productivity Forum

Global Employment Forum in Geneva last November was addressed by world leaders including the UN Secretary General, Kofi Annan, fellow 2001 Economics Nobel Prize Laureate Professor Joseph Stiglitz, Prime Ministers Poul Nyrup Rasmussen of Denmark and Paavo Lipponen of Finland, ILO Director-General Juan Somavia and the President of the Royal Dutch Shell group, Jeroen van der Veer.

The forum demonstrated how important productivity has become in the thinking and programme of the ILO. Thus, in the basic document for the forum, A Global Agenda for Employment, the ILO strongly underlines the fact that ‘productivity growth is crucial for job creation’.

“A key contribution for a brighter employment future would be improved productivity of those at work, particularly the working poor, as well as the young entering the labour force. Bringing about higher productivity is a big challenge for national governments, the social partners, civil society and the UN agencies and Bretton Woods institutions (i.e. the IMF and World Bank). It involves putting productive employment high on the agenda so that the centrality of work is explicitly reflected in economic and social policies.

Improved productivity is important because it allows economic growth to translate into higher per-capita income. It is especially necessary when the size of the workforce is expanding.

Increased productivity serves in two ways to boost employment and to strengthen employment quality. First, because it is the only source of sustained real wage improvement and has a positive effect on aggregate demand. Secondly, rising productivity counteracts inflationary pressures. This gives more room for growth-oriented macroeconomic policies. Improving productivity is a key step in attaining the “virtuous” circle in which economic, employment and productivity growth, all move in the same positive direction.

In basic terms, entrepreneurial initiative is kindled by the hope of supplying the market with new goods and services or improving on goods and services already available. Entrepreneurship is thus central to the process of increasing productivity growth when these promote the activities of the enterprises.

Product market regulation has a role to play, as does the availability of capital and credit. Policies need to find an appropriate balance between the flexibility enterprises need to exercise in relation to the changing circumstances and the level of security workers need if they are to adapt to change. Public policies must achieve a forceful drive for change and productivity growth on the one hand, while recognizing the distinct nature of the market for labour, on the other.

Tony Hueburt (ILO)

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I.L.O. Resolution on Productivity

International Labour Conference Geneva-1984

The General Conference of the International Labour Organisation, adopted the following Resolution:

Recalling that the Programme of Action adopted in 1976 by the World Employment Conference recommends, as an essential element to any national employment-centred development strategy, “an increase in the volume and productivity of work in order to increase the incomes of the lowest income groups.”

Noting that the levels of production and productivity are among the main factors that determine the amount of goods and services available in an economy and are therefore a basis of economic and social progress in real terms.

Recalling the need to take account of the specific interests of different categories of workers, in particular women and young workers, within the framework of production and productivity improvement.

Noting that productivity improvement is necessary in order to assure economic growth and underlining the effect of the quantity and quality of employment, as well as the effect of rising standards of living, on progress, on productivity and on the quality of production socially necessary for the well-being of workers and their families.

Recalling the resolution on labour and social implications of automation and other technological developments adopted by the 57th Session of the International Labour Conference (1972).

Recognising that the levels of production and productivity can be greatly influenced by the development of science and technology, balanced social and economic policies as well as the implementation of programmes of initial and continuous training for workers, in particular young workers and women.

Considering it necessary for production and productivity improvement to be accompanied by an active employment policy directed towards the promotion of full productive and adequately remunerated and freely chosen employment.

Stressing that production and productivity improvement should not have adverse effects on the life and health of the workers or on the working environment.

Emphasising that science and technology as well as their application should enrich the working life of the people.

Aware that in the majority of developing countries, especially the least developed countries, many of which are facing growing problems of over-population while lacking in resources, particularly in equipment, energy and skilled manpower, dynamic and socially justified management of these scarce resources is all the more essential as increased national income depends at least as much on progress achieved through the better use of existing capital and labour resources as on the use of new resources.

Considering that governments, employers and workers and their organisations have a leading role to play in production and productivity improvement and that there is a need to implement measures within the enterprise, such as management and organisation policies, appropriate personnel policies on human potential and on technical and financial investments which encourage innovation and the pooling of efforts for the purpose of increasing production and productivity.

Noting that it is necessary for workers and employers and their organisations to exert influence on the application of scientific and technological innovations as well as on the use of results achieved by production and productivity improvement.

Considering that the increase of productivity, in particular as a result of the introduction of new technologies, can affect the intensity of work and limit the growth of employment.

Considering the need for governments and employers' and workers' organisations to participate in the planning of productivity improvement.

Stressing that the aim of improving productivity can be compatible with employment policy, protection of workers' health and fair remuneration.

Convinced that productivity improvement should be accompanied by the setting up of improved conditions and appropriate social structures.

Convinced that the implementation of these measures could lead to substantial savings in raw materials and energy, better and socially justified utilisation of human resources, capital, and equipment and working time.

Considering that efforts made at the enterprise level may usefully be supported by institutions set up for this purpose by the public authorities, employers', workers' and other organisations.

Stressing the need for all enterprises, both national and multinational,

to coordinate their activity concerning production and productivity improvement with the national development programmes.

Requests the Governing Body of the International Labour Office

- (1) To stress that the objective of full employment is possible and necessary and that this objective does not contradict productivity improvement, the main purpose of which is to ensure economic growth and, thus, a rising standard of living;
- (2) To include in the ILO programmes, studies on:
 - (a) the positive and negative effects of various measures that may be undertaken to improve productivity at the enterprise, sectoral and national levels, the organisation of productivity programmes and the role of governments, employers' and workers' organisations in this respect, as well as the estimated effects of these measures on the employment situation and working conditions;
 - (b) the sharing of the benefits obtained through production and productivity improvement, in particular:
 - at the level of wages and the humanisation of working conditions;
 - at the level of lowering prices;
 - at the level of employment development;
 - (c) the real growth of wages and the improvement of working conditions and their appropriate relation to productivity improvement;
 - (d) the effects of the application of science and technology on the security of jobs and through that on the life of the workers and their families;
 - (e) the role that information, consultation and workers' participation within the enterprise can play in this context;
 - (f) the need for improvements in health care, workers' protection, education, vocational training and retraining, particularly in connection with the introduction of new technologies, social services and physical infrastructures in the interest of workers and their families, as well as to produce an increase in overall economic productivity;

- (3) to ensure a sufficient increase in the funds allocated from the ILO regular budget (RBTC) and to make available to member States, especially in the developing and first of all in the least developed countries, advisory services and technical cooperation programmes and other measures as well as other resources adequate in nature in the above mentioned fields, and to help them to set up and strengthen tripartite machinery as well as to assist trade union and employers' organisations in order to raise the level of productivity and production and ensure full employment and thus a rising standard of living and the well-being of workers and their families;
- (4) to take every possible measure in order to ensure the protection and safety of workers, continuous training and the retraining of managers.

(I.L.O June 1984)

United Nation's Recognition of WCPS

Since the time the World Confederation of Productivity Science was formed in 1969, its Membership has been open to U.N. Member Countries. For over a decade its efforts were directed to persuade the U.N. to declare a U.N. Productivity Year and give representation to WCPS in U.N. bodies concerned with productivity and social sciences. In this regard, valiant efforts were made by Dr. Walter Aigner from Australia and Mrs. Brita Borge from Norway by lobbying at the U.N. through the Delegates of Member Countries to accord representation to WCPS in the U.N.

Persistent efforts in this regard, by WCPS HQ finally succeeded when at the 10th World Productivity Congress held in Santiago, South America in 1977, the President of WCPS announced during the plenary session as under:

It has been over a decade that the World Confederation of Productivity Science had the dream to be recognized by the U.N. and the good news was that on 8th May 1997, the General Assembly of NGOs, by a unanimous vote, recommended to the ECOSOC that the 'General Consultative' status be granted to the World Confederation of Productivity Science. This recommendation was endorsed by the General Assembly of ECOSOC in Geneva late July 1997.

This recognition allows WCPS to provide expertise to all sub-committees on matters that can influence the quality of life and the quality of working life of all citizens. WCPS will be in a position to influence the United Nations to declare a year, month, week or day of productivity worldwide with all the positive inputs that such a decision can bring to the benefit of mankind.

Sustainable development, nature of work and virtual organizations are among concepts discussed at the ECOSOC. The WCPS/ ECOSOC status gives the opportunity to influence the decision-making process on these important issues.

Pan African Productivity Association

Africa Founder Group of six countries, Ghana, Ethiopia, Tanzania, Botswana, Nigeria and South Africa have initiated a massive productivity drive on the African continent and as a first step, a Pan-African Productivity Assembly (PAPA) was held in Johannesburg, South Africa in November 1992. A Pan-African Productivity Association was formed to coordinate the massive productivity drive.

Pan African-Productivity Association

PAPA is fortunate to have an enthusiastic and a very dynamic Executive Council.

The present President is Dr. Jan Visser, Executive Director of the National Productivity Institute (N.P.I.) in South Africa.

Two Vice-Presidents serve West Africa: Dr Theo Wereko, Director General of the Ghana Institute of Management and Public Administration, and for East Africa: Dr.P.G. Menen, Vice-Chairman of the National Productivity Council of Tanzania.

Members: Mr. Lepetu Setswaelo, Director of the Botswana National Productivity Centre, and Mr. Bezabeh Bekele, Acting Deputy General Manager of the Ethiopian Management Institute.

The Secretariat is handled by Monica Sprong, at the NPI who compiles the PAPA News Letter which can be availed by making a formal request at N.P.I. Secretariat, P.O. Box 39710001 Pretoria South Africa.

Mr. John Parsons of National Productivity Institute of Pretoria has been appointed as the Chairperson of the Planning Committee of the Africa founder group. It is significant that the PAPA is being hosted by ESKOM, the largest utility on the continent and the major trade union federation COSATO has entered into a meaningful dialogue with PAPA.

FIRST PAN-AFRICAN PRODUCTIVITY ASSEMBLY

**November 3 to November 5, 1992 Johannesburg,
South Africa**

PRODUCTIVITY AFRICA - COOPERATING FOR PROSPERITY

The assembly heralds a new era of African cooperation. The assembly will have two distinct but complementary agendas:

It will provide local and international delegates with high quality material on the techniques, approaches and strategies that are relevant to improving productivity in developing countries, as well as input into inter-regional strategies designed to facilitate the transfer of such techniques and approaches.

It will bring together the people and the ideas that will form the basis for the formation of PAPA. The assembly is designed to satisfy the needs of productivity specialists, consultants, and private and public sector organizations wishing to extend their horizons. It will also provide valuable input to the African representation concerned directly with the inauguration, constitution and role of PAPA.

Each African country attending the assembly was requested in advance to nominate a representative for the inaugural debate on the formation of PAPA to be held on 5th November. Sub-committees would synthesize the assembly material and present in a summary format to the representative group. A draft constitution will be formulated and circulated to all representatives and to the World Confederation of Productivity Science prior to the assembly.

FIRST AFRICAN PRODUCTIVITY ASSEMBLY

Petition to the International Advisory Council of the World Confederation of Productivity Science (WCPS) for support for an African productivity assembly to foster cooperation between national productivity centres and other bodies promoting the cause of productivity in Africa.

Purpose

To establish a structure under the auspices of the WCPS within which African nations can exchange and share views on strategies, practices, and techniques, and collaborate on joint ventures designed to contribute to

productivity growth, wealth creation and hence the improvement of the living standards of all African peoples.

Theme

Strategies for inter-regional cooperation between developing nations.

Sub-Themes

1. Models for inter-regional cooperation

Precedents do exist for models designed to promote cooperation between countries at varying stages of economic development. Higher productivity is invariably advantageous to all participants. Despite the economic benefits, there are often political impediments that need to be overcome. What is the relevance of this experience to Africa?

2. Cultural issues on the African continent

Despite the tendency of non-Africans to see the continent as homogeneous, Africa remains a rich blend of cultures and work ethics. Comparative management in its traditional role is confined to studies of East vs West. Are there more imaginative approaches that can help understanding of multi-cultural societies?

3. Improving productivity in third world situations

Many programs, aids, techniques, and training materials have been developed for improving productivity. Also, some sensitivity exists regarding the areas that respond best to attempts to effect improvement in third world situations. How applicable are these approaches and strategies to Africa?

4. Wealth creation and wealth distribution

Many third world countries are characterized by large disparities in income and lack of basic facilities such as housing, education, and health care. A common response to these problems often entails creating a large public sector with significant government involvement in economic affairs. This brings along other impediments to productivity. How can these be best balanced to optimise benefits?

5. Natural resources, energy and technology

Africa is rich in natural resources. Although all too rarely, are these exploited to the full? Is there a role here for technology-transfer? And how can cooperative ventures in the provision of inexpensive energy help transform living patterns?

6. The world community

What future scenarios for Africa can be painted? How does the rest of the world view the continent as a potential investment opportunity? Is there any advantage for the world community in supporting initiatives for intra-African cooperation and should it bear any responsibility for such initiatives?

7. Business, governments, and the labour force

Productivity improvement ultimately occurs in the work place, largely controlled by management. Clearly, government policies influence the effectiveness with which businesses function. All actions that determine the deployment of resources are taken up by people. How can these three partners – business, government, and the work force (unionized or not), facilitate the attainment of national productivity goals, acting individually or in concert?

Desired Outcome

A declaration of intent by all represented African nations to co-operate in the best interests of the continent: This would be endorsed by the chief executives of existing national productivity centres, or their nominees, and by the International Advisory Council of the WCPS.

PROCEEDINGS OF A WORKSHOP HELD ON 29 AND 30 NOVEMBER 1995 AT THE NPI, PRETORIA, SOUTH AFRICA

Strategies And Programmes For Increased Productivity In Africa:

Productivity was the single most important way to increase economic growth and thereby the standard of living of the people in any country. A few prerequisites have been identified to create a climate conducive to productivity improvement:

- A stable government should exist in a country. The democratic route was seen to be the only one to ensure that this requirement was met.
- Good infrastructure should exist and should be well-developed and maintained well.

- Technology was essential. New technologies to meet the needs of the future should be sought and implemented. It was noted that the USA ascribed up to 50% of its productivity growth to new technology.
- Education is of the utmost importance. Both the quality and quantity of the output of education systems were important, and productivity improvement specialists should be instrumental in ensuring that education systems produced people who could work productively.
- Training was equally important, specifically to make up for shortfalls in education systems. Training generally prepared people to make a living.
- A productivity culture was essential and would exist where people displayed a commitment to improve their living standards.
- The quality of management inevitably determined the level of productivity in organisations.

Every country needed a productivity leader to ensure that the required action was taken, as this would not happen automatically. There was a definite need for an organisation to carry the productivity-promotion and improvement flag. It was also seen as essential to involve the head of the state in any productivity-improvement drive in a country.

Organisations such as the Asian Productivity Organization (APO), European Association of National Productivity Centres (EANPC) and Pan-African Productivity Association (PAPA) were also seen to be of vital importance, as they could do much to assist and convince individual countries to start productivity-promotion and improvement activities. International agencies such as the ILO have identified Africa as an important area to receive attention in the short- and longer-term future.

The Strategies

At this stage of PAPA's growth and development, it is essential for it to get the support and cooperation of its "pan-African social partners" to ensure its sustainability as a truly pan-African organisation set up to serve the interests of Africa and its people. Indeed, with the support of the continental social partners and all those who aim to promote economic growth and therefore higher standards of living for all the people in Africa, it should be possible for PAPA not only to gain more credibility, but to

make a significant contribution to the development of all African nations and to fulfil those tasks the Association sets for itself.

The aim of this workshop is to:

- Identify factors influencing globalisation, competitiveness and productivity in the African context;
- Define sound productivity improvement strategies at both the national and enterprise level;
- Identify the role of each of the players in productivity promotion and the development of a productivity culture in Africa; and
- Define the role of productivity promotion institutions in Africa, including PAPA, in creating and sustaining a productivity culture in Africa.

The term of office of the present Executive Council expired at the beginning of November 1995, and the Assembly had to elect a new council to serve for the next three years. Dr Henry Akuoko-Frimpong, then Vice-President of PAPA, who initiated this Workshop and Assembly, chaired the General Assembly meeting on Friday, 1 December 1995. The newly elected President then chaired the Executive Council Meeting.

Dr Joseph Prokopenko, Head of Research and Programme Development of the Entrepreneurship and Management Development Branch at the International Labour Organisation (ILO) in Geneva, was the workshop coordinator.

The Asian Productivity Organisation- Its Role in Productivity

The Asian Productivity Organisation (APO) does a great deal to improve productivity in Asian countries by stressing research, methodology development and training. National productivity organisations in the APO member countries act as implementing agencies for APO projects and participate in APO's multi-country projects. The APO programme thus reflects the long-term and short-term plans of its members.

The three guiding principles adopted by representatives from government, labour and management during the first APO conference are that:

- In the long run, improvement in productivity will increase employment. However, before the effects of improved productivity become apparent, the governments and the people must co-operate to provide interim measures against unemployment, such as the transfer of surplus workers to areas deficient in manpower.
- The labour and the management must co-operate in discussing, studying and deliberating measures to combat unemployment.
- The fruits of improved productivity must be distributed fairly among the contributors.

At present, 17 countries are official members of the APO. Each of these countries has a national productivity centre or institute. The APO promotes mutual co-operation through programmes which exchange and transfer conceptual, managerial and technological experience, through symposia, seminars, study missions, fellowships, technical services, publications and other information services to enhance productivity-consciousness and expertise.

The APO's programme of activities is divided into four categories: macro-level projects, industry, agriculture and information. Its annual programme includes projects concerned with productivity measurement,

industrial relations, project feasibility and appraisal, and agro-industry and energy management.

Basic projects emphasise management and technical consulting and training activities. These projects aim at helping member countries build up a team of competent management trainers and consultants as a multiplier factor in disseminating productivity knowledge and techniques. There are two main types of training courses: for management trainers and consultants, and for industrial or production engineers. Both types of course are designed to develop self-reliance in the participating countries.

Current information projects aim at raising productivity consciousness, the dissemination of productivity knowledge, and the support of industrial and agricultural projects by means of training aids and information-exchange among member countries.

The APO also plays an important role as a technology-transfer agent, mainly through its training programmes for industrial technological development. Its training programmes for the development of small business managers and consultants, its study missions, its “technical expert” services and its series of publications in this field have all been helpful in developing a corps of “transfer agents” in the member countries.

Its impact may be seen in the advances made by the Asian productivity organisations. For example, the Hong Kong productivity centre and the national productivity organisations in India, Japan, the Philippines and Singapore have demonstrated the results of effective popularisation of productivity and its implications in their own activities.

The APO uses all the available media including seminars, conferences, training courses, study missions, publications and newsletters, consultancy, and video packages.

Strong links have developed during the past decade between the APO and/the ILO, the EANPC and other regional and international organisations dealing with productivity improvement and developmental issues.

APO's Role as a leader in productivity was a part of the agenda at the governing body meeting held in Medan, Indonesia from 2-5 August 1982. At this meeting, the APO Director from India pointed out that “one should be aware of APO's limitations”, and cited, as an example, that APO “could do very little to change the international environment, to

turn around international recession, or to generate actions regarding the North-South issues. Similarly, problems such as unemployment and the improvement of industrial relations and working environment should be the major concern of other international bodies such as the ILO.” Keeping these limitations in view, he offered certain comments which are important from the point of planning and promotion of productivity, and we are reproducing them below.

Think Tank – The APO must work out mechanics of a very contemporary data apparatus of world economic development because it should be aware of such developments in so far as it affected the situation in Asia. Otherwise it would be difficult for the APO to perform its role. The ‘think tank’ role should be based on the strengths and weakness of each member-country. The APO must have a SWOT analysis of member countries to find out their problems, and especially the constraints they face. APO’s think tank function should include analysis of policy frames in different countries to the extent that they affect productivity in key areas.

Catalyst – Productivity should be a planning tool, but in several member- countries, it was not the case and national planning was not aimed at productivity improvement. APO member-countries had not tried to evolve models of productivity application, and what the APO could do would be to organise programmes oriented towards specific productivity applications in various sectors. If the APO could do specific model studies, the result of such studies would form an important element in productivity application, and the factors that promote productivity in a given situation could become useful models for future applications.

Technology Transfer – This subject should be given greater emphasis, and great care must be exercised because technology must be integrated as an input. Technology being a productivity function, it could be optimised in a given situation. Technology per se is meaningless and therefore, maximum emphasis should be placed on technology-selection, assimilation, and adaptation. Japan is an example of how technology could be effectively absorbed, making it one of the most advanced economies in the world.

Clearing House - APO Member countries would sometimes be totally unaware of the total upshot of the efforts and achievements in other countries. The APO being an inter-dependent regional organisation, the experience of one member-country must be disseminated to others...A

technical digest of important formulations of APO projects and NPO programmes, and the experiences gained therefrom should be made known to all member-countries.

Institution Building – The institution building role of the APO should place its primary emphasis on NPOs. Till productivity organisations in member-countries are highly uneven, this role of the APO should primarily be de-signed towards strengthening NPOs.

Human Resources - There is a need to have a true idea of human resources because people per se are not a resource. How to convert human beings into economic resources should be carefully studied... It could begin with training, but training alone would not be sufficient. It must go through the problem of deployment. Human beings being the major factor of production, APO's role in human resource development should be expanded and continued.

Finally, there should be a greater degree of awareness of the important activities of member-countries, and this should be the first item on the agenda of the governing body meetings in the future. Not many people are aware of the fact that India has declared 1982 as the Productivity Year, and very few other member-countries were aware of the application of such productivity tools as maintenance, energy conservation, and materials management and replacement in India.

1. Proceedings of the Governing Body of APO Twenty fourth Session, Medan, Indonesia (August 2-5. 1982), pages 213-417, Asian Productivity Organisation, Tokyo. 1982.

The European Association of National Productivity Centres

An example of a regional institution is the European Association of National Productivity Centres (EANPC), which was founded as an independent non-governmental organisation in 1966, with membership open to all the European national productivity centres. Membership at present includes 19 national productivity centres. One of the main objectives of the association is to facilitate and to increase exchange of information and experience; and to encourage co-operation between participating bodies, with special reference to scientific research. Organising conferences is an important EANPC activity.

The most important programmes of the EANPC focus on such areas are national policy and practice; quality of working life; job design; new technologies; developing and implementing industrial policies; productivity measurement; corporate early warning systems; and productivity and the organisation of working time.

Recently, EANPC policies have concentrated on productivity in services; corporate productivity; aids to smaller companies; productivity and competitiveness; and productivity and employment.

The main forms of activity used by the EANPC are the publication and adaptation of existing knowledge for use by specific target groups; productivity campaigns; round-tables for staff of centres and similar bodies in charge of government-sponsored consultancy services; education and training; and meetings, symposia and workshops.

The EANPC works in close co-operation with OECD, the EEC, the ILO, with national productivity and management centres, and with a few professional associations, such as the European Foundation for Management Development and the European Centre for Work and Society.

“MECOPOR” - Latin America

“MECOPOR” is an organisation for the co-ordination of horizontal technical co-operation between productivity agencies in the Latin American and the Caribbean regions. It was established only in 1984, in consultation with the member countries of the coordinating committee, the Organisation of American States and the ILO. It is the newest regional organisation dealing with productivity.

The main objectives of the MECOPOR are to co-ordinate technical co-operation activities between the productivity agencies and related institutions in the countries of the region.

The activities of the MECOPOR aim to:

- contribute to the development and strengthening of the productivity agencies and institutions in the region through a broad programme of technical co-operation supported by the international organisations that act in the field of productivity;
- facilitate and maximise communication among the regional productivity agencies and related institutions;
- make use of and give a multiplier effect to the resources available within the region.

It is still too early to reach any definite conclusions about the practical activities of the MECOPOR. What is important is the fact that creating the MECOPOR in the Latin American and Caribbean regions can be considered an important step towards the regional integration of the activities of national productivity centres and organisations, similar to the EANPC and the APO.

The World Academy of Productivity Science (WAPS)

The Formation

It was a momentous occasion when at the plenary session of the 5th World Productivity Congress held in Jakarta in 1986, a resolution was adopted on the recommendation of the International Advisory Council of the World Confederation of Productivity Science (WCPS) to establish the World Academy of Productivity Science.

Pursuant to this, Dr. Krish Pennathur the first President and Dr. Martin T. Tveit the Vice-President, WCPS, assisted by Dr. A.N. Saxena as Secretary General were authorized to work out the statutes and all other details regarding the functioning of the academy. However, it was at the 6th World Productivity Congress held in Montreal, Canada in 1988 that the academy statutes were ratified, and the World Academy of Productivity Science was formally established with Dr. Krish Pennathur as President, Dr. Martin T. Tveit as the Executive Vice President and Dr. A.N. Saxena as the Secretary General.

A major decision taken then was that a quarterly newsletter be published by Dr. A. N. Saxena from India under the direction of Dr. Krish Pennathur. Subsequently, owing to the demise of Dr. Krish Pennathur, Dr. Martin T. Tveit became the President. He was succeeded by Dr. A.N. Saxena, Dr. Scott Sink, Dr. George L. Smith, Dr. Carl Thor and currently Dr. Thomas C. Tuttle.

In its Preamble, and in the objectives of the Academy, the following is incorporated:

Preamble

The World Academy of Productivity Science (WAPS) is a world-wide institution composed of individuals coming from diverse backgrounds and are eminent people chosen from productivity and social sciences.

The Fellows of the Academy (all elected by the Executive Board) surmount differences in tradition, language, experience and social structure.

All fellows are expected to join in a creative effort of imaginative undertakings for the advancement of productivity science in all fields.

The Fellows of the academy endeavour to support productivity science, and to act as effective instruments for the realization of human good and for constructive development.

The academy strives to assist professional people as well as the working public at large.

The expansion of science and technology has placed at our disposal an unparalleled instrument for the fulfillment of the goals.

Ways and means for integrating what man knows is of paramount importance and is constantly supported by the Academy to its Fellows.

Above all, the World Academy of Productivity Science tries to identify and serve the interest of mankind, not by being distant from humanity, but by offering a means whereby inquiring minds can relate themselves and their specialties to a conception of human ability, and to man's progress in a changing environment.

New opportunities for involvement are constantly sought and communicated among members, thereby securing a network of productivity of the highest professional order.

The academy is incorporated under Swiss law in conformity to Article 60 of the Civil Code and is tax-exempted world-wide for all contributions received.

The objectives of the Academy are:

1. To contribute to the enhancement of productivity science and the realization of human efforts through transnational studies, appraisals and recommendations in an objective manner;
2. To function as a transnational forum for all subjects of productivity science and the human consequences and policy implications of productivity practices;
3. To establish and maintain working groups to study problems

associated with productivity science and development from a global point of view;

4. To organize lectures, meetings, symposia and conferences, and to organize, conduct and disseminate studies, which further the academy and also productivity science;
5. To promote and administer honours and awards which encourage institutions and individuals to advance the aims of the academy and the WCPS;
6. To promote the establishment of chairs, faculties, and schools furthering productivity science;
7. To develop and maintain contact with organisations whose work is directed towards productivity science, human welfare and development on a global scale;
8. To cooperate with other organizations which share the academy's objectives and purpose.

The Belief

The World Academy of Productivity Science affirms its belief that expansion of science and technology have placed at the disposal of mankind an unparalleled instrument for the fulfillment of its goals which is possible only by integrating what mankind knows and how it can serve the global cause not by being distant from humanity but by offering a means whereby inquiring minds can polarize their knowledge and wisdom towards the progress of mankind in a continuously changing environment.

First Grand Ceremony

It was at the 7th World Productivity Congress held in Kuala Lumpur (Malaysia) in November 1990 that a major decision was taken to make the Members of the International Advisory Council of WCPS as Founder Fellows. This followed the first inaugural ceremony held on 20th November, 1990, when all the founder fellows wore the ribbon of the academy and the badge, lighted candles and marched on the dais to celebrate the first convocation that affirmed as under:-



Dr. A.N. Saxena (India) Secretary-General, World Academy of Productivity Science, leading the first convocation ceremony in Kuala Lumpur (Malaysia) November 1990. Seen in the picture are among others, Prof. Tor Dahi (President WCPS), Admiral Sudomo (Indonesia), Ir. Haji Arshad (Malaysia), and Dr. Koh Juan Kiat (Singapore)

"We believe that Productivity Science unfolds a new horizon and a new basis for the global community to come nearer to the great ideals and vision of universal values and that we have a noble commitment to make a contribution to the common goal of economic and social wellbeing by fostering interrelationship of nations and people, by disseminating total productivity knowledge, and by improving the lost harmony between man and nature."

Why The Need

The world is not good at getting together to make productivity efforts, so the argument is usually phrased in national terms.

If our people and resources can produce more, we as a nation will have a higher standard of living. Or even, the argument, if we as a nation can help our major trading partners to be more productive, we will also benefit. The WAPS argument is a sub-set of the latter; if productivity experts from several cooperating countries get together, knowledge and soft technology will be transferred to the mutual benefit of the participants, their organizations, and their countries.

If productivity improvement is good for the world and good for a nation, it is good for the component organizations of the nation, whether

public or private sector. The public sector argument is easier; public entities are more oriented to the final outcome. More knowledge aimed at the standard of living improvement, the private sector argument usually revolves around their selling more product or services to the world if the world is healthier, smarter and has more leisure time.

Lately, quality has partially replaced productivity as the operative concept at the organizational level in the more developed countries. There are few things a developed country is scarce in; what is needed is better quality products and services, so the rather ‘mechanical’ or just plain ‘more’ is not appealing. Also, when the demand for a product or service flattens out, it is no more a product from the same workers as much as it is the same product from less number of workers, and ‘downsizing’ arises. Quality of process requires quality of workforce and workplace. So many of the quality issues become ‘good management’ issues rather than technical ones.

People familiar with research know that it is not sufficient to simply compare current practices in any field. That is useful for those who ‘manage’, and it is especially good at bringing the poor up to the level of the good. But someone has to move ahead and develop the next generation of ideas, techniques and practices, so that the merely ‘good’ have somewhere else to improve upon.

WAPS exists to develop and communicate these new ideas. The exact mechanism for doing so will be discussed and developed among members, and it is safe to say that modern electronic communication means will play a key role in giving intellectual leverage to the world.

The Mission

In its mission, WAPS seeks to function as a vibrant body with a leadership team to scale new peaks of performance and discover new disciplines with a sense of service and dedication to the lofty cause of the progress of mankind based on the principles of equality, fraternity and global cooperation and to function in tandem with the national centres of productivity to play a constructive role by advising and helping them to recognize that productivity efforts for the improvement of the quality of life, in the belief that unless people can breathe freely and live happily, the mission of ‘peace and prosperity through productivity’ shall remain incomplete.

The fellows of the academy are men of eminence and scholastic distinction who commit themselves to promote productivity as a science. They are drawn from all parts of the world and their efforts are continuously directed towards human welfare to promote and popularize productivity science through five Divisions: African, American, Asian, European and Oceania (Australia/New Zealand), and act as effective instruments for continuous innovation and improvement.

The Criteria

Fellowship of the academy is open to people of international repute in productivity science, natural and social sciences and the humanities. Fellowship is determined by the Executive Board on the recommendation of the nomination committee designated by the Executive Board and it is in the obligation of the Board to ensure that the Fellowship represents diverse national disciplinary backgrounds with a view to obtaining the broadest possible representation.

Some important obligations on the part of the fellows of the academy are: To contribute to the enhancement of productivity science and realization of human efforts through transnational studies that are appraised, and the recommendations made in an objective manner.

To function as a transnational forum for all subjects of productivity science and human consequences and policy implications of productivity practices. To establish and maintain working groups to study problems associated with productivity science and development from a global point of view.

To organize lectures, meetings, symposia and conferences, to conduct and disseminate studies, which further the objectives of the academy and of productivity science.

To promote and administer honours and awards that encourage institutions and individuals to advance the aims of the WCPS and the of the academy.

Selection Process

The fellows of the academy are chosen for their eminence in productivity and social sciences, individuals who help to develop and refine the vision, and promote the mission of using productivity development to help create the conditions within which world peace can be created.

The fellows represent the world's brightest minds focusing on productivity issues, who use those minds to carry on the development of productivity science, and we recognize that there are new challenges emerging.

Over the next few decades, the world has to find ways of providing enough food, water and energy to meet the aspirations of those who have been so far denied the benefits of wealth that the developed countries take for granted. Only the continued development of productivity across all industries and commercial sectors can deliver the benefits that citizens of newly emerging economies seek and deserve.

WAPS Fellow Directory

WPAS being a networking organization amongst peers and professionals interested in the field of productivity science, it was recognized to be of extreme importance that a directory of fellows should be available. Accordingly, the first Directory of Fellows of the Academy was published in the year 2000. The same is now updated and is printed in this publication. A questionnaire is also being prepared.

WAPS (International) News

It was at the 8th World Productivity Conference in Montreal in 1988, that the WAPS was formally established under Swiss Law with an elected President and the Executive Board. Dr. Krish Pennathur became the First President with Dr. Martin T. Tviet as Vice-President (International Affairs), and Dr. A.N. Saxena as the Secretary General.

In a policy decision at this conference, WAPS was entrusted with the task of publishing a WCPS/WAPS newsletter. This responsibility was accepted by Dr. Krish Pennathur and Dr. A.N. Saxena and the first newsletter was published from India in 1989. Its popularity in due course elevated its stature as quarterly WAPS (International) news. As an international newsletter it attracted not only WAPS fellows but national productivity countries and international bodies and agencies as well.

In its role, it recognized communication as the life line with focus on news, views, important events and activities of WCPS|WAPS including those of National Chapters / Network Partners and most importantly through publication of leading articles from experts promoting productivity science and advancement of management and productivity both nationally and internationally.

Its format however, changed after 2000, when it re-defined its role as under:

Productivity Science in the new millennium is encompassing every human activity of social strata with evidencing roads and indications of growth in the fulfilment of its cherished goal of 'peace and prosperity through productivity.'

WAPS/ILO Global Net Work

The WAPS in collaboration with the ILO has established a WAPS/ILO Global Network in India, offering excellent opportunities for exchange of information, news on events, learning new lessons and establishing new contacts. This Global Network seeks to function as a transnational forum for all aspects of productivity science and policy implications of productivity practices by interacting with organizations whose work is directed towards productivity science and human welfare on a global scale.

ILO Global Network is publishing a periodical Productivity and Management Development Programme Networking Bulletin and monographs which are widely circulated to fellows of the academy by the WAPS/ILO Global Network to collaborating institutions, organisations and individuals.

The Road Ahead

In retrospect we have welcomed the induction of fellows around the world who have made and are making significant contributions to their countries, their regions and the world. They recognize the challenge for the future, to find ways to promote their work to a larger audience in order to show WCPS and WAPS can make a difference in the world for rapid progress and development.

The challenge facing us today is how can we ensure the vibrancy of WAPS for the next 25 years? How will we remain true to our core values and at the same time remain relevant in a changing world? A recent survey of our fellows has provided some insight into the way forward for WAPS. The overwhelming sentiment of our fellows is that they desire ways to network with other fellows around the world in order to learn and improve their knowledge, increase their understanding of other cultures and share their expertise with colleagues around the world. Traditionally, we have provided that opportunity through our World Congresses, but face to face networking has many advantages and has enabled many in

our community to develop lasting personal and professional relationships with other colleagues. They believe that we must continue to promote opportunities for face to face networking. However, this alone is not sufficient. We need to explore other ways as well to collaborate via the rapidly exploding technology options which are available. This will enable WAPS to continue to build and share and expand the base of knowledge of the productivity science.

Thoughts of Contemporary Leaders

Productivity Science Wisdom

Thinking, learning, remembering, imagining and creating new ideas, preserving and communicating knowledge over distances in time and space, makes us human.

Just as caricatures and political cartoons can be useful catalysts for thought, so also extreme views of man's future stimulate creative thinking. Simple diagrams can have a similar creative function or as Vince Lombardi sees it, "The quality of a person's life is in direct proportion to his commitment to excellence, regardless of his chosen field of endeavour".

True creative wisdom of productivity is fulfilled when we have found the law which created productivity in the first place. People are most creative when they do not have a closed mind.

Here is a word from Konrad Adenauer, "We are all born under the same sky, but we all don't have the same horizon". Some folks are wise, and some are otherwise.

The value of wisdom in productivity and productivity science should not be judged by the measure of its acceptance in the public, because sometimes its value is prophetic.

The Heroic Age of Inventions

From man's inventiveness has arisen the vast difference between his way of life.

Who are the geniuses who made our civilisation possible? From all the tens of thousands of millions of men and women who have populated the Earth, only a few thousand - say 0.00001 percent have had the creative genius to conceive something new and useful. Their inspiration did much more than raise the standard of living. What makes these men so highly

productive? The best way to bring out a person's real intelligence and get all his power working is to find his real interest.

A child may be the lowest performer of his class for years and cannot keep up with the other students and suddenly he or she blossoms out. Some emotional problem did hold the child at the bottom.

Elias Howe invented the sewing machine, but it nearly rusted away before women stopped laughing about it and could be persuaded to make use of it. With their sewing done so quickly, they argued, what would they do with all their spare time?

Men are as bad as women when it comes to resisting new ideas. The typewriter had been a success for years before businessmen could be persuaded to buy it. Only when Remington sold patent rights to the Caligraph Company, and two groups of salesmen worked in competition, was the resistance broken down.

Robert Fulton, who built one of the first steam ships in the world and changed the world from sail to steam, wrote in his notebook:

"As I had occasion to pass daily to and from the shipyard where my boat was in progress, I often loitered near the groups of strangers and heard various remarks as to the object of this new vehicle. The loud laugh rose at my expense, the dry jest, the wise calculation of losses or expenditure, the dull repetition of Fulton's Folly. Never did a single encouraging remark, a bright hope, a warm wish cross my path."

The moral of this story is clear: If we are to learn anything from history we have got to rise above the fear of laughter.

A world without change is a world without hope. To reject change is to reject tomorrow. No invention has done more to make life productive and work easier than the invention of the wheel in Asia, about 3500 B.C.

Every inventor has also a certain amount of audacity. The dream of flying is one of the oldest in human experience and yet it has been among the most recent to be achieved.

Over the centuries, inventions have consistently changed the world, but the decades ahead promise more beneficial changes from the easing of pain to the lessening of noise, to the alleviation of hunger and of malnutrition.

Thinking the Unthinkable

When Columbus set sail for undiscovered lands, it was thought that he would find strange, weird creatures inhabiting the lands, creatures such as our science fiction people dream up, people with huge heads and little bodies. Instead, Columbus found men like himself.

Will this hold true when our twenty-first century space-explorers embark on their long voyage of discovery?

“How do we know what is impossible”, said Francis of Assisi, “Until we try?”

Anyone who thinks that the sky is the limit no longer has any imagination. Already, 3000 years ago King Solomon warned the nations, “Where there is no vision, people will perish”.

A punch-line attributed to Marie Curie says, “Nothing in life is to be feared, it is only to be understood”.

There are theoretical and practical reasons – which pose productivity science the eternal question: Why the principle of cause and effect, which says that every event must have a cause, and every identical cause must have the identical effect? Is questioning today under scrutiny by space science and technology?

Over two hundred years ago, the Scottish philosopher David Hume (1711-1776), of the school of empiricists, was of the opinion that common sense reason, cannot give us a satisfactory answer to the question why certain symptom or phenomenon ‘A’ creates a certain phenomenon ‘B’, and therefore the necessity of coherency sometimes remains concealed. He stressed the point that we often deal with things in life which have no cause, only pure logical reasons, like the fact that for the theorem of Pythagoras there is no cause, only a reason.

The “actual” is limited, the “possible” is unlimited. Or as Eleanor Roosevelt would say, “You must do the things you think you cannot.”

Productivity Science and Technology

Modest and limited is all human knowledge in comparison with all the questions for which we have only one answer - ignorance. Most fights in philosophy are about our ability, whether we are able to replace ignorance with facts. Often the definition of a subject is more problematic than the subject itself.

Regardless of these shortcomings, it is the duty of science to search for truth and express it clearly. Since the scope of any single science is too big for any one person to cover completely, it would be audacious for anybody to claim sovereign command in any one single science. More so, productivity science.

But, if we did not have science, society could not survive, and science would have to be invented all over again.

Scientists strive for absolute facts. However, facts are not always available, not even in mathematics, and we have to be satisfied with assumptions, axioms, guesses, approximations, etc.

It is similar in productivity science. Of course, we can measure productivity in many ways, but these are mainly proximities. Speaking scientifically, it is so far not possible to cover all the interactions, correlations, etc. of all the factors influencing productivity in one mathematical equation.

In the larger sphere of societies and nations, the lack of a comprehensive and well-presented body of productivity science knowledge was never more evident. **The equations which would lead to a science of total productivity and to a master-science of the universe are still outstanding. Some scholars are of the opinion that it is an impossible-task. But what is impossible? It may be impossible today? But not tomorrow?**

The present laws of science one day might be in doubt again. The explanations of Newton and Einstein do not fully satisfy present scientists.

Newton explained in a mathematical model why gravity holds the planets in an elliptic movement. Einstein gave us the theory that the star light will be bent by the sun's gravity.

In 1966 it was found that the sun deviates by 62 km in diameter due to gravitational forces. We measure and measure gravity and still we do not understand gravity any better.

To be productive, scientists have to have a vision, a big imagination. Do not underestimate the power of a small united scientific community.

We are just in the kindergarten of uncovering things, and productivity science is no exception.

Productivity Everywhere

Productivity science applies to the macro-cosmos as it applies to the micro-cosmos. The successful soft landing of Viking-I on the surface of Mars is another fantastic technical progress that man has achieved.

Because this was an unmanned flight with its brain still earth-bound 212 million miles away, there was an unusual amount of emotional change in the usual cool scientific atmosphere when the touchdown signal was received at the Jet Propulsion Laboratory control room in Pasadena about nineteen minutes after the lander gently settled on the Martian surface and began its superb transmission of detailed pictures. To solve this problem in space technology, it took nearly ten years and a billion dollars to design and produce.

More than 200 scientists and engineers keep Voyager II productive which was originally designed for a four-year probe of two planets but is still going on even after 11 years and has covered 3 planets.

Astronomers at the Anglo-Australian Observatory are committed to compile the world's first detailed map of the universe using a revolutionary robotic instrument for large scale cosmology.

Looking out as far as 6 billion light years, the team will be able to assemble a three-dimensional map of the structure of the cosmos of 250,000 galaxies, representing a small sample of the 100 million believed to exist within current observation range (Prof. Dr. Bland-Hawthorn, using a 3.9-meter telescope of AAO).

In the Machine Age, science took the world apart, dividing itself into narrow disciplines, each discipline represented a different way of looking at the same world. Systems science began to put itself back together again so that it could study phenomena as a whole, from all points of view. As a result, new inter-disciplines emerged such as operations research, cybernetics, systems engineering, communication science, environmental science, etc.

Society is asking Productivity Science two questions:

1. What are you doing to us with all the knowledge you have discovered?
2. What are you doing for us to help us solve the serious problems facing mankind?

Science, in order to be productive, needs a soul or conscience. Science is not good or bad intrinsically, only the application of it is good or bad. To make science a good science we have to advocate the social responsibility of science.

Productivity Science is human-oriented, is part of our culture, is the serious part of life.

The general tendency of public opinion is anti-science (anti-intellectual) because of some arrogance of some half-academic people; half-knowledge swells and inflates. Productivity science distortion is still great and most of the so-called scientists fail to recognise its depth and dimensions.

Productivity science is not a cold world of numbers; it creates a greater acceptance of human values. We therefore need more people who can interpret productivity science in more simple terms.

**(Dr. Walter Aigner,
one of the founders of the world body,
a rare intellectual and a
Founder Fellow of the WAPS)**

Political Policies and Productivity Science

The Importance of Government

There are six pillars of productivity science that have a profound influence on productivity: society, government, technology, quality marketing and capital. Although all the six elements are essential for enhancing productivity, there is one overriding factor among them that can elevate a nation and its productivity to the pinnacle or debase it to the very nadir: it is the 'government' factor. The political policies of the government in power and, more particularly the shaping of the nation's destiny by the leader of the party in power, has a vital influence on the other five pillars of productivity. The stronger the leader, the greater would be the influence.

It may be of interest that the subject of political leadership was discussed at the annual meeting of the International Society of Political Psychology held in Washington, USA, in July 1990. Dr. Elliot Jaques, a psychologist and consultant to the US Chief of Staff said, "There is no such thing as leadership per se. But the so-called great leaders through the millennia have had a vision of at least 100 years". The Conference Chairman Mr. Jerrold Post described a political leader as an event-making person shaping his times, rather than an eventful person presiding over activities as they occur. The event-making leader has the capacity to hold out a new idea in front of the people.

The Role Of Government

Basically, a government is a trusteeship of the society it represents.

A good government actively contributes to the economic growth and prosperity of its society; through sound policies, planning and fiscal measures. It helps promote trade and commerce, with strong emphasis on exports. It carries out these roles in the most productive manner possible.

A government governs. Governing has an unsavory connotation of "ruler-subject" relationship. In reality, this is the relationship that prevails,

even in many democracies, and not that of trusteeship. This purpose of a government is to administer the affairs of the nation in the best interests of the society. The term ‘administration’ is much more preferable to the term ‘government’.

The great Adam Smith, who passed away 200 years-ago (July 17, 1790), in his work *Wealth of Nations*, had ascribed only three tasks for a government:

Providing defense for people against the violation and invasion of other independent societies.

Protecting every member of the society from the injustice or oppression of every other member of it.

Providing certain public works and certain institutions which cannot be erected or maintained by any one individual or a small number of individuals.

Factors Influencing Political Policies

Market Economics

The London Economist, in its July 14, 1990 issue, published an article ‘The Modern Adam Smith’. It says that the Scottish philosopher Adam Smith’s views have been bent in modern days to permit a great deal of government intervention. “Despite the collapse of Communism, despite the triumph of market economics, despite Ronald Reagan and Margaret Thatcher’s role for the State in nearly every sphere of socio-economic life is accepted uncritically almost everywhere. Therefore, people have grown so accustomed to pervasive government that they no longer even notice it.”

Many eminent theorists of economics and political science aver that as long as a country has a multi-party democracy and allows free trade, nothing can go wrong with its economic growth.

The London Economist, for which I have the greatest admiration, has stated that “Multi-party democracy and free markets serve the people of every continent. To argue that the Africans are not ‘ready’ for them is a device to keep autocrats in power and an insult to those they misrule.” (April 7, 1990).

Further, multi-party democracy may not be the harbinger of higher productivity in all countries. Minority governments run with the support of a few other parties or independents or a coalition government would just

carry on with the day-to-day business and not take any positive measures to promote productivity. Even a majority party running a government may have counter-productive policies because of its ideologies.

Also, the type of government a country needs depends on the culture, ethos and disposition of the society and on the state of her economic development. Democracy may not be the answer to certain countries during certain phases of their development. But it is universally felt that autocracy and dictatorship are bad.

These need not always be so with respect to some countries during specific phases of their development.

Requirements of a Government

Whatever be the type of government, three basic conditions must be fulfilled for productivity growth:

- An honest and dynamic policy incorporating pragmatic development plans, woven around the core of productivity science.
- To channelise all available resources into the development plans on the basis of allocated priorities and time frames.
- To ensure correct and full implementation, without corruption, wastage and diversion.

It is the quality and probity of the leader of the government that ultimately matters, irrespective of the type of government. The leader need not be an expert in economic development or productivity promotion. As Field Marshal Slim said, a leader must have the gumption to seek the advice of the specialists in their respective fields and have enough sense of judgment to know which recommendations to accept, which to modify and which to even reject outright.

Democracies: Socialistic Policies

In a multi-party democracy, it often happens that a political party with socialist ideologies comes into power through fair and free elections. The policies of such a party running the government would be based on socialistic principles based on value systems which would be at variance with those of a capitalistic or a middle-of-the-road political party.

It should not matter which 'ism' influences the political policies except for the fact that the socialistic pattern often stifles economic development and totally ignores that all-too-important factor of productivity. It paves the way to the hell of economic stagnation and quite often, deterioration.

Nationalisation

Let me admit that conceptually there is nothing wrong with the concept of nationalisation. Given autonomy and freedom of action, protection from political interference and disassociation from ideological linkages to social costs and benefits, it is possible, at least in theory, for a nationalised industry to survive and compete profitably.

This view is endorsed by Sir Christopher Foster, Commercial Policy Adviser to British Telecom and Visiting Professor, London School of Economics. In a recent lecture, he said, "Political constraints severely limit their (nationalised industries') ability to aim for profitability. Looking at the whole period of government's involvement in industry, the conclusion to which one has to come is it would have been better if it had not intervened at all. Compared with the private reconstructions recently, public reconstruction is unimpressive in its results as well as in its means".

It is an ironical fact that the beginning of nationalisation in Britain was the product of a conservative government. The first casualty was London transport. The reason was economy of scale. Government control was negligible, confined to borrowings and capital expenditure. Government interference and large-scale nationalisation started and increased with the Labour Party in power.

In a lecture on 'Curing the British Disease' in London in 1976, Milton Friedman said, "the most obvious thing to do with the steel industry and railways and all the other industries currently operated by the government was to get rid of them by auctioning them off. One suggestion which I think makes a great deal of sense would not be to auction it off but to give it away by giving every citizen in the country a share in it".

Privatisation

It was Mrs. Margaret Thatcher's Conservative government that started 'privatisation' of nationalised industries. Mr. John Moore who as Finance Secretary to the Treasury was in overall charge of the government's privatisation programme, made the first comprehensive statement of the objectives in 1983. From 1983 onwards, the government began to undertake the rather more difficult privatisation of government monopolies.

Britain has pioneered the concept of privatisation (which has now been adopted by a number of other countries) and it forms a key element of the government's economic strategy, with the aim of increasing business efficiency and encouraging wider share ownership. It is being implemented

in a variety of ways including the sale to the private sector of some or all of the government's interest in a number of nationalised industries.

In most cases, privatisation has resulted in higher levels of output, profitability and investment, and improvements in industrial relations for the firms concerned. It has also had a major impact on the pattern of share ownership.

Where privatisation has been accompanied by other changes to increase competition, this has also led to benefits. For example, significant changes in the telecommunications market occurred with the privatisation of British Telecom and accompanying measures to promote competition. Liberalisation has been an important factor in the development of the sector, one of the fastest growing in the British economy.

The privatisation programme was launched not because the nationalised industries were operating at a loss but because the profits, competitiveness and productivity were low. This is in contrast to the nationalised industries in some other countries which are running at huge losses and are kept alive by the governments by throwing good money after bad, at the tax payers' expense.

Challenges for the Future

What are the productivity problems of the future? At the Los Angeles meeting of the International Forum of the Institute of Industrial Engineering, USA, held on May 20, 1985, I had, in my inaugural address, spoken at length about the differing perceptions and applicational needs for different regions and different countries. I had pointed out the pitfall in adopting other countries at different stages of development to develop their own individual productivity strategies based on the type of the socio-economic challenges they face.

Effects of Single European Market

The Report, '1992 - European Wealth, Third World Poverty' launched in London on May 10, 1990, by Britain's Shadow Minister for Overseas Development and Cooperation, Ms. Ann Clwyd, warns that the establishment of a single European market in 1992 could spell economic 'catastrophe' for the Third World.

"While the traditional trade preferences of the poorer countries with individual European Community (EC) countries are eroded, they will face the greatest difficulties in expanding over 12 nations because they lack

marketing and advertising skills or the funds for direct investment”, Ms. Clwyd said.

The poor and developing countries may not be in a position to increase the quality standards and raise the level of productivity high enough to meet the stringent standards set by the EC for the single market. For example, Mozambique, one of the poorest countries in the world, depends on selling prawns, constituting 40 per cent of her exports. If Mozambique cannot meet the new Shell Fish Standards of the Single EC Market, its export industry will collapse totally.

Protectionism

A great deterrent to higher productivity in developing countries is the political policies and protectionism practised by industrialised countries.

One of the many glaring examples is Europe’s Common Agricultural Policy (CAP). Through this policy of the European Economic Community (EEC), free trade, international fairness and consideration for agriculture-based developing countries have been sacrificed at the altar of political expediency and chicanery. The policy entails an investment of US \$98 billion by the European community (2 per cent of its GDP) towards subsidies and price supports for farmers who comprise 7.5 per cent of the community’s work force. The irony is that the policy benefits the rich farmers and not the needy ones (following the pattern of all governmental social welfare programmes. This infamous policy has taken the bread out of the mouths of poor farmers in the south, the south-east and eastern Asia. Thailand, the rice bowl of the world, is unable to get any remunerative price for rice exports.

In the USA, for instance, the cost of protecting each job in the textile industry is approximately four times the annual wage of a textile worker. The USA was no laggard either as far as farm subsidies and price supports were concerned although it has cut this down by 30 per cent during the period from 1986 to 1990.

The World Bank has pointed out the double standards of the USA in trade by noting that Washington has raised its own level of protective barriers to that which prevailed in the early post-war years even as the American threat remains of unilateral action against other countries under the American ‘Super-301’ legislation. In its latest world development report, the bank estimates that non-tariff barriers in the USA on steel, automobiles and textiles amount to the equivalent of an additional tariff of 25 per cent, raising protection to the level in the mid-forties.

With dramatic changes taking place in eastern Europe, there is a growing fear among the developing economies that industrially advanced countries like the USA, those in western Europe and Japan might offer high trade preferences to eastern European countries. This fear may not be totally unfounded. By using high ingenuity, this potential threat must be converted into opportunities through productivity and diplomatic strategies.

Solutions had to be found to end these protectionist measures by the modification and strengthening of GATT through the Uruguay Round, which was scheduled for completion by the end of 1990.

Protection in developing countries burdens consumers and industries that need imported inputs, and it creates an environment that rewards inefficiency. Competitive industries, for instance the automobile industry in Korea, and the production of commuter airplanes in Brazil - have sometimes been built behind protectionist walls, but such success is rare, and failure is all too common.

Countering Protection Policies

The World Development Report of 1990 may be critical of the insularity of the rich. It may emphasise the two tasks which the G-7 countries must pay immediate attention to: erasing the debt burden on developing countries and lowering trade barriers to world trade.

However, advanced and affluent countries are not going to pay much heed to this report unless pressure is brought upon them to change their governmental/community policies. One answer seems to be south-south co-operation, raising Productivity issues to a regional level.

Leaders of 15 developing countries held a three-day summit in June 1990 at Kuala Lumpur and resolved to turn the G-15 into a powerful 'action group' of the South to effectively represent the case of the poorer nations in international forums, in close consultation with the G-7. Malaysian Prime Minister Er Mahathir bin Mohamad said the summit provided a take-off point for intensive south-south co-operation in concrete terms and helped in the formulation of suitable strategies for solving the Third World's ills. He pleaded for new approaches to enable the south to benefit from the wealth of the south.

This underscores the governmental policies of the G-15 countries to coordinate their efforts at improving and accelerating not only national but also regional productivity growth.

WCPS Initiative

The World Confederation of Productivity Science has established a south Asian division, under the presidentship of Dr. M. P. Narayanan of India, for coordinating the regional productivity effort and enhancing national and regional productivity growth among the member countries of the South Asian Association for Regional Cooperation (SAARC).

These would help towards accelerating the pace of productivity enhancement in developing countries.

But how can the developing countries bring pressure to bear on the advanced nations to make them end protectionism and open the doors for free trade and imports from developing countries?

It is with great hesitancy and trepidation that I summarise the highly unethical views of a militant political bigwig: "Let us, the developing countries, by all means use our collective bargaining power in the international community and the North-South forums, as suggested by Mr. Julius Nyerere of Tanzania. But reasonable and persuasive means are unlikely to change the policies of the rich nations. Then, drastic remedies are needed to combat drastic situations. We can go one step further than the OPEC in bringing the exploiters to their knees. We can refuse to cooperate in combating terrorism and, more importantly, in curbing the production of drugs like cocaine. Apart from Latin America, we can upgrade the Golden Triangle into a Platinum Polygon."

I fervently hope that such obnoxious measures are never resorted to and that the spirit of moral obligations, international goodwill and enlightened cooperation will prevail for the promotion of economic growth and higher productivity in the developing countries.

Exports

In developing countries, instead of exporting merely raw materials, intermediate or higher borrowed technology should be used to produce value-added products from available raw materials. Achievement of appreciable exports would confer many advantages on the developing nations. It would enable the financing of imports. Higher technology can be bought, emulating Japan, refined in order to produce and export sophisticated products. Foreign debts can be slowly returned, and debt-servicing rendered less of a nightmare. Exposure to competition would act as a spur to achieving higher productivity, leading to further growth in the foreign and the domestic markets. The governments' policies should

encourage expanding investments, increasing productivity and higher export growth.

If the real exchange rate is carefully managed, export volume could grow at a healthy 8 to 10 per cent per year. Measures have to be taken to restrain, if not avoid altogether, fiscal deficits. This would ensure that the cost of debt-servicing does not hinder in any way, sustained economic growth resulting from higher productivity of investments. It would also enhance the external reputation for creditworthiness.

The bottom line is that developmental, economic, industrial and export policies of the government of every developing country should be woven round the core of productivity science.

Dr. Krish Pennathur

Former President WCPS and
Founder President WAPS

Productivity Science as a basis for National, Public and Corporate Strategy

Circumstances and general conditions, affecting human beings worldwide today, change at a speed and to an extent that nobody before us ever experienced, or could have imagined.

The world and homo sapiens should, with a little luck and application of general wisdom and practical industriousness, see more good things coming our way in the new millennium.

It was only in 1983 that scientists inserted the first foreign genes into tobacco plants, with astonishing results. In the years since, similar and advanced techniques have been applied to about 50 species of fruits, vegetables and grains. Tomatoes are now being produced that rot slowly and can easily be distributed over wide areas and kept in markets with quality preserved for weeks. Genetic alteration of corn, the number one crop in the U.S. can now be administrated so that the nutritional level is greatly increased.

Cross breeding between species may soon reshuffle genes, not only in particular species, but also for instance between corn and soybean.

In the animal world, similar developments are taking place. Genes can be exchanged between cows and pigs, and genes from bacteria and marine specimen can be brought into production of chemical compounds, like insulin and others.

With the advent of the twenty-first century, the world of agricultural resources may change things to a point where we soon look to our period as the “middle age” in farm practices.

Of course, there will be objections and hesitation to the extensive practice of these new techniques, but I see only limited cause for this anxiety, and profound blessings from the developments to come.

Another hopeful development of enormous significance is the Swedish findings of an entirely new radar that can detect water movement and

reservoirs down to several hundred meters underground. This is developed by the military research establishment of the Swedish Defense Department. Taking all precaution for timing, my thinking would point to the fact that this method can be applied from aircrafts or helicopters worldwide with practical implications on water supply that today is almost beyond imagination. These research efforts which so far have been conducted for military purposes and only spilled over for civilian research, will be grossly extended, and the spill-off will be picked up by military interests.

Being a bit cynical, I am claiming that knowledge has seldom been the real drawback in securing welfare. And yet, only marginal application of new technology and science, in general, has come first to civilian needs, while the military has been allowed to preserve for its own, exclusive use, enormous amounts useful principles and knowledge.

We productivity scientists must also accept the blame for having had only marginal ability to transfer our knowledge to practical application except in rather restricted areas.

Some Reflections From The Past

I was most fortunate to have a good part of my education from British universities. I do not exaggerate when I say that hardly nowhere, if any place in the world, did so much knowledge, science and technology be at hand as in the U.K., but hardly nowhere did I experience that industry, agriculture and other useful undertakings had little benefit from these outstanding resources.

In Europe, productivity science as a basis for national, public and corporate efficiency has been the most overlooked factor due to lack of productivity knowledge and is grossly to blame for the current situation and for most of the misery.

Analysing productivity components every country and every government have about the same priorities:

- Create new jobs
- Make existing jobs more productive and secure
- Lower taxes
- Increase take-home pay
- Reduce inflation
- Increase tax revenues

- Reduce job stress
- Increase job satisfaction
- Maintain ecology and environment

It is very interesting to note that every one of these priorities can be met, if the productivity of a nation's human and capital resources is significantly increased. Productivity improvement is the single most important strategy for dealing with the most pressing priorities of any entity, whether it is a city or village, a country or a state, a nation or a region.

Some Lessons In Productivity

If we study the literature on productivity, we find that it divides into macro measures (those policy issues that affect countries, regions, or industries), and micro measures (those policy issues that apply at the level of the firm). There is good evidence that the following macro variables affect productivity:

- Changing composition of the workforce
- Investments in human and physical capital
- Technological advances
- Economies of scale
- Reallocation of resources
- Lower to higher productivity activities

Parallel with these factors, we have seen government action designed to make full use of the potential of these sources. These include but are not limited to: Facilitate the changes from a farm economy to an industrial and knowledge economy, and support the absorption of labour force; Provide education, training, free movement of the labour force, and specific incentives for investment, such as tax-free savings, accelerated depreciation schedules, and low interest-rate loans.

Need For Research

Provide research and development funds.

Encourage mergers and consolidations and establish export assistance to industries that benefit the most.

Assist with the economic restructuring that occurs when international competition changes the comparative advantages of a nation or a region.

Regardless of what type of economy we are talking about, the basic

productivity problem is the same: How to produce the most from all existing resources.

The main reason for this is that decisions to improve productivity are made by millions of decision-makers, far removed from government ministries, and these decisions are made all the time, every day. It is these decision-makers that make national objectives come true.

Rules For Survival

In a competitive world economy, there are certain rules for survival. Those who survive in a competitive environment, be they small businesses or large, complex companies, appear to follow a certain pattern:

They are cost-effective. In competition, the only way to achieve a surplus is to be cost effective. But having a surplus is not enough! It must be deployed for productive use and it should be ensured that successful competitors invest their surplus in products or services or investments that give them a monopolistic advantage. Thus, they create new niches by moving into something no one else occupies, or by linking to other compatible entities so that a new product or service is created for a new or old niche. Such monopoly advantages never last, as even AT&T and OPEC have discovered. But as long as they are available, more surplus will be created in the process.

Thus, to survive over time, one must continuously be cost-effective so that a surplus is produced; that in turn must be used to create a new monopoly advantage that yields more surplus, and so on, in a steady, upward spiral. Falling off that spiral is very dangerous. The competitive environment requires eternal vigilance.

But the merciless laws of competition do not negate its opposite, that is co-operation.

For example, biology tells us that no single species shares its particular environmental niche with many other species. Every creature occupies its own defined niche. This niche cannot be abused.

Therefore, the only strategy that is likely to work across species and niches is co-operation.

Lawyers settle a case out of court to avoid great expense and undesirable exposure: person-to-person co-operation. When each distinct party meets the needs of the other parties, survival is achieved.

However, co-operation only works if it leads to either better cost effectiveness or other advantages. That is why thoughtless business mergers, or the creation of inefficient conglomerates have led to low productivity, unemployment, and cries for regulatory intervention.

It was at the sixth World Productivity Congress held in Montreal that the world body approved a definition of productivity science as follows:

We believe that organized human activity can be improved, continuously and without end, and that research on and the practice of such performance improvement processes can benefit mankind.

We believe that such improvement starts by recognizing what should be produced or provided (effectiveness), in what manner it should be produced or provided (efficiency), and that production or provision of goods and services should occur without breakdown or waiting time (occupancy), when it occurs.

We believe that effectiveness exists when organized human activity is directed towards meeting genuine individual and social needs, whether inside or outside the organization, and that effectiveness embraces and presumes the concepts of quality, as determined by the satisfied acceptance of the product or service.

We believe that occupancy exists when effective and efficient human activity occurs continuously and without interruption, when it occurs.

We believe that when human activity becomes steadily more effective, efficient and more fully occupied, mankind will benefit by a higher standard of living, greater freedom to develop and create, and expanded opportunities to address and correct the problems that confront the world.

This definition provides an operational guideline for identifying potential for productivity improvement at all levels.

With what I have claimed, that man himself, is the most active “break” man in utilization of our knowledge, feel confident that with our newly recognized productivity science tools, we are destined to see developments taking place around the globe as plain outstanding.

Dr. Martin T. Tveit
Former Chairman WCPS and
President WAPS

War and Peace and Productivity Science

There might be a pedagogical problem about the statement that productivity must be defined upon ideals of peace and prosperity/happiness instead of narrow-minded profit seeking efficiency. It has been true that industrial efficiency or even industrial relations increased significantly or improved strongly during serious crises or war periods. Reflecting exactly such facts, we would arrive at the proposition which is rather instinctive in nature, i.e. the ideal aspect of productivity being “Peace and Prosperity Through Productivity”.

Value Aspect Productivity / Creativity Lying Upon Arts and Sciences

The fundamental aspect of this must necessarily be an integral part of the principle of humanity in social-spiritual life and the principle of productivity narrowly defined, lying between a blessing of Mother Nature and human activity as a calling.

In the sermons of the Buddhist monk, Dogen (1200-1253), we see:

“Even broad and comprehensive knowledge cannot be practical if you don’t truly appreciate the love of Nature.” (Treasury of Knowledge of the True Law, 1231-1253).

Leo Tolstoy, Russian novelist and moral philosopher, says in his theory of art:

“There must be no reason that all sorts of races having different religions and teachings cannot understand the role and function of arts of human feelings rooted in God i.e. pleasure of engaging in the inborn activity of mankind.”

“Duty of art (human creativity: KK) is to establish the principle of love, i.e. the supreme object of human life instead of violence.” (Summary

of Tolstoy's ideal by KK, Tolstoy, What is Art, 1897/98, War and Peace, 1869).

Professor S. Langer says that creation by an artist may be called virtual substrate (Langer, 1957). We can find out the field set as such by Langer, in which Tolstoy's theory of art, i.e. human semantics of art, is integrated with that of Langer due to the thoroughgoing formalism of Langer's theory.

Is It Not A Sin to Say Anything About the Crisis?

Don't you see now in large part on the Earth, truly critical situations in terms of depression of economy or of violence and war?

All problems are not merely verbal, but it is impossible to stop war or violence or to cure hunger with our mouths taped shut.

The reason for depression is not the lowness of the productive capacity of industry in industrially advanced nations. Gadgets are flooded in the pockets of people living in those nations and there are rather overproduction situations which may, paradoxically be one of the essential causes of the economic depression. However, any parts of the Third World are filled with ill and starving people.

I have to mind my language in talking about the socio-political things in other nations and cannot but say something about the ongoing worrying situation in my country. It is that most of the journalism or even the government top officials are busy in following the phenomena of stock market behaviour and discuss the means of salvation of the bank-bankruptcy, instead of seriously thinking of the socio-political crisis. What to say about such corruption or even ignorance by them? They might be pretending ignorance or even might be blinded by their position. Productivity science must have a mission of making clear the structural situation with scientific ways or even from human semantic point of view, that is lying and recreating upon the deepest dimension of the system of productivity science.

We should not be in prison under the ill-hearted information mechanism. Anti-human dictatorship regimes must be reformed by the people's movement instead of executing war and violence from outside and anti-human-productivity regimes which have supreme influence on keeping their monopoly of humanly required technology, should be renovated through democratic measures.

The so-called productivity thing in the industrialized nations is laid out on the field of extremely biased in profit seeking activity amidst where

physiological-materialistic satisfaction instead of spiritual-cultural feelings is overly evaluated. It is a matter of course that there are many issues of social welfare problems in those nations.

The Anti-War Manifesto

The Russell-Einstein Manifesto was declared on July 9, 1955, in which it appealed to people all over the world to avoid a world war because a world war may necessarily be a war with nuclear bombs. Today, the war issue can immediately trigger a world war, which necessarily has the danger of the disappearance of human beings due to the use of all kinds of weapons of mass destruction, even other than nuclear bombs.

It must be clear today that a world war may be completely different in its form and nature compared with those we have experienced so far, i.e. it may never be ceased through a big-scale battle but might be stuck in a hell which would destroy human civilization.

The fundamental idea of the Russell-Einstein Manifesto could be valid today, as far as it proposes active movement in finding out some friendly supporting measures for the people requiring necessities and some positive ways of prohibiting war.

Crisis of The Functioning of The United Nations

We are now faced with a crisis of sustaining the effective functioning of the United Nations in keeping peace and making efforts for enhancing the happiness of all the races on the earth.

The factors and the system often hidden behind such a terrible situation seen upon the international socio-political area are intermingled with each other to form a complexity which is hierarchically structured. TO put it briefly, there are contradictions, i.e. at least the first contradiction is lying between anarchical-egocentric use of natural -environmental resources and rationally sustaining common-interest based system of these, and the second contradiction is lying between different cultural/racial patterns.

There is of course a scientific theory of managing conservation and of the wise use of natural-environmental resources in our productivity science, i.e. the theory of natural resource rent based on entropic-ecological law, which must be administered through the internationally organized system proper to the issue.

While many of the so-called racial antagonisms have rather been made by the imperial forces historically, the conflicts are reproduced by

the subjects concerned led by the invisible manipulation, which must be made clear by acceptable experts or any other internationally authorized organizations.

The true crisis over the weakening function of the United Nations may be lying in the estrangement of the representatives from peace tendencies.

Prof. K. Kurosawa

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People, The Planet and Productivity Science

Human civilization has trekked through a perilous journey to reach the present stage of development. Globalization and competitiveness, the twin engines of growth have compressed the world into a borderless society, linked with time and speed and fast-changing social values. We are now living in an info-socio-economic society, the prime determinant of which is the imponderable factor, the spirit of the people, the removal of the inertia in thought and action and a sense of partnership in great undertakings.

There are three myths about globalization: global/universal products, borderless geography, and giant firms, none of which is simple and straightforward. In essence, transnational and multinational corporates (MNCs) emerge as a cosmopolitan conglomerate, diverse enough to respond to local needs but united enough to amount to more than the sum of their parts. These subtleties are crucial to size up the challenge unleashed by globalization.

The impact of these developments is discernible in the structure of enterprises which are becoming flat, yet intricately woven with the web, linking employees, suppliers, partners and customers. Another factor to be recognized is that more and more authority and power systems are getting centred round knowledge and they function with leveraging information to produce meaningful insights about customers and suppliers.

Globalization – A Process of Change

Change always brings about more change. It originates from vitality and is a positive sign of growth. It becomes meaningful only when it has a purpose. The three basic factors being:

- a) Technological advances, which can often change the nature of an activity or cause redundancy.
- b) Habits and preferences of consumers which can stimulate changes in products and services.

- c) Response needs of people based on internal and external factors.

To be meaningful, change needs to be amenable to discipline. It may be in administration, planning, execution or control. It may be a change in political, social or economic perspectives or in the outlook of the people.

Despite these multiple variations, today it is possible to anticipate change through three powerful antennae:

1. Antennae to market place or the consumers of the products or services provided by the organization.
2. Antennae provided by R&D by agencies outside or within the organization.
3. Antennae required to sense the social political or economic characteristics.

Culture - Some Components

Basically, organisations are influenced by five cultural components which constitute the process of value-transformation.

Economic Sector: Change from a goods-producing to a service economy. Occupational Distribution: The pre-eminence of the professional and the technical class.

Axial Pre-occupation: Continuity marked by the theoretical knowledge, innovation, and policy formulation.

Future Orientation: Control of technology alongside technological assessment.

Decision Making: Creation of a new intellectual technology.

Cross Cultural Change

The need for cross-cultural change is the outcome of globalisation. A positive impact of this is that more and more people of diverse cultural backgrounds have to interact, and work together. They are faced with rapid transformations and are confronted with stiff competition. Organisations have to re-structure and redesign their systems and processes under diverse social and cultural settings to stay competitive.

A major challenge of cross-cultural change is an ever-increasing concern for issues relating to corporate culture, creation of team work, leadership style, communication patterns, process of decision making, compensation packages, and productivity-promotion packages.

The Shock Phenomenon

The culture shock phenomenon accounts for much of the bewilderment, frustration and, disorientation. Francis Bacon told us, 'knowledge is power'. However, this is relevant only in contemporary terms. In the new setting, knowledge is change and accelerating knowledge-acquisition is the process of fuelling the growth engine of technology which means accelerating change. It is no longer resources that limit decisions. It is decisions that make up for the resources and bring about growth. This is the most fundamental and perhaps the most revolutionising change man has ever known.

Paul Sears in his book *Charles Darwin* wrote, "It is a great destiny of human science not to ease man's labours or prolong his life, noble as those ends may be, nor to serve the ends of power, but to enable man to walk upright without fear in a world he at length will understand and which is his home".

Glitter of Science and Technology

Science means getting at facts and trying to understand them. What the scientific approach does is to give a specific and detailed line of endeavour which has the probability of bringing about the desired result. Science helps to uncover the truth, discover what things are and reveal how to regulate them. And yet the legacy of mankind has been and continues to be the handicap of learning from experience. It may be quite interesting to know that the great electronic experts of time did not think up a telephone. They said it was a worthless invention. It is still more interesting that a dial telephone was invented by an undertaker, the signal system on rail roads by a dentist, rubber tyres by a veterinarian and a Gatling gun by a doctor.

Though Francis Bacon said the knowledge is power, knowledge, in the new understanding is the fuel in the process of growth of technology. The softer side of this is building a trust relationship and tapping the intelligence and creativity of the people. And, the new discovery is that it is no longer resources that limit decisions, it is decisions that make up for the resources. No wonder the dictum is "innovate or evaporate".

Emerging Areas and Impact of Technology

The major areas of technology are office automation, industrial automation, information technology and digitization. They constitute the largest segment of the world market. In electronics particularly, software is playing an increasingly dominant role, requiring a large number of

systems and application programmers. The problem is becoming more complex as computerization influences every home and hamlet. Richard Walter of Harvard Graduate Business School notes, “explosive increase in productivity of office equipment will result in attention being paid to human considerations than was true of previous advances, because the present developments will affect more people, cross more boundaries and become more apparent”.

In the new socio-economic setting, old jobs are disappearing, and new ones are constantly emerging. With this change, a new definition of learning is coming into vogue. The coming generation may not regard college education as a mastery of a body of knowledge or complete preparation for a lifetime career. Instead, there may be a need for acquiring skills such as critical thinking, problem solving and effective communication and search for additional knowledge that is still undiscovered.

Advent of Societal Technolog

In retrospect, one finds that events in the past have unleashed competitive pressures unparalleled in the world history. The triumph of market economy has forced command economies to dismantle their trade barriers and to begin re-structuring towards a knowledge-based economy. Any value addition in the final analysis depends upon a human dimension of competitiveness which lies in the creativity and innovative qualities of the people. The transition process has been from industrial society to information society and now digitization.

Productivity Science Potentialities

Productivity science in the twenty-first century no more conjures merely the ratio of ‘output to input’ or mass ‘attack on waste’ or emphasis on reduction of cost or improvement of quality through process control, variance reduction, lean manufacturing or the like. It now transcends newer boundaries based on ‘outcomes’ which concern the customers and the society at large. In my experience of over 60 years, I have tried to seek a simpler and yet a comprehensive definition of productivity science, which I like to call as Factor Optimization. It is not only doing better but doing better things. It is a commitment to intelligence, excellence and focused effort. This can be exemplified in a 3T model as under:

TIME: Time is time, time is energy and time is money.

TALENT: Talent is vision, creativity, and innovation. It can be either proactive or reactive.

TECHNOLOGY: Technology implies importation, development, application, value judgement, effects which are social and environmental.

Knowledge Management and Innovation Science

Knowledge is difficult to define. It is limitless. However, in the process of its application, certain broad parameters have evolved which go to define it as a ‘dynamic process justifying personal belief’.

As we cannot articulate all that we know (implicit knowledge), it needs to be internationalized for which (explicit knowledge) is equally important. The crux of knowledge management therefore lies in synthesizing both explicit and implicit knowledge. Fusion of these two is the essence of productivity science which occurs in four modes: SECI.

- (a) Socialization
- (b) Externalization
- (c) Combination
- (d) Internalization

A major strength of a knowledge-based productivity science approach is collective learning ability with high percentage of skilled workforce as accumulators and producers of invisible assets, thereby turning information into knowledge and knowledge into competitive advantage.

There is a school of thought which stipulates that human beings have a dual role to play by increasing the productivity of the consumption pattern, which fuels the production cycle, which in turn fuels the consumer society. And, no wonder, it is being realized that productivity science must not only target the wellbeing of our life but must equally secure the wellbeing of future generations.

It is equally necessary to understand that technological innovations by themselves do not increase the level of productivity unless they are developed and refined to ensure their feasibility and applicability. Innovativeness, creativity and originality must paddle together.

Michael Porter (Harvard) highlights this point as under:

“To evolve successfully through different levels of development, key parts of the economic development must change at appropriate time. Lack of improvement in any area can lead to a plateau in productivity and stalled growth.”

The Planet

Mother Earth is the most beautiful planet in the solar system. The life on the planet with its flora and fauna is a source of envy even to celestial bodies. However, the fact remains that unbridled tampering with nature has created an ecological imbalance in the ecosystem. While the process of climate change was not a major cause of worry in the first half of the twentieth century, it has become alarming and even threatening as of now. The consequence of this is that we are witnessing floods, fires, tornadoes, tremors, melting of glaciers and even catastrophes like tsunamis.

It is well established that human beings are the greatest polluters; the reasons being population growth, fast expending needs and consequential mass creation of electronic and chemical waste. It is equally true that fast changing life styles and wasteful use of products and services, and invention are leading to a fast rate of obsolescence of products and services, including weapons of war, nuclear risks and the like, having serious repercussions.

Despite these disturbing factors, human history is a testimony to the fact that whenever people faced crises, 'invisible opportunities' always existed side by side and human ingenuity and innovation always found a way out. No wonder therefore that the crises of climate change and increasing pollution levels can be tackled with a sense of urgency comparable to the Internet revolution which has catalysed innovation, human growth and employment.

It is a common saying that people get the government that they deserve. This is true of nature as well. We can't treat nature as we want to, or behave as we like, ignoring nature's laws. If we fiddle with these, we must face the wrath of nature.

It is a great travesty that while science and technology have enabled humans to break barriers of speed and sound and enabled them to land on the moon, they have developed a misguided belief that conquest of nature has made them supreme. This stands futile before the fury of nature. We cannot change the behaviour of the Universe and the laws of nature.

Road Ahead

Modern society expects the government industry and businesses to help preserve the environment, to maintain ecological balance, and at the same time to produce and provide safe products and services by ensuring safe and healthy conditions of work and environment. If business and

industry are a part of the society, their actions must lead to human and social good with least damage to the ecosystem.

As humans we are a part of a united social system living together on this planet and we owe it to ourselves to shed indifference, callousness and arrogance, and to consider that the natural resources are slowly decaying. Freedom does not grant liberty to destroy nature. Consequences are discernible.

Need For Action

Climate change and control measures are on the priority list of the United Nations and all international forums, as well as on the agenda of national governments. They equally dominate every segment of society. It is equally true that the UN has pioneered several studies under its Environment Programme on Eco-system and Bio-diversity, to assess the extent of damage caused and measures to be taken to mitigate the adverse effects of pollution.

It is also true that we cannot put the clock backwards. The world cannot do without food, fuel and other goods and services already provided and the living standards acquired. It is equally true that if we continue to persist in what we are doing, nature's dispensations are clear.

God created life not to be destroyed but to be endured; to live peacefully and in harmony with nature. It was Mahatma Gandhi who said, "There is enough on this planet for the need of the people but not for their greed."

To seek understanding with hope and courage is humanity's true badge. It is also the greatest gift of science and technology. We as a generation have our obligation irrespective of our individual pursuits in life. We need vision to see the best, courage to face the facts, adaptability to change and avoidance of misunderstandings to be partners in great undertakings. If we do not wake up, posterity will not pardon us. There is still time for sanity to prevail.

Dr. A.N. Saxena

Founder Fellow and Executive Vice President of the World Academy of Productivity Science. President Emeritus, WCPS (India)

World Productivity Congresses and Declarations

Bombay, India – 1973

1st World Productivity Congress

Productivity Science for the Progress of Mankind



700 participants.

Organised in partnership with Indian Institution of Industrial Engineering and the National Institute for Training in Industrial Engineering.

The first ever World Productivity Congress following the 1969 London event was held in Bombay from 10 to 13 December 1973 at Hotel Oberoi Sheraton. The theme of the congress was “Productivity Science for the Progress of Mankind”. It was organized by the National Institute of Training in Industrial Engineering and the Indian Institution of Industrial Engineering, Bombay, in association with five other bodies in the field of productivity science. The outstanding success of the congress was marked by a record attendance of over 700 delegates, comprising corporates, professionals, practitioners of productivity and industrial engineering, government representatives, and in particular due to the support extended

by the TATA Group of Industries. A very striking feature of the congress was the presence of delegates from the USA, the UK, and Australia besides a number of South-East Asian countries.

Commonwealth Secretariat in London provided travel assistance to Delegates from the U.K. and Australia.

The Congress was inaugurated by Dr. C. Subramaniam, Union Minister of Industry, Government of India, and President of the National Productivity Council in India.

A galaxy of Speakers who addressed the Congress comprised:

- Dr J.E. Faraday - In the Chair
(UK MTM Association)
- Mr. B. Atkinson
(New Zealand Institute of Management)
- Mr. R.J. Becker
(Institute' of Industrial Engineering—Australia)
- Dr J.R. de Jong
(European Federation of Productivity Services)
- Mr. E.A. King
(Federation of Productivity Services Association)
- Mr. B. McClurg
(New Zealand Institute of Management)
- Mr. I.S. McDavid
(Institute of Work Study Practitioners, UK)
- Dr K. Pennathur
(Indian Institution of Industrial Engineering)
- Mr. W. Wrennall
(Institute of Industrial Engineers, Australia)

Leave of Absence: Mr. Arthur P. McCann of the Work Study Association of South Africa.

Dr. Joseph A. Faraday, the first President of the World Confederation of Productivity Science (WCPS), in his keynote address lauded the efforts of Dr. Krish Pennathur (Vice President) for taking a bold initiative in organizing the first World Productivity Congress in Bombay, the industrial capital of India. He expressed his happiness at the participation of over 600 delegates from the U.S.A, the U.K., Australia and neighboring countries.

The theme of his address centered around the concept of productivity science.

The essence of the papers presented and admires delivered by the eminent foreign and natural experts identified seven major areas to lay emphasis upon in the coming decades.

During the concluding session of the congress, president Dr. Joes E. Fraday reflected the summary of the view of the delegates as under:

1. Social aspects of productivity
2. Productivity and economic growth
3. Role of technology in productivity
4. Quality of work life and productivity
5. Management relation and productivity
6. Ecology and environment
7. Governmental initiatives in productivity

For speedy fulfillment of the above objectives each country in its socio-political environment needs to take care of the following:

- I. Strengthening of economic infrastructure.
- II. Urgency in completing the tasks set out as national priority.
- III. Importance of social discipline as a factor of economic growth.
- IV. Efficient utilization and conservation of energy and materials by exercising selective controls with emphasis on cost and quality.
- V. Improving capacity utilization through better techno-management in fronts.
- VI. Increasing application of technological development and providing mechanism to adopt.

Major outcome of the congress:

International Information Exchange

It was agreed that an International Productivity Information Centre would be established at the President's Secretariat as an experimental measure for two years. If found useful, the centre would be permanently transferred to the headquarters of the Institute of Work Study Practitioners, U. K. The details of this scheme would be circulated to all members.

Growth of the WCPS

It was agreed that more institutions from unrepresented countries should be invited to join the WCPS to give it a truly global character.

Dr. K. Pennathur would, during his visit to the United States in 1974 hold discussions with the Officials of the American Institution of Industrial Engineering and persuade them to join the WCPS.

Mr. B. MoClurg agreed to make a similar approach to Japan during his visit to that Country in 1973.

It was agreed that a membership drive should be launched in South America and Canada.

Research Projects

It was suggested that member organizations should undertake research projects on themes of tropical interest. PAFIE could study and develop one theme: the EWSF could undertake different projects, which could be discussed during the 1977 World Congress.

Exchanged of Journals

It was agreed that each member institution would circulate to all others, one copy each of its journals, periodicals, newsletter and other publications.

K. Pennathur
President

Before the closure of the first ever World Productivity Congress in Bombay (India):

“Human systems around the World are facing the biggest challenge of their existence and wellbeing, which can be overcome with purposeful and dedicated efforts to the material, cultural and social life of the people and in this lofty cause, the World Confederation of Productivity Science seeks to dedicate its all-out efforts to strengthen the trans-natural ties by expanding its operational base to all nations and countries around the world”.

Dr. Josheph E. Faraday while declaring the Congress closed, announced the election of Dr. Krish Pennathur (India) as the next President and Mr. William Wreunall (Australia) as the Vice President. Dr. Krish Pennathur’s term would continue till the second World Productivity Congress which was to be held in Australia in 1977. Before the closure of congress, President-elect Dr. Krish Pennathur read out a declaration prepared by the vetting committee which was affirmed by a voice vote.

Bombay Declaration

First World Productivity Congress- December 1973

At the closure of the congress in December 1973, a declaration was adopted.

“With the understanding that productivity is a universal concept aimed at providing more of goods and services for more and more people with less and less consumption of real resources productivity science relies upon an inter-disciplinary approach for the effective formulation of objectives, development of plans and application of productivity practices to utilize resources more efficiently, while maintaining high quality.

It involves integrated application of human efforts and skills, capital, technology, management, information, energy and the resources to bring about sustained improvements and betterment of the standards of living for all, through a

Total Productivity Concept.

Differs necessarily from nation to nation each having inherent and potential strengths and weaknesses and each with disparate short-term and

long-term needs and aspirations, but sharing commonalities of industrial application, as well as those in education, public services, utilities and communications.

Is more than science, technology, management techniques, being also a philosophy and an attitude of mind that rests on the strong motivation of people to constantly strive towards a better quality of life?"

(Bombay- 1973)

Introduction:

In the years since the Second World War there have evolved certain practices which have been described as management techniques and whose object has been to assist managers, supervisors, call them what you will, to be more efficient. The principal techniques are Work Study; Organisation and Methods or O M as it is called; and Operational Research.

Work study evolved from the limited concepts of time study and motion study. Time study was concerned with the use of a stopwatch to time work, and with rating and relaxation allowances provided, the time a job should take. This was used principally as the basis of output bonus schemes in the early days.

Motion study concerned itself with workplace layouts and evolved certain principles to enhance output whilst reducing fatigue.

O & M began by a study of office systems and machines with a view to simplification. Operational research is held to have originated in studies by scientific principles of problems encountered in the fighting services during the war—hence “operational” research.

As is often the case in human affairs, these practices enjoyed a vogue and became fashionable, but remained distinct. Indeed, a regrettable degree of partisanship in the proponents may be said to have developed. On this “social scale”, O & M people felt themselves superior to work study people and OR people sometimes considered they were superior to both. Maybe this rivalry was not entirely a bad thing as it stimulated each to greater development.

In the last five years or so, however, the true nature of these various techniques has evolved, and it can now be said that their part in the overall

management picture is at last being understood. To comprehend this, it is necessary to look at management itself.

Management and the Evolution of the Specialist

The Concise Oxford Dictionary (fifth edition) defines management as “trickery” and “deceitful contrivance”. The British Institute of Management recently invited definitions of the word. Among those selected as valuable were:

“The organisation, control and co-ordination of personnel and processes to produce optimum results”; “The profession responsible to society for the optimum use of resources of men, money and materials”; “Balanced unity of effort to achieve optimum utilisation of resources to give economic profit whilst maintaining group harmony”; “The achievement of major objectives by making optimum use of the abilities, potentialities and aims of other people”.

E. F. L. Brech offers this: “Responsibility for judgement and decision in effectively planning and controlling operations towards known objectives attained through efficient co-operation of the personnel concerned”.

Sir Ewart Smith and R. M. Currie offered “The organisation and control of human activity directed to specific ends”.

As illustrated by these examples, it is probably not possible to be certain that the same concept is conveyed to all persons by the use of a sequence of words. It is therefore proposed to explore the meaning of the word by the use of two analogies.

Specialist Fields of Management

Many of these specialist fields of management have become professions or occupations in their own right; e.g., accountancy, the personnel function, packaging, etc., represented by professional institutions and bodies.

These specialist fields of management can be divided into two categories, namely those that occur in a chronological sequence for the actual production and disposal of whatever is being manufactured, and secondly, the others. The first category will include research, development, design, construction, operation, inspection, selling, warehousing and transport. Of course, in many organisations some of these may be grouped. For example, there may be a research and development department, etc. The other fields have probably developed because they span the various fields in the first category.

Productivity

The relationship of the output of any process to the input of these three resources can be termed the productivity of the process. If any activity finds it impossible to describe its output in intelligible terms, then there are good grounds for doubting if its existence is justified. Productivity can therefore be measured in terms of the output expressed in some way per input of resources. The measurement of output over say a year, can be taken in any convenient terms, but preferably something that is easily determined, and which reflects adequately the work involved. The resources can be expressed in terms of "resource man years". Materials can be converted to equivalent man years by dividing the monetary expenditure on materials, rents, services, etc., by the average industrial income for the year and capital similarly but by dividing still further by the number of years of amortisation—the devices suggested by Sir Ewart Smith and Lord Beeching in their paper "Measurement of Effectiveness of the Productive Unit" published by the BIM in their Winter Proceedings, 1948. Manpower can obviously be expressed as man-years and the sum of the man-years and the two equivalent man-years gives the "resource-man-years" expended in a year to obtain the output of that year.

The use of resource man years as the unit in which to sum the input of resources is considered preferable to money terms as it avoids the creeping inflation of money values.

The prosecution of any activity can only be said to be under control when there exists some indication of how well or how badly it is being conducted. Human affairs are such that poor conduct is very likely to lead ultimately to extinction.

The Total Productivity Index (TPI)

Conventionally, productivity indices are usually taken as applying to the manpower input only. To emphasise the nature of this index based on all resources, the term Total Productivity Index is suggested. The Total Productivity Index outlined above probably offers the best measure of efficiency that is available in management. Indeed 100 per cent efficiency could be regarded as producing the prescribed output with the minimum use of resources possible at any given point in time. The index can be regarded as a direct measure of the rate of improvement in efficiency. It is unlikely however, that it will be possible to calibrate the index in terms of efficiency. This could only be done if the actual minimum use of resources at any one time could be determined and so equated to 100 per

cent efficiency. None the less, the Total Productivity Index remains as the measure most directly proportional to efficiency.

The TPI therefore comes into its own as a measure of managerial efficiency. The responsibility of a manager can be defined as to produce the prescribed output with the minimum use of resources. A good manager produces his output with an expenditure of resources approaching the minimum, an inferior manager with some much greater expenditure. The TPI is thus a measure of management and offers for the first time some means of measuring this most important feature. Hitherto only quantitative judgements have been possible. People have had the impression that one manager was a good manager, another a not so good one. Now quantification is possible if not in absolutely precise terms. This is the real importance of the Total Productivity Index.

It was Galileo who first realised the importance of measurement when he wrote:

*“Count what is countable,
Measure what is measurable
And what is not measurable,
Make measurable.”*

The index in terms of output per input of resources referred to a base of 100 and applicable throughout the whole scale of human activity makes management measurable.

The Place in Management

And what is the place of those various techniques we were talking about at the beginning of this paper? Although evolving differently, they have an underlying unity which is a simple one. They all have, in the ultimate, the object of reducing the input of resources necessary for a prescribed output.

When this common objective comes to be realised, it is an obvious step to combine these activities into one function and this is what has been happening in enlightened organisations.

This then is the genesis of “management services” which seems to be the currently popular term for a department embracing principally Work Study, O & M, operational research, electronic data processing, ergonomics and possibly some other techniques.

Productivity Science

I plead for the term “Productivity Science” for the concept and “Productivity Services” for the name of the function in an organisation. I believe the terms are specific and the most logical.

And finally, may I attempt to distil this whole subject, as I see it, to the following simple articles of the Philosophy of Productivity Science or the Code of the Productivity Scientist:

Management is the organisation and control of human activity directed to specific ends.

Specific management makes decisions as to the area of activity, the features of that activity to be prosecuted and the quantity of those features.

Management then creates the output, tangible or intangible, which prescribes those features by an appropriate process.

Any prescribed output is created totally by the use of three resources only, namely manpower, materials and capital equipment.

The output per unit input of these resources may be calculated for any period and when subsequent values are related to a base period value, the ratio may be called a Total Productivity Index.

Productivity Science is that field concerned with advising managers systematically how they may reduce the input of the resources they need to deploy to create their prescribed output.

Various procedures and practices have a systematic approach to this as their objective. Among these are Work Study, Organisation and Methods, Operational Research in the most part, Ergonomics and others. Any such discipline which has a systematic elevation of productivity as its objective is part of productivity science.

The systematic approach of the disciplines in productivity science distinguishes them from others which may achieve the same objective by trial and error, experience, intuition, ingenuity, etc.

A person trained in one of the disciplines who engages in it as his business is a productivity scientist.

Work study is one of the major disciplines in productivity science and must play a very great part in the activities of a productivity services function, which is the function applying productivity science in an organisation.

1977 Sydney, Australia

2nd World Productivity Congress

(Sydney – Australia – September 26 To 30, 1977)

Following the footsteps of the First World Productivity Congress held in Bombay-India in December 1973, the second World Productivity Congress was held in SYDNEY (Australia) from 26 to 30 September 1977 at HOTEL HILTON.

The congress was sponsored by the Institution of Engineers, Productivity Promotion Council of Australia, Computers, Society, the World Confederation of Productivity Science (WCPS) and Pacific Asian Federation of Industrial Engineers.

The Congress attracted a very large participation from countries both from the west and the east and the Oceania Region, important among these being the USA, CANADA, the U.K., JAPAN, INDIA, MALAYSIA, SINGAPORE, PHILIPPINES, INDONESIA, and NEW ZEALAND.

Funding assistance towards the travel of delegates from the Commonwealth countries was provided by the Commonwealth Secretariat in UK. The total number of delegates including foreign delegates was registered at 384, along with observers from professional bodies.

The galaxy of speakers besides the Inaugural address by Dr Krish Pennathur, President, WCPS, comprised the following:

- | | |
|---------------------------|--------|
| 1. Dr James L. Riggs | USA |
| 2. Dr H. K. Wilson | USA |
| 3. Mr. R. N. Osborn | USA |
| 4. Mr. Samy E. G. Elias | USA |
| 5. Mr. J. Rives | CANADA |
| 6. Mr. K. Haganas | NORWAY |
| 7. Mr. Shigeyasu Sakamoto | JAPAN |

The Commonwealth Secretariat was thanked for providing funding assistance to the speakers and delegates from Commonwealth countries.

Dr. William Worrall, the Vice-President representing the host country Australia Stated:

“In organizing the World Productivity Congress in Australia, we are conscious of the importance of productivity to our individual and national progress. We are also conscious of the smallness of our population compared with countries such as India which hosted the first World Congress in Bombay in December 1973.

Australia, however, can match other countries in its standards of life, its natural beauty and natural resources. For us to meet the challenge of supplying the world markets with our abundant resources and to enable us to develop sufficient secondary and tertiary industries, we need to apply the best productivity improvement techniques.

The Congress Organising Committee is pleased at the wonderful response to our invitation to submit papers, some of which you will hear at the congress. Unfortunately, many authors were unable to raise the funds to make it possible for them to deliver their papers personally.

We thank those who have given us their time, knowledge and experience by presenting papers and particularly those individuals who have covered their expenses out of their own pocket.

The congress would not have been possible without the assistance of those individuals who worked so hard as members of the organising committee. I thank them.

Behind these people are the host organisations:

The Institute of Industrial Engineers, Productivity Promotion Council of Australia, Australian Computer Society, The World Confederation of Productivity Science, Pacific Asia Federation of Industrial Engineers.

We also wish to thank organisations which gave financial assistance to sponsor the Congress and selected speakers. These are:

- Hoover Australia Ltd
- Outboard Marine Australia
- Australia Oil Refineries
- John Lysaght

- Australian Chapter of the M.T.M. Association
- B.H.P
- General Motors Holden

We have decided to issue abstracts of all papers which were available at the time of going to press. For those who require the full texts, orders can be placed with the Conference Manager.

Finally, the success of this congress has been due to the speakers, the organising committee, and the Publishing Advisory Service of the N.S.W.

Department of Services, which in co-operation with the Hilton Hotel management staff, were responsible for its organisation. “

Presidential Address By Dr. Krish Pennathur

“I deem it my privilege of conveying to you the greetings of the productivity fraternity in India and the good wishes of the Prime Minister of India, who, over a decade ago, was the President of the Institution of Work Study (India). He sends you all his warmest personal regards and wishes this congress all success.

The profundity of productivity is not intended as an academic dissertation. The aim is to bring to light the covert importance of very term productivity, showing what a rough diamond it has been so far and that we could now press the new facets of the philosophy, concepts, principles and practices of productivity into service organisations for national and international betterment.

It is over two decades since the concept of productivity has permeated the comity of nations, both ‘developed’ and ‘developing’. It is nine years now since the idea of a World Confederation of Productivity Institutions of various countries was thought of and yet, I find to this day that understanding of the encompassment of the term productivity is confined to a couple of variants, even among erudite and experienced managers and administrators. Some aver that it stands for the optimum use of men and machinery. A few others, who step an inch beyond, describe it as the ratio of output to input. The refinement in this case is that the term ‘input’ is not confined to men and machine only but embraces materials, space and buildings. Invariably the yardstick for the measure of productivity is labour productivity.

Let me outline the facets of productivity we have been shutting our eyes to, either through inability to convince the powers that be, or through

a facile acquiescence to the ground floor role of productivity. These are, in the order of increasing importance: Productivity of Management; Productivity of Technology; Productivity of Capital; Productivity of the strategies and policies of government. I am fully conscious of the fact that I am treading on very delicate grounds. But then, it is high time someone spelled out the facts of productivity life. Let me bell the cat rather than go with the crowd admiring the emperor's clothes.

It might be considered impertinence, in the elite clubs of managers, to mention the subject of managerial productivity. They are the managers of real resources and the measure of the output-input ratio automatically reflects their contribution of productivity. They even have a system of performance appraisal for managers, assessing this very aspect. The fallacy in this escapism is that the assent is once again on the efficiency at operational level and not on the effectiveness of the managerial decisions.

These decisions pertain to forecasting, goal setting, objectives formulation, corporate planning, organization of facilities, approaches to motivation and job involvement, co-ordination and control and flexibility of decisions contingent on political, social, economic, technological and environment changes. The measure of managerial productivity is the measure of their effectiveness in these areas.

The assessment of managerial productivity, after it is conceded that it should be done, is hampered by the ingenious assumption that the factors contributing to the effectiveness of managers as a whole are the same, whatever is the level of managerial hierarchy. As the authority and responsibilities increase in ascension towards the top of the managerial pyramid, predominates, extra-organizational interaction increase while day-to-day work and short-term issues need to be given lesser attention. At least, this is how it should be if managers have the gumption to assume their rightful roles.

I would now like to take up the topic of productivity of technology. Slogans like 'Produce more' or 'Produce or Perish' by themselves are fatuous. There are a number of questions that need to be asked before we can identify the causes of the economic ills of a country and prescribe that right remedy. What are we going to produce and for whom are we going to produce? What is the level of saturation in the domestic market and what is the potential for export? What is the cost of production and how does it compare with the competitors, both national and international? How do our products and services dovetail into the national economic

plans? The answers to these and many more questions would be predicted upon the state of technological development of the concerned country.

It is probably temerarious on my part to speak about productivity of government strategies and policies, while the Honorable Minister and members of the state and federal government are present. Nevertheless, it is a fact that all our exercises in the areas of productivity I had outlined would be totally negated if the strategies and policies of the government do not foster, nurse and encourage the growth of national productivity. Nothing is farther from my intention that to classify politics alongside 'statistics' and 'economics'. But it is a fact of democratic life that governmental plans and policies are based on the election manifesto of the political party that has come into power. Not all the strategies and policies are in the best interests of the nation's total productivity. Also, some of the undertakings pledged in the election manifesto get diluted or even eroded during the process of governing.

Among the various points that have been engaging my attention with regard to productivity, I wish to highlight four very briefly. Firstly, one detects sings of 'male chauvinism' In the productivity movement and activities. We appear to think that only men need to be exercised over productivity. Without waiting for any census figures, we may reasonably assume that 50% of humanity represents women. They have a great potential for making a contribution to increased productivity, in fact, a much greater potential for making a contribution to increased productivity, a much greater potential than we men have. They control the purse strings and, in the aggregate,, it can be said that they control the family budgets of the majority of the households in any country. They wield an overt or a covert influence over habits, attitudes and thinking of their husbands. They have a tremendous influence over the shaping of the minds of their children. Why is it that we have not enlisted the active support of women in furthering the cause of higher productivity?

Secondly, productivity is not a subject to be taught when a person has reached the age of twenty-five years or over. Yet this is what happens today. The principles and practice of religion, the essence of the culture and heritage of the society and the norms of morality and codes of conduct are inculcated among the children from the time they evince interest in listening to stories and fairy tales. They learn at the age of five or so. Why is it, then that the concept of productivity, which is a way of life, is not imparted to them from their early childhood? As a modest beginning,

I have published the first of a series of children's story books, with the principles of productivity woven into them. This is only a beginning and I hope that within a year or two, the books in this series are prescribed reading at the elementary school stage.

Thirdly, the practice of productivity has not spread very far beyond the manufacturing industries. You may be interested to learn that in India we have started it in the spheres of agriculture, fisheries, mining, mass transit systems, airlines, urban development, municipal (civic) administration, general hospitals, the film industry, Central Social Welfare Board, the Fine Arts Academy, hotel management, and university administration etc.

Lastly, productivity science is a function of the people, of the society, of the masses. It is the people who are the instruments of change. Productivity practitioners are mere catalysts. The foundation of productivity is the art of influencing human behavior for the common good of society. Techniques are merely the super-structure of productivity."

1981 Detroit (USA)

3rd World Productivity Congress

With the great initiative of the American Institute of Industrial Engineering and the WCPS, the Third World Productivity Congress was held in Detroit from 17 to 20 May 1981. This became possible due to the untiring efforts of Dr. William Wrennall, the WCPS President who was a leading luminary in the Institution of Industrial Engineering in the U.S.A.

In his welcome address, Dr. James L. Riggs gave a review of the progress made since the Sydney World Productivity Congress in 1977 and the scenario he visualized in the years to come. The keynote speaker at this congress was Dr. Walter Aigner, the founder of WCPS in Australia. He was a great visionary and a practitioner of productivity in Quanta's Airlines; friend and philosopher and author of a historic book *Productivity Is Everywhere*. He made a brilliant presentation on the theme *How to Motivate Excellence*. Among the other prominent speakers at the congress were Li-yen Shue (China), who spoke on productivity improvement through quality control; Professor Yoshikiko Tanaka (Japan) who spoke on increasing productivity and product quality and Mr. W. Freeman on workers' health and productivity.

Congress Programme

Socio Technique or Experiences and Possibilities through Adoption of "Automated Guided Vehicle Systems" within Volvo

- Ingvar Persson

The Links between Capital Investment, Manpower Productivity, and Wage Levels IT industry

- B.O. Wood

Approaches to increasing Flexibility and Productivity from the Viewpoint of the German Manufacturing Industry

- Hans F. Buflinger, H. J. Warnecke, and J. H. Kolle

Increasing Productivity and Product Quality through Satisfying the Workers' Needs

- Rintaro Muramatsu, Yoshihiko Tanaka, and Haruo Miyazaki

Strategy to Increase the Productivity of a European Manufacturer of Household Appliances

- Heinz G. Goeltenboth

The Impact of Microelectronics on West German Industry

- Panagiotis Fotlias

Integrated Manufacturing Systems—A European Experience

- Thomas B. Pretwell

Productivity Gains through the Realization of the Integrated Manufacturing System Today

- Bann N. Colding

Successful Approaches in industrial Engineering When Industrial engineers are in Short Supply

- G. J. Geysen

Recommendations for Enhancing the Productivity of Health Manpower

- Marsha G. Dunn

Delivering his Presidential address on the theme Productivity of Productivity Scientists, Dr. William Wrennall stated:

“The tools for improving productivity are essentially products of the first half of this century. Since we are in a rapidly changing world, some of the standard approaches to productivity improvement are in need of review.

Many of the so called great and household-name companies no longer exist. There are several reasons for this. Some have changed their name; others have merged; some have been acquired and subjected to organizational surgery. Many have just declined or died. Some have been displaced by upstart organizations who now qualify. An organization's future cannot be ensured on its current reputation. There is thus no room for complacency for any of us.”

A Rapidly Changing Environment:

In the recent past, extrapolation of the past could predict the future. The Age of Unreason and Discontinuity cannot rely on experience to the same extent. Many of the decisions for success are not the result of past experience, nor logic. They come from outrageous and illogical ideas, by obnoxious and illogical individuals, who cannot prove their point. Experience based management incumbents are unlikely to give their support to these innovative paradigm-shifters.

The concepts of discontinuity, the physics of chaos, industrial dynamics, empowered team structures, lean manufacturing, under-utilized capacity policies and six sigma limits are counter-intuitive to many of us. Productivity scientists do not find the tools for these situations in the models presented earlier.

The New World of Work:

The world of work is changing rapidly, and we have to improve our success rate, extend the range of implementations, achieve quantum productivity improvements, develop to meet the requirements of The New Productivity Science, determine what are the skills and knowledge requirements to be more productive, and learn how to improve the success rate of productivity improvement tasks?

Early Approaches to Productivity Improvement:

Concentrated on reduction of direct labor, increase in machine utilization and acceptance of fraction defectives, with inventory as an accounting asset to support these goals. We now know that machine utilization is highly correlated with work in process inventory and low velocity of material added value. With the majority of cost in materials and support functions we need to refocus our efforts.

“High Tech” Productivity - A counter to high wage-rates and more demanding product parameters has been capital investment in advanced technology equipment. This action creates its own demands and causes increased technical complexity. The search for the requisite balance between automation and simplicity is an underutilized productivity approach.

Productivity in Indirect Areas - Historically, the next productivity vogue was in the indirect areas of engineering, maintenance and clerical work. Work measurement techniques and incentive programs designed

to suit these areas enjoyed their era of boom. In spite of these efforts, companies lost market to new competitors.

World Class Manufacturing:

This term is applied to manufacturers who can succeed against world class competition in a global market. What started as the search for low labor cost resulted in a shift of manufacturing from the western nations initially, to Asia and Central and South America. Newly industrialized countries (NIC's) financed by foreign capital now have domestic world-class companies. The term "world-class" will inevitably differ in the next decades.

Productivity in a Strategic Era - Findings from many manufacturing projects indicate that:

1. A total review of operations is necessary.
2. Changes should be synchronized.
3. Productivity gains must be quantum and incremental.
4. Conventional wisdom is typically suspect.
5. The fundamental elements of success are people and time.

Benefits of Productivity Strategies –

1. Strategic rather than tactical.
2. Productivity gains of more than 50% are typical.
3. Strategic advantage is sustained profitability.
4. Speed to market results in a larger market share.
5. Intellectual rather than capital investment.

The Age of Discontinuity or an Obituary to Forecasting- Earlier in this century, design for the future was based on historical trend projections. We now live in an age where our society, politics and economy preface a different "recent future". The forces creating tomorrow's world and thus the planning-basis of our productivity efforts are the forces of discontinuity.

Even when casual sequences are established for the past, there is not much reason to expect that they will hold in the future, because the relevant facts are so complex that unforeseeable changes may falsify our predictions. Bertrand Russell Drucker considers four major areas of discontinuity:

1. the explosion of new technology, that will result in major new industries;
2. the change from an international economy to a world economy;
3. a new sociopolitical reality of pluralistic institutions which poses drastic political, philosophical and spiritual challenges;
4. the new universe of knowledge, based on mass education and its implications in work, life, leisure and leadership.

Some of us are reacting to the future created by others. The most successful organizations are not refining their forecasting techniques but creating their own and sometimes the future. The implication is that we should be contributing to the future. Nobel prize winning physicist Teynman asked his research students, will your work extend existing knowledge, or will it make a real difference? Several of them also became Nobel Laureates.

An Integrated Approach:

If productivity is synonymous with competitive distinction, then it becomes necessary to incorporate strategic approaches into the productivity sciences. It also follows that the approaches to productivity improvement developed early in this century are inadequate for today and tomorrow. We need to address productivity in the following areas:

- Operations strategy development
- Sizing and operations mode design
- Design of dynamic organization structures
- Resource renewal
- Design for requisite simplicity
- Time compression and timeliness
- Total quality management
- Strategic facility design
- Information systems as enablers

Productivity Scientist's Core Competencies:

As productivity scientists, we need to know what we should do and how we should do it. We need to be comfortable in a wide range of government, commercial and industrial situations.

In science we analyze bulk, pieces, molecules, atoms, sub-atoms. Scientists cannot visualize the atoms they have successfully split.

Productivity scientists have successfully dissected the world of work, divided labor and timed it in TMUs, but do not know how to visualize organizations.

As Nasmyth said, "The grand result of thoughtful practice is what we call experience: it is the power or facility of seeing clearly, before you begin, what to avoid and what to select". Unfortunately, experience in the past does not familiarize us, or help us, with a different future.

I do not know of an adequate model of a productivity scientist. Models are out of fashion anyway but let us keep updating our field and ourselves. Whether our job titles are work study officers, industrial engineers, systems analysts, management consultants or productivity scientists, we can also be paradigm shifters.

To provide a service in significant productivity gain, over the menu of areas given, is an exciting opportunity. It demands wide ranging social and technical knowledge and skills. The opportunities are worthy of our profession as change agents and our sustained effort. We need to identify blind spots. The onlooker sees most of the game. Productivity scientists need to shift from correcting the past to create the future, work study officers and industrial engineers of yesterday were problem-solvers. Productivity scientists now need to be architects of success.

It was at this congress that a decision was taken to solicit information from each participating country regarding their action plan to popularize the mission of the WCPS. It was further decided that to speed up the activity of the WCPS in the USA, a Productivity Forum be organized in Washington DC in the next two three years.

Before the closure of the congress, Dr. James L. Riggs, a great intellectual, an acknowledged professional on productivity science, a management thinker and writer of several books on productivity-related issues was unanimously elected as the fourth president of the WCPS.

In his closing remarks, Dr. James L. Riggs pleaded for the active involvement of National Productivity Centres operating in different countries to support the WCPS in its mission of productivity science. He advocated the formation of an International Advisory Council in WCPS with representatives from WCPS-supporting countries, which could

facilitate the promotion of joint activities. He further proposed the idea of having the fourth World Productivity Congress in a neutral country in Europe to which a prompt offer came from Dr. Martin T. Tveit, Chief of the Productivity Centre, Norway. His offer finally led to hosting the fourth World Productivity Congress in Norway in 1984.

DECLARATION

This World Productivity Congress held in Detroit recognizes that in a competitive world, productivity is vital for socio-economic revival. It took an optimistic note of a fully integrated international cooperation with a resolute determination to focus on improving mutual understanding in the common cause of proliferating the productivity science mission.

Before the close of the congress, Prof. James Riggs stated, "I have a dream." He said, "A world confederation of productivity science, developed to a global network of productivity enthusiasts and professionals - this network should be organized so that nations and regions have their own functions and operational schemes suitable for constant development. Integration with government bodies, various institutions and professionals in the field of productivity science organizations should be organized so that the confederation as a network could operate in a freest possible atmosphere."

He continued by stating that his experience had been that any effort coming from the large nations, (he mentioned the USA, Great Britain and India), would often be met with a certain suspicion.

He looked at Dr. Martin T. Tveit and said, "You represent a small country, Norway. Nobody will ever feel that you are acting for other than professional purposes and genuine interest in the productivity movement." This was Jim's marching order and the fourth World Productivity Congress was scheduled for Oslo.

1984 Oslo, Norway

4th World Productivity Congress

The New World of Productivity



This congress was organised in partnership with the Norwegian Productivity Institute.

At the time James L. Riggs was the President of the WCPS and Martin T. Tveit was the Deputy President.

FOURTH WORLD PRODUCTIVITY CONGRESS – NORWAY 1984

The fourth World Productivity Congress was held on the theme The New World of Productivity in Oslo, from 13 to 16 May 1984 at Hotel S.A.S. Norway. It attracted a record attendance from 43 nations represented by embassies and diplomatic offices.

PREAMBLE

The world economy is suffering from a slow-down in the rate of growth. Economic disharmony is a current illness in many parts of the world. In order to break out of this current situation, more emphasis must be placed on productivity improvement in all sectors of the economy.

The congress recognized the objective of drawing attention to the various ways and means that can be used to increase productivity.

A wide range of investigations, evaluations and information about the "Total Productivity Concept" will be presented by highly qualified professionals. The results of their work in the productivity field should be of interest and benefit to business leaders from manufacturing and trade, as well as representatives from the government and the private service sectors.

The number of presentations and discussions will center around government and management policy-making and the resulting effect on productivity. The congress will also take up the need for securing a sound educational foundation for the productivity profession. In addition, factors which may hinder productivity achievement will be analysed in detail.

Message From Mr. Kare Wilioch, Prime Minister of Norway

In his welcome message, the Prime Minister stated, "Most western industrialized countries are suffering from reduced productivity growth rates in comparison with earlier years. Although the level is still rather high, the rate of growth has levelled off. For the manufacturing industry, productivity has fallen short of the growth rates achieved in previous decades. In Norway, the decreased rate of growth in productivity, which has fallen behind most other European OECD countries, has become a major political and economic problem.

Productivity is an indicator of the nation's industrial vitality and of the national economy on the whole. Increasing productivity gives better financial return on capital investment. It also is a means to offer increasing welfare without adding to the inflation spiral.

In order to focus attention on productivity, and to stimulate co-operation between companies, workers and the authorities to achieve

higher productivity, a nationwide productivity campaign was organized in Norway in 1982. In addition, companies are being encouraged to implement modern technology and to concentrate their efforts in research and development.

One of the greatest challenges standing before us in Norway will be to adapt our production facilities to meet changing world demand. Labour and capital will have to be reallocated and care will have to be taken as not to cause higher unemployment.

On a global basis, we have two different pictures of productivity. In the industrialized countries of the Far East, growth is high compared with the industrial countries of the west, which have a high level of productivity but low growth rate.

Incomes in the east and west will with time be evened out. If we acknowledge that our goal is to increase welfare standards universally, we should be aware that no country can benefit from another lagging behind in technological development. I, therefore, sincerely hope that this congress will make it possible for nations struggling with productivity growth problems to learn from others where growth trends are more positive.

On behalf of the Norwegian Government, it is a great pleasure to welcome the 4th World Productivity Congress delegates to our country.”

Structure Of The Congress

Dr. Martin T. Teveit, organizer of the congress and director of the Norwegian Productivity Institute, orchestrated a nearly flawless conference. Productivity-minded people were attracted from forty-four countries, with the largest contingents coming from the host country and its Scandinavian neighbours. The attendees were exposed to over ninety presentations, ranging from formal speeches by high-level government and industry leaders, to short papers and discussions given at informal “speakers’ corners” in the evening.

Up to seven parallel sessions were conducted daily after the featured speeches were conducted. Each session was directed by a chairperson to encourage discussions after the presentation of papers. But the time available for discussion was generally inadequate because the talks tended to be overly long. Nonetheless, the discussion periods were of interest because they clearly showed how conditions that support or weaken productivity differ among nations.

During the four days of the congress, social hours, lunches, refreshments, banquets, and receptions were hosted by a variety of Norwegian organizations. There was exceptional hospitality everywhere. The final event was a champagne reception given by the Mayor at Oslo's Town Hall, a memorable occasion.

Oslo Productivity Doctrine

In the ceremony, Dr. Krish Pennathur from India, a former president and founder of the WCPS, presented the "Oslo Productivity Doctrine". This declaration of intent to promote productivity was passed unanimously by the delegates. The Doctrine had the unassailable appeal of patriotism and do-goodism. It was also logical. Its value, however, depended on the degree to which it would be implemented.

The most notable feature of the doctrine was the establishment of a permanent secretariat under the leadership of incoming WCPS President, Dr. Martin Tveit. Any correspondence about the confederation could be directed to him at Post Box 8401 Hammersborg, Oslo I, Norway. To convert the ideals of the Doctrine to deeds, Tveit had organized support from Scandinavian companies and also sought backing from firms around the world.

To maintain the momentum, a world congress was held in Indonesia in 1986. The next quadrennial congress was tentatively scheduled for Canada in 1988.

Final Remarks By The Chairman

"No single gathering of productivity minded people can assure productivity growth. But each contributes. Attendees left the World Productivity Congress with a three-inch thick volume of proceedings, supplemented by additional papers that were submitted late. They also had exposure to the international scene, where problems tangle with opportunities in ways unique to each nation. Yet there are similarities that cross national boundaries. Consultants and professionals from every country spoke of common problems and were proud of their achievements. Managers from everywhere were looking for the quick fix, while at the same time recognizing that at best, they might find basic tools and better programs that could give them a competitive edge. Whether or not they found a solution, they were assuredly convinced that productivity is a worldwide critical issue that begs everyone's attention."

A Review by Dr. James L. Riggs, President (WCPS)

“If the success of a conference is judged by the stature of its speakers, the number of nations represented, and the size of the published proceedings, then the 4th World Productivity Congress held in Oslo, Norway, May 13 to 16 was a spectacular success.

Under the umbrella theme of “Progress through Productivity” most of the presentations were concentrated in the following categories:

1. The tools and techniques to improve productivity;
2. Government policies and actions to bolster productivity;
3. The nature and progress of productivity worldwide.

The first category was the largest, with subdivisions for such topics as developments in telecommunication, achievements in Norwegian and European productivity campaigns, and improvements in public-sector and white-collar productivity, measurement, motivations and management for higher quality.”

A Productivity Panorama

The general mood of the congress was upbeat. Several of the speakers quoted impressive statistics to support claims that productivity was prospering in their organizations. Two of the commemorative addresses illustrate the optimism. Rand V, Aroskog, President and Chief Executive of ITT, made a rousing defense of corporate productivity in the United States, comparing its strengths and weaknesses with those of other nations, and calling for changes in public policies to foster more advances. The governmental side of productivity issues was addressed by Ritt Bjerregaard, member of the Danish Parliament and former minister of labor. She linked productivity to social concerns and economic growth, making some provocative observations that touched on such sensitive issues as birth rates and education in developing countries, centralized planning, the role of organized labor, and the duty of prosperous nations to help less developed nations to become more productive.

As was apparent in the commemorative addresses, there is no agreement on the preferred course of government interventions regarding productivity concerns, nor is there any one best path for businesses to follow. Consensus was apparent regarding the view that greater productivity is vital for the maintenance of global living standards.

In contrast to the previous congress held in Detroit in 1981, the 1984 edition tended to emphasize actual experiences more than general approaches to productivity betterment. Many consultants described their proprietary techniques and services at well-attended sessions. At the social functions held during the congress, most of the talk was about which improvement methods would be readily transferable to operations at home. There was a rather remarkable, and most welcome, willingness to share reports about successful and disappointing productivity experiences.

The Oslo Declaration

With the understanding that productivity is a universal concept aimed at providing more and more of goods and services for more and more people with less and less consumption of real resources;

Relies upon an inter-disciplinary approach for the effective formulation of objectives, development of plans, and application of productive practices to utilise resources efficiently, while maintaining high quality;

Involves integrated applications of human efforts and skills, capital, technology, management, information, energy, and other resources to bring about sustained improvements and betterment of the standards of living for all, through a total productivity concept;

Differs necessarily from nation to nation, each having inherent and potential strengths and weaknesses and each with disparate short-term and long-term needs and aspirations, but sharing commonalities of industrial applications, as well as those in education, public services, utilities and communications; and

Is more than science, technology, and management techniques, being also a philosophy and an attitude of mind that rests on the strong motivation of people to constantly strive towards a better quality of life.

In the belief that all nations must be encouraged to concentrate efforts on implementing methods that bolster productive performance through the creation of a network of cooperating individuals and associations that:

Calls attention to critical productivity issues, both regional and worldwide;

Provides practical services that demonstrate specific ways to improve goal-setting, decision-making, and operations;

Conducts comparative studies to reveal more about the complex nature of total productivity;

Improves the body of knowledge through research and analysis; and

Promotes education about the importance of productivity, starting with the very young and extending to all ages, spreading existing knowledge and technology to all participants;

By enlisting productivity specialists from industry, government, universities and professional institutions into a supportive information-sharing organisation;

We proclaimed that participants at the WCPS-sponsored 4th World Productivity Congress in Oslo, Norway, shall:

Continue their personal dedication to the productivity movement and will share non-proprietary findings for the benefit of all;

Strive to raise public awareness of the importance of productivity gains for the attainment of a higher standard of living, recognising that the state of worldwide productivity deserves immediate concern, improvement being vital to survival;

Endorse the development of an organisation to facilitate as an outgrowth of the 4th Congress by the President of the WCPS, which has the mission of strengthening communications and soliciting cooperation among all who are productivity-minded.

By establishing a secretariat to organise communication channels, information media, and appropriate activities Including, but not limited to, academic research, practical demonstrations of research results, and dissemination of information about such processes as performance measurement at individual, group, and total organisation levels, productivity audits, methods to raise quality, adaptation of technology to meet national needs, workplace improvements, management practices, workforce motivation, and quality of life, and to nourish productivity causes until the 5th Congress was held.

So be the covenant, May 16, 1984.

1986 Jakarta, Indonesia

5th World Productivity Congress



*“Productivity as the Driving Force in National and World Development”
April 13 - 16, 1986*

Organised in partnership with the Department of Manpower, Republic of Indonesia and the National Productivity Council of Indonesia.

At that time, James L. Riggs was the President of the WCPS and Martin T. Tveit was the Vice President of WCPS.

Objectives Of The 5Th World Productivity Congress

The world economy was still suffering from the extended slowdown in rate of growth. Economic disharmony was still present in most parts of the world. Some parts of the world were still suffering from economic

disasters. Such a situation could be overcome through a better international cooperation and an overall higher participation in productivity improvements.

The objectives of this 5th World Productivity Congress were to look further into the status, ambition and prospects in total productivity efforts: contributions and gains obtained by the participants in the world effort.

Presentations provided a broad survey of the approaches used in different fields, different industries, different countries, and different economic systems to foster productivity. Invited addresses by prominent government leaders, industrialists and scholars were also included in the program. The proceedings were available to all participants of the congress.

Attention was focused on the issues of international cooperation in productivity efforts, organization for higher productivity, culture and education of productivity, quality of working conditions and working relationships and quality of life, the inter-relationships of productivity enhancement and measurement at the aggregate and disaggregate levels, as well as at the firm and worker levels. Attention was also given to problems of productivity decline, inflation and unemployment, reduced profitability, impact of tax systems, and the productivity of state-owned enterprises and the public sector.

Highly qualified professionals in the field presented a wide range of studies, evaluations and information on issues of international cooperation in productivity efforts. The results of their work and their experiences in the field were of interest and benefit to representatives from government, the private sectors, business leaders from manufacturing, trade, from agriculture and services, university faculty and scholars.

The governments of economic communities, nations and industries in the world had become more and more concerned about their productivity, since productivity improvement was a matter of survival and progress. The challenges had become bigger and more complex, and international productivity improvement cooperation had become a must.

In his welcome address, Admiral Sudomo stated:

“Developing countries have entered the new world of productivity in their efforts to contribute to their national economic progress as well as to the progress of the world. Industrialized countries are experiencing

reduced productivity growth rates, so are the developing countries as well. Indonesia has for 15 years enjoyed a high rate of economic growth which is now also showing a decline in rate of productivity increase.

World progress depends to a great extent on the progress made by the industrialized as well as the developing countries. When productivity is an indicator of a nation's industrial contribution to its national economic growth, it is also contributing to the economic growth of the world. It should therefore be a concern of everybody interested, involved and who have a responsibility in economic development, and should participate in the improvement of world joint efforts in productivity enhancement.

Many governments realize that they should take more positive actions domestically and internationally so that the industrial and service companies could best perform in their contribution to world and national productivity growths. Management philosophies and practices should be adopted to the new world situation where many forms of scarcities have become a general phenomenon.

This congress is a very important occasion because it tries to look further into the status, ambition and prospects in total world productivity efforts.

Indonesia took the month of April, first time in 1984, as the month of productivity campaign every year. With the occasion of this congress in April 1986, together with the third year of our productivity campaigns, we hope to boost our national awareness on the subject and gain greater participation.

While in the last 15 years our primary aim was to increase production in the various sectors of our economy, now these efforts are covering both increase in production and increase in productivity. One of the greatest challenges standing before us in Indonesia is to create more job opportunities each year to match the increase of our labor force of around two million annually. Therefore, there is the combination of problems of elimination of unemployment and partial employment and of enhancement of productivity. With the theme of "Productivity as the Driving Force in National and World Development", I sincerely hope that this congress will make it possible for nations struggling with productivity growth problems to learn from each other on the matter."

Inaugural address by President Soeharto

"I see the great role that the current World Productivity Congress can play in the creation of a more advanced, more prosperous and more equitable world than what we have been enjoying thus far. The human race today is at the initial state of a new era, namely, the era of information and communication in the widest sense. The world evolution has also arrived at a stage where there is an increasingly closer relationship and inter-dependence among nations. The success of a nation and a group of nations can bring positive benefit to the success of other nations or group of nations. Conversely, the difficulty of a nation or group of nations can become the beginning of the difficulty of other nation or group of nations. The economic difficulties and the uncertainties that have persisted almost uninterrupted during these last few years have made us realise this. We must show concretely the common responsibility of us all, both the advanced and the developing nations, the rich and still poor nations, to remedy this situation.

One of the ways to do it is by making all the sciences and good information available in the world truly beneficial to the progress and prosperity of the inhabitants of this solitary world of ours. The science and experience in productivity, and the ways to raise it, constitute part of our important endeavors towards the attainment of this noble goal.

The world which is still filled with conflicts and divisions as we have experienced so far, made it impossible for the world societies to carry out good socio-economic development. The consequences are easy to understand, which are none other than the loss of time, opportunity, funds, energy and thoughts towards the creation of common prosperity for all mankind. Therefore, the time has now come, and it must no longer be wasted, to promote sincere mutual understanding and mutual respect amongst the world communities by the acknowledgement of the positive potentials possessed by each individual nation.

In answering to our vital common interest, namely, the creation of equitable progress all over the world, we greatly need mutual assistance. The World Productivity Congress is one of the efforts to materialize the spirit of such mutual assistance.

If our world remains full of divisionary gaps, they also exist in the field of science in productivity and the means to raise such productivity. The exchange of science and experience during this congress is a very positive effort in closing such divisionary gaps. Those who lack the knowledge and

the ability can learn from those who are more knowledgeable and more capable in the field of productivity.

Furthermore, it will be left to the respective nations to do their best to apply what they have learned in the efforts to raise the nation's productivity in accordance with the national identity and goal they regard as noble.

It is my sincere hope that the cooperation amongst nations to raise productivity will truly become a reality, without being hampered by differences of ideology, political system or social system adhered to by the respective nations. Only in such a way the world societies can help each other to advance themselves individually and to advance the whole of the world communities collectively.

With this hope and appeal, I hereby declare the 5th World Productivity Congress officially opened."

The Jakarta Declaration 1986

A statement unanimously approved on April 16, 1986, by delegates attending the 5th World Productivity Congress in Jakarta, Indonesia.

"We who have participated in the 5th World Productivity in Jakarta, Indonesia, reaffirm the principle and goals of the Oslo Doctrine and understand that our personal commitment is required to nurture and implement the Oslo Productivity objectives.

We also believe that the importance of human resources to the productivity movement needs great emphasis, since people constitute the driving force for national and world development.

Therefore, we dedicate our efforts to make everyone more concerned about productivity. All people should realise what productivity advances can do for them and what they can do to advance productivity.

Furthermore, we will seek ways and means of multiplying the results of productivity gains to achieve greater gains, including means to support expanded activities of the World Confederation of Productivity Science.

Since productivity advances directly benefit the creators, raising the quality of life for all, and eventually increasing the national prosperity, we declare our resolve to pursue these aims individually and collectively, and be prepared to report all accomplishments at the 6th World Productivity Congress in 1988."

1988 Montreal, Canada

6th World Productivity Congress

The sixth World Productivity Congress was held from September 25-28, 1988, in Montreal Convention Centre, Montreal. The congress was co-sponsored by the World Confederation of Productivity Science and the Canadian Council for Productivity. It was a showcase for business, government and union leaders and for academic leaders who are committed to productivity.

The Theme: Learning from Experience - Winners, Losers and Forerunners.

The Key issues comprised:

- World-class manufacturing
- Technology and productivity in services
- Productivity and the public sector
- The human side of productivity
- Innovation and productivity
- Productivity concepts and processes

Attendees at the Congress

The sixth World Productivity Congress was attended by eminent leaders in the field of productivity representing an outstanding array of internationally known corporations, universities, labour unions, productivity and research centers from Australia, Austria, Canada, China, France, Germany, Greece, India, Indonesia, Malaysia, Norway, Pakistan, Sri Lanka, Sweden, Switzerland, the United Kingdom, the United States, Japan and Yugoslavia.

The Sixth World Productivity Congress – opening remarks From Jean-Claude Lauzon

Jean-Claude Lauzon, the chief organiser, gave a report on the 6th

World Congress. There were some 1200 people in attendance at all times. There were three hundred additional people, bringing it up to 1500 who attended the Tom Peters speech at the Tuesday luncheon.

There were some 36 countries participating at this congress. There were 187 presentations. Twenty journalists in Canada covered the three days of the congress. Some council members were asked to speak to the media in the press room at the Palais de Congres.

Dr. Martin Tveit, President WCPS thanked Jean-Claude Lauzon for all his efforts which was followed by applause from the council members.

He commented on the history of the WCPS and his presidency. He stated that at the closing of the 3rd World Congress in Detroit, Dr. Tveit was approached by Dr. James R. Riggs, the President of the WCPS, who proposed a world network lead by a person from a small, neutral country. Hence, I became President, and Dr. Riggs became Chairman of the WCPS. The 4th World Congress was held in Oslo. Four hundred people attended. The 5th World Congress was held in Indonesia. Seven hundred people attended. It was headed by First Minister Sudomo. This was followed by the World Productivity Forum in Washington, D.C. held in cooperation with the Institution of Industrial Engineering (IIE) and this World Productivity Congress in Canada had in attendance 1500 people.

The journal, The National Productivity Review, is now the official journal of the World Academy of Productivity Science. "There is so much opportunity for expansion," said Dr. Tveit.

Prof. Tor Dahl, the new president thanked Martin for his report and for his 4 years of presidency.

The sixth World Productivity Congress was attended by an unprecedented number of distinguished speakers from around the world, including:

- Andre Berard, President, National Bank of Canada
- Shirley Carr, President, Canadian Labour Congress
- Prof. Tor Dahl, Vice President / President-elect, World Confederation of Productivity Science
- Per Grimstad, Deputy Minister of Industry, Norway.
- Thomas J. Murrin, Past President, Westinghouse's Energy and Advanced Technology Group, Pittsburgh

- Dr. Krish Pennathur, Chairman, Institute of Productivity Arts & Science and former President World Confederation of Productivity Science of India.
- Dr. A.N. Saxena, Director General N.P.C. India
- Tom Peters, Co-author of three bestsellers including *In Search of Excellence*
- Herve Serieyx, President, Eurequip-France
- Shih-I Lu, President, Institute of Microbiology and Productivity Centres, Academia Sinica, Beijing, China
- Dr. D. Scott Sink, Director, Virginia Productivity Centre
- Dr. Robert M. Solow, Professor, 1987 Nobel Laureate, Massachusetts Institute of Technology
- Lynn Williams, President, United Steelworkers of America
- Dr Anton Vratosa, Hon. President, Council of International Centre for Public Enterprises in Developing Countries, Yugoslavia.

Beginning of World Academy of Productivity Science (WAPS)

At the congress Dr. Krish Pennathur was elected as the first President of the World Academy of Productivity Science. There were 5 divisions: Africa, America, Asia, Europe and Oceania. He proposed a symbiotic relationship between the WCPS and the WAPS.

The Articles of Incorporation stated that the WAPS is an autonomous organization, and that WCPS will provide only guidance.

Dr. Tveit requested a change in Article 3 of the Articles of Incorporation of the WAPS that it should read “Fellowship”, not “Membership”, and “Oceania” instead of “Australia”. The corrections were made.

Brita Borge commented on Article 7. Kostas Dervitsiotis commented on Article 4. No changes were actually made.

Mr. Greg Balestrero stated that since the Executive Board was not yet formed, the heads of the academia that are nominated now included Dr. Walter Aigner for Oceania; Dr. Hans Ahlmann for Europe; Ashulba Abera for Africa; Dr. Scott Sink for the U.S. Asia would have a nominee for this position soon.

Dr. Tveit then proposed a change in Article 4 to read: “Coordinated with the Office of the President,” instead of “located.” Article 4 should read: “The administrative offices of the Academy shall be coordinated with the Office of the President.” This was approved.

Tor Dahl said, “All of the Council Members will be invited to join the body of the World Academy of Productivity Science. All of us should disseminate these Articles to appropriate individuals and institutions.”

President Prof. Tor Dahl’s Concluding Remarks

During a summing-up session after the 4th World Productivity Congress in Oslo, 1984, Dr. James L. Riggs and Dr. Krish Pennathur expressed some thoughts on how we could pursue the mission of WCPS, and to get productivity as a subject of science recognized and thereby also reach productivity scholars.

James Riggs, through his verbal elegance, expressed this in clear points, “What we must do is to pursue in the words of philosopher Tennyson, namely, TO STRIVE, TO SEEK, TO FIND AND TO VISUALIZE THE PRINCIPLES OF TOTAL PRODUCTIVITY.”

Dr. Krish Pennathur extended his philosophy around the just established “Oslo Doctrine on Total Productivity”.

Dr. Martin T. Tviet in his observations stated that it stood to the honour of fine thinking of both Dr. Krish Pennathur and Dr. Jim Riggs to wholeheartedly involve themselves and support the preparation of the by-laws of the new academy (WAPS). It was then decided that the first WAPS Headquarter would be established in India. Dr. Pennathur graciously accepted the challenge to head the academy as the first World President and to serve for a 4-year period. Dr. A.N. Saxena was elected Secretary General of the academy.

Looking back on the evolution of the WAPS and the wisdom of our founding fathers, the objectives of the Academy, briefly are:

To contribute to the enhancement of productivity science and the realization of human effort through transnational studies, appraisals and recommendations in an objective manner.

To function as a transnational forum for all subjects of productivity science and the human consequences and policy implications of productivity practices.

To establish and maintain working groups to study problems associated with productivity science and development from a global point of view.

To organize lectures, meetings, symposia and conferences, and to organize, conduct and disseminate studies, which further the Academy of Productivity Science.

To promote and administer honors and awards which encourage institutions and individuals to advance the aims of the academy and the WCPS.

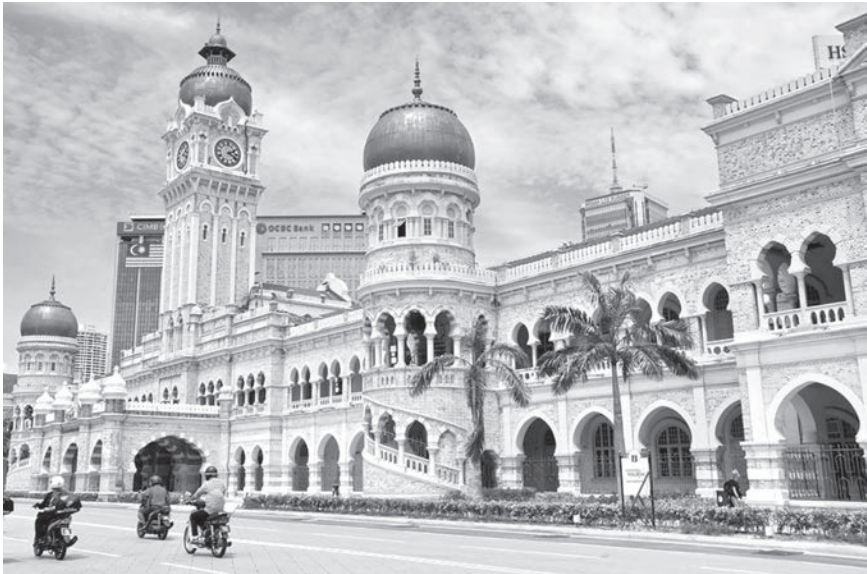
To promote the establishment of chairs, faculties, and schools furthering productivity science.

To develop and maintain contact with organizations whose work is directed towards productivity science, human welfare and development on a global scale.

To cooperate with other organizations which share the Academy's objectives and purposes.

It is truly a marching order for us, the fellows of the academy, representing this great cause to devote ourselves to a lofty global cause and our first priority should be given to education in productivity at all levels and special significance given to academic studies and research. The Royal Swedish Academy of Engineering Sciences and one of the organizers of the 8th World Productivity Congress offered to take on the responsibility for securing curricula and themes for productivity science in the fields that they command so well.

1990 Kuala Lumpur, Malaysia 7th World Productivity Congress Creating Lasting Change



Key Speakers:

Dr Milton Friedman

Dr. Krish Pennathur

Dr. Curt Nicolin

The congress was organized in partnership with the National Productivity Centre of Malaysia.

At that time, Tor Dahl was President of WCPS.

Preamble

The majority of the people still live, outside the orbit of a free economy. Some, like the Eastern European and other developing countries, are also in a state of transition from communism to capitalism and from stagnation

to decisive growth. Others again remain trapped with low productivity, high population and low growth.

Experience seems to verify the fact that market freedom, operating within 'ALL' of intelligent, equitable and effective laws is the best-known system for promoting productivity and growth.

It is through the introduction of basic freedoms that countries can provide entrepreneur, managers' and workers' incentives to increase production and growth which uplift the living standards.

All countries can increase productivity and growth through wider and more intense application and productive principles. These include basic freedoms, good laws, rapid creation of knowledge, and effective educational and training systems, high ethical standards and a free market.

Galaxy of Speakers

The 7th Congress has the distinction of the following eminent speakers: Inaugural keynote address was delivered by the Rt. Hon. Dr. Mahathir Mohamad, Prime Minister of Malaysia.

The James L. Riggs Lecture was presented by Dr. Krish Pennathur, President, World Academy of Productivity Science.

The Hon. Sudomo, Coordinating Minister of Political and Security Affairs, Indonesia, spoke about "Increasing Productivity through Pancasila".

The master strategist behind Scandinavian Airlines System and ASEA Brown-Boveri, Dr. Curt N. Nicolin spoke about "What Makes Growth Come About".

The only company outside of Japan that has received the Deming Prize is Florida Power and Light Co. The architect of its productivity program, President R.E. Tallon, spoke about "World Class Quality".

Nobel Laureate in Economics, Dr. Milton Friedman, of the United States, addressed the congress via a special satellite hook-up between Kuala Lumpur and San Francisco. AT&T graciously made its staff and communication facilities available to the congress.

Dr. James A. Tompkins, President of the Institute of Industrial Engineers, talked about "Beyond Manufacturing Competitiveness".

Dr. Toshiro Kunihiro, Senior Executive Vice President and Director of NEC Corporation talked about "The New Angle of NEC in Creating Lasting Change in Advancement of Productivity".

WAPS (International) News A New Beginning

Addressing the delegates Dr. Krish Peunathur, President WAPS stated:

“The World Academy of Productivity Science (WAPS) is privileged in presenting its first newsletter to foster and strengthen the bond of friendship among the countries of the world. It seeks to promote productivity science and to act as an effective instrument for the realisation of human good and constructive development.

In the emerging scenario, productivity has come out of the portals of narrow boundaries and has truly become transnational. It encompasses the whole gamut of socio-economic as well as psychological areas and symbolises a ‘Continuous Improvement Philosophy’ that is people-based. For many countries in the world, productivity has become the ‘science of survival’ and the WAPS will be a welcome partner in their struggle for a better and a more peaceful world of tomorrow.

Young in years, the academy needs nurturing and support. Its strength lies in the cumulative experience with established organisations all over the world. Its valuable resource is people’s knowledge, skill and experience. It craves for recognition of the productivity profession by government administrators, public and private sector managements, academics, professionals, research organisations and all others engaged in promoting the cause of productivity.”

WAPS First Grand Ceremony

It was at the 7th World Productivity Congress held in Kuala Lumpur (Malaysia) in November 1990 that a major decision was taken to make the members of the International Advisory Council of WCPS as Founder Fellows. This followed the first inaugural ceremony held on 20th November 1990, when all the founder fellows wearing Ribbon of the Academy and a Badge after lighting the candles marched on the dais to celebrate the First convocation that affirmed as under:

“We believe that productivity science unfolds a new horizon and a new basis for the global community to come nearer to the great ideals and vision of universal values and that we have a noble commitment to make a contribution to the common goal of economic and social wellbeing by fostering interrelationship of nations and people, by disseminating total productivity knowledge, and by improving the lost harmony between man and nature.”

United Nations year of total Productivity Progress

The World Confederation of Productivity Science (WCPS) has taken the initiative to submit the following proposal to the United Nations to proclaim 1992 or 1993 as the 'Year of Total Productivity Progress.' The Proposed "Year of Total Productivity Progress", 1992 or 1993, is in accordance with the guidelines for international years of the United Nations. We believe, that the United Nations system has the administrative and financial capacity and experience to play an effective role in the implementation of such a programme. In 1975, UNIDO started a similar programme for a worldwide industrialisation, 1975-1985 but ten-year programmes are not as efficient as one-year concentrated efforts. For this reason and recognising the proposal by ECOSOC to dampen the flood of new "decades" We recommend that ECOSOC initiate and prepare for an Olympic effort of one year of "Total Productivity Progress". (See also "the Lima Declaration and plan of action on industrial development and co-operation", Peru, 12-26 March 1975 and the New Delhi Declaration, 1980).

Objectives

It affirmed that thousands of non-governmental institutions and productivity centres have not been involved in such a global effort before and have worked more or less on a local or regional basis concentrating on national issues.

We believe, much more can be achieved by a coordinated world-wide effort to support the least developed countries and those in need. To that effect we propose the following objectives:

To increase productivity and consequently accelerate economic development and the quality of life by mutual co-operation worldwide in a special one-year effort.

To apply a total productivity concept in every country, society, company, institution, industry, man, woman and child, in order to improve prosperity of body and mind of millions in need.

To establish a team of scholars, consultants, lecturers and productivity practitioners, to act as a catalyst, knowledge centre, think-tank and research establishment for this project.

To measure achievements or performance against a target or goal set by each company, industry, institution, nation and not necessarily in terms of productivity growth.

Formation of Pan-African Productivity Congress (PAPA):

Before the closure of the congress, a declaration was made by the representatives of six African nations attending the 7th World Productivity Congress in Malaysia. This declaration recognised the close relationship between productivity and economic development and the need to stimulate and generate productivity awareness in African nations and determined to evolve a constitutional framework to promote a productivity culture in all African economies to ensure sustainable economic growth in Africa. It also identified the value of fostering cooperation between national productivity organisations and other related bodies in and outside Africa for the promotion of productivity enhancement activities on the African continent. The initiative carried the full support of the World Confederation of Productivity Science (WCPS). A steering committee comprising nine African countries (including Botswana, the Ivory Coast, Ethiopia, Ghana, Nigeria and South Africa) and the WCPS South African Chapter, represented by the NPI arranged the first assembly towards the end of 1992.

The main objectives of PAPA are:

- To provide a forum for promoting and sharing ideas and experiences on strategies, technologies and practices for productivity enhancement and accelerated economic growth in Africa.
- To promote and sustain the development of productivity cultures in African economies in order to ensure better living standards on the African continent.
- To foster cooperation between national productivity organisations and other related bodies in and outside Africa with a view to promoting sustainable growth in productivity in the economies of Africa.
- To facilitate the rapid development and growth of national productivity organisations, centres and institutions in all African countries.

WORLD PROSPERITY: Concluding Remarks by the President Dr. Martin T. Tviet:

“The World Confederation of Productivity Science and the World Academy of Productivity Science are relative newcomers, but the

significance of their effort has been substantial. Currently, the planning for the 8th World Productivity Congress in Stockholm is under way and will, indeed, be a magnificent performance of productivity specialists and principles from the entire world. The previous congresses have been held worldwide (London, Bombay, Sydney, Detroit, Oslo, Jakarta, Montreal, Kuala Lumpur and now Stockholm). The coming congress in Stockholm, May 1993, will likely be the most comprehensive yet, and with the largest attendance. The title “Productivity and the Market Economy” will open for any number of tracks and the impact of the congress will be of great possibilities since it will focus on the world dynamics and current needs.

My tenure as President (WCPS) is now completing. In retrospect, I look back on a period of most extraordinary productivity efforts and developments, but the past is only a weak shadow of what will be performed over the years to come.”

The Kuala Lumpur Declaration 1990

“We realise that change is constant and eternal, and fundamental for progress. It must be pursued from the perspective of both continuity and change in the quest of progress for the benefit of all people.

We realise such a quest will require acceptance and positive attitudes towards change, and that any gains accrued should be equitably shared by the initiators and implementers.

We believe that the best framework for successful change is one that provides the greatest amount of human freedom. These freedoms include:

- Equality under equitable laws and rules that protect individual freedom and guard against abuse of such freedom.
- A market economy where people are free to engage in activities that promote their own best interest without harming the interest of others, allow competition between suppliers of goods and services, and allow freely chosen political representatives.
- Protection of individual property and its fair disposal, and high ethical standards of individual and organisational behaviour.
- Availability of and accessibility to an effective education and training system that meets the needs of all citizens to acquire and practice the knowledge they require to prosper in a changing world.

We believe that education and training is a life-long process of acquiring the knowledge and tools to achieve excellence in all the tasks that people undertake. We also believe that education must be imbued with values and standards that allow individual human beings to flourish in their chosen fields of endeavour.

We charge the fellows of the World Academy of Productivity Science and the participants of this congress to work towards the achievement of these noble objectives and help make change into a positive force that will benefit all mankind. The World Confederation of Productivity Science takes great pride in hosting the first meeting of the World Academy of Productivity Science and witnessing the inaugural ceremony for its fellows on the 19th November 1990 in Kuala Lumpur.”

This declaration was sealed and endorsed in plenum at the 7th World Productivity Congress on 22nd November 1990.

1993 Stockholm, Sweden

8th World Productivity Congress

The Market Economy – The Strategy for Growth



Parton: HM King Carl XVI Gustaf of Sweden

Key Speakers

H.E. Patricio Aylwin, President of Chile

Mr. Carl Bildt, Prime Minister of Sweden

Prof. Michael Porter

This Congress was organized in partnership with the Royal Swedish Academy of Engineering Sciences.

At that time, Tor Dahl was the President of the WCPS, and Martin T. Tveit was the President of WAPS, (having been appointed after the death of Dr. Krish Pennathur in 1992).

At the Stockholm Congress, Dr. A.N. Saxena from India was elected as President of WAPS but had to decline the appointment due to other

commitments. Dr. Scott Sink, who had been elected as Vice-President was therefore appointed President of WAPS.

Objective

“The theme of the congress recognizes the fact that as productivity in many countries is stagnating or even declining, it is becoming increasingly urgent to identify factors favorable to both individual growth and national and international prosperity. But productivity cannot be studied in splendid industrial isolation. Political strategies and economic policies influence productivity. Cultural and social patterns affect the motivation and enthusiasm of executives, researchers and blue-collar workers alike.

The objective of the 8th World Productivity congress is to study productivity in relation to the world around us and to formulate strategies for promoting productivity on a global basis with a thrust on the main themes viz. global integration and productivity; productivity and market economy; productivity in terms of capital; human resources and knowledge; management of technology; productivity and quality interaction and productivity in the service sector and in education.

The King of Sweden will open the congress. The most prominent experts, scholars, and business leaders in the world will convene in Stockholm for the congress. The city of Stockholm will host a gala-dinner for the participants at the Stadshuset, the landmark city hall of Stockholm, which is also home to the annual Nobel dinner. A trip on antique steam boats, beautifully finished and lovingly maintained, will take the participants on an unforgettable tour of the Stockholm archipelago.

The Congress will provide a unique forum for professionals everywhere to keep up to date on the status of productivity science. We urge you to take advantage of this opportunity to present your own ideas and experiences, and to meet with colleagues from other countries to learn of their achievements.”

THE SUB THEMES

Global Integration and Productivity

A number of sub-themes will focus on the global aspects of productivity. Do multinational companies break down traditional national borders only to erect new barriers? Competition and competitiveness will also be discussed. What makes successful companies so good at what they do? Tangible examples from leading companies will be presented in a series

of special sessions. The effect of global integration on the content and direction of educational programs will also be discussed.

Productivity and Market Economy

Speakers and delegates will be asked to discuss the role of governments in creating a favourable climate for a thriving market economy. How much do government policies and legislation really influence productivity? What role do social issues play? Can governments influence the investment pattern, and should they try to?

Productivity in terms of Capital, Human Resources and Knowledge

Increased productivity can rarely be attributed to investments in machinery alone. Personal motivation, managerial skills and knowledge are other key factors. Is it possible to distinguish between productivity increases which stem from capital investments and that which have their origins in less tangible investments, for instance in further training? Educational: do existing school systems really give young people the skills and knowledge they need for their jobs?

Management of Technology

New technologies applied in the right way are they key to increased productivity. But is there some secret formula for generating and diffusing new technologies? How can we improve our knowledge base? What is the state of the art in productivity research? Discussions will also focus on investments directed at improving the national environment and reducing environmental impact.

Productivity and Quality Interaction

Productivity and quality are two concepts which have a great deal in common. Both depend on the most efficient and effective use of resources at corporate and individual levels.

Productivity in the Service Sector and in Education

The service sector has expanded tremendously over the last few decades. How do we define and measure productivity in services? The public services sector is being subjected to closer scrutiny than before. Can productivity in this section of society be measured in the same way as in industry? Can productivity be improved here too?

Congress Highlights

Civilization may not be national and regional. It should be global, since no country solving the hunger, misery, unemployment, illiteracy and social misdeed problems slovenly for itself in a world full of these scourges has the right to be proud of the qualification of being civilised.

If there are excessive numbers of “haves” and “have-nots” in the same country, the rise to higher ranks of a country in the international roster of gross national product and per capita gross national product is not the only way leading to these objectives and to such a world which may well seem Utopic to many is to launch a productivity mobilization geared to the most efficient use of all our natural resources (headed by the human ones), our science and technology potential and thereby to raise to new heights our global, national, sectorial, organizational and individual performances.

Dr. Martin Tveit, President, WAPS in his address stated, “The 8th World Productivity Congress on the theme “The Market Economy-The Strategy for Growth” has been a unique occasion for forging ahead the spirit of co-operation and evolving a cohesive and a comprehensive plan of action for a global productivity drive. In retrospect, while the 6th World Productivity Congress held in Montreal (Canada) was a forward leap in defining productivity as a science and its interlinkages with physical, social and natural sciences; the 7th World Productivity Congress Kuala-Lumpur (Malaysia) was instrumental in broadening the base and spear-heading productivity as a powerful force for creating lasting change.

It is most heartening to witness a global upsurge for higher productivity. A Pan-African Productivity Association has been set up for Africa. A South-Asia division of the WCPS from India is engaged in promoting greater regional cooperation between SAARC countries. New Chapters have come up in People’s Republic of China, in Nepal and in Turkey. The future is indeed promising.

The World Academy of Productivity Science as the most important arm of WCPS has come up when productivity professionals must resolve to strengthen cooperation on a global basis for promoting a better society and improved quality of life for all the people of the world.”

In his concluding address Mr. Jean Lauzon, the Chairman mentioned, “It is my considered view that the WAPS (International) Newsletter by Dr. A.N. Saxena has become a powerful vehicle of disseminating knowledge and information on productivity globally. Its professionalism in both

information and presentation, makes this newsletter one of the most important ways of sharing thoughts at a top-quality level within the World Confederation of Productivity Science on our activities as well as on the science of productivity.

I personally congratulate Dr. A.N. Saxena, Executive Vice-President of WAPS, and his team for the excellent work done. I have no doubt that this will create a strong link between all our Chapters and the fellows of the Academy.”

Stockholm Declaration, May 26, 1993

The best the society can offer to all people in the world is:

Freedom, ethics and competence which will secure peace and prosperity.

We, the members of The World Confederation of Productivity Science and the World Academy of Productivity Science, meeting in plenum at the eighth World Productivity Congress in Stockholm, Sweden, make this a commitment of our professional and personal lives.

**1995 Istanbul, Turkey
9th World Productivity Congress
New Visions and Strategies
for the Next Century: People,
Technology & Productivity**



**Honorary Congress President: H.E. Suleyman Demirel,
President of the Republic of Turkey**

Key Speakers

Tor Dahl

Dr. Curt Nicolin

Dr. Gary Becker

At that time, Jean Claude Lauzon was the President of the WCPS, and Tor Dahl was the Chairman of the WCPS

Preamble

Respecting cultural continuity and human independence.

Universal understanding and acceptance of productivity principles is our personal and professional goal.

People have the right to dream and to fulfil those dreams through freedom.

The Honorary Congress President was H.E. Suleyman Demirel, President of the Republic of Turkey.

The keynote speakers were:

Tor Dahl (Chairman of WCPS)

Dr. Curt Nicolin

Dr. Gary Becker

The James L. Riggs memorial lecture was delivered by Prof. Tor Dahl, the Chairman of WCPS.

The World Confederation of Productivity Science (WCPS), The World Academy of Productivity Science (WAPS), and the National Productivity Center (NPC) Turkey, brought together world leaders, productivity experts, social scientists, academics, business and industry leaders and technocrats from all over the world at the 9th World Productivity Congress in Istanbul.

The congress was declared open by His Excellency Suleyman Damirel, President of the Republic of Turkey, amidst a thunderous applause. It also witnessed a video message from the Prime Minister of Canada where the Secretariat of the WCPS is located.

In his eloquent message, His Excellency Suleyman Demirel stated, "Today, more than ever, the world needs to reorganize its economy to make it function in accordance with the principles of productivity. Establishing a balance between scarce resources and unlimited needs, which would in turn bring maximum prosperity to mankind in an equitable fashion, is a responsibility to be shouldered by the international community. This responsibility necessitates the functioning of the global economic system, as much as individual national economies, on the basis of productivity. I appreciate the international co-operation directed towards this objective.

As far as Turkey is concerned, we support all kinds of initiatives that would be beneficial to mankind. We are duty-bound to contribute to it. In this context, it is indeed a great pleasure for Turkey to host the ninth World Productivity Congress.

Turkey is going through a successful transition period as regards the full establishment of a free market economy with a view to attaining total

rationality and productivity. In the international field, we are ready to share with other countries the knowledge and experience we gained during this ongoing process. Likewise, we would welcome similar contributions.

It is indeed a happy occasion for Turkey to welcome the participants of the Ninth World Productivity Congress, which, I believe, will provide a suitable platform for an exchange of views on an international level for the most effective and rational utilization of resources.

Taking this opportunity, I would like to greet all the participants of the Congress and hope that their stay in Istanbul, a unique amalgam of historical and natural riches and the cradle of several civilizations, will be a memorable one.”

The Theme

The theme of the congress was: “New Visions and Strategies for the next Century: People, Technology and Productivity” - being most relevant to economic development globally. And yet, it did not miss the original emphasis on systematic analysis and evaluation.

The Congress sub-themes were specially worked out to reflect the requirements of both developed and developing countries, in keeping with global perspectives. These were deliberated in plenary sessions and several streams to accommodate the large number of papers and speakers.

It was amazing to find over 900 delegates from 38 countries. More than 100 papers were presented and these along with others were printed in two volumes and a third one giving abstracts in a superbly elegant silver cover. This magnificent publication will remain a land mark in the history of the World Congresses held so far.

In its momentous deliberations, the congress sought to establish a positive linkage between people, technology, productivity, sustained growth, quality of life and employment. It re-endorsed its belief that the best gift the society can offer is freedom, ethics and commitment, which will secure peace and prosperity for all.

The congress resolved that all the delegates attending the congress, the members of the World Confederation of Productivity Science, the fellows of the World Academy of Productivity Science and Productivity Institutions and Organisations all over the world should strive to play an important role in the concerted efforts to constantly create a better future for millions of people throughout the world.

Awards at The 9th World Productivity Congress Istanbul - 1995

During the closing ceremony of the 9th World Productivity Congress, three distinguished fellows of the World Academy of Productivity Science were honoured by the WCPS Chairman's Award by Prof. Tor Dahl, Chairman International Advisory Council of the World Confederation of Productivity Science. The awards were presented to:

Prof. Dr. A.N. Saxena (India) Executive Vice president, WAPS for his outstanding contribution to the World Academy of Productivity Science and for the publication of the uarterly WAPS (International) News.

Hon'ble Brita Bortge (Norway) Director, National Chapter Coordinator for promoting 30 National Chapters of WCPS.

Prof. Dr. Ergun Yener, (Turkey) Secretary General, NPC for organising the most outstanding 9th World Productivity Congress.

The congress resolved that "today, more than ever, the world needs to re-organize its economy to make it function in accordance with the principles of productivity.

Establishing a balance between scarce resources and unlimited needs, which would in turn bring maximum prosperity to mankind in an equitable fashion, is a responsibility to be shouldered by the international community. This responsibility necessitates the functioning of the global economic system, in tandem with national economies, on the basis of productivity.

AS far as Turkey is concerned, WCPS supports all kinds of initiatives that would be beneficial to mankind. We are duty-bound to contribute to this.

Turkey is going through a successful transition period as regards the full establishment of 'a free market economy' with a view to attaining total rationality and productivity. In the international field. Turkey is ready to share with other countries the knowledge and experience it gained during this ongoing process."

Report on WAPS by Dr. D. Scott Sink President WAPS

The 9th World Productivity Congress, held in Istanbul June 4-7, was a tremendous success from the academy's perspective. It marked a maturation point. WAPS now has 169 fellows from 34 different countries. It inducted 44 new fellows at this congress. Twenty-one new fellows

attended the congress and were recognized and presented with their medallions and certificates. Prior to the congress's opening ceremonies, attending fellows met to hear a report of progress and plans from Dr. A.N. Saxena and myself. We overviewed progress with the newsletter, the nomination process, and study panels. The fellows then circled their chairs and introduced themselves and stated their intention relative to the academy and relative to quality and productivity improvement. It was a good way to start the congress and was the best WAPS fellow meeting to date.

Joel Barker (Futurist) address was outstanding on the theme: "Preparing our Children for the 21st Century". His premise was that we have a promise and a pathway. The promise to our children is that there is a future worth preparing for and we have the obligation to do that. Education is the pathway to be climbed, not a race to be won or lost. Everybody can and should win. Joel Barker is working on an experiment in K-12 education that pioneers what we teach and how, so that the education is directly connected to the reality of the new millennium. Joel Barker suggested that the best educational process in the world cannot make irrelevant content useful and the worst process cannot destroy the utility of meaningful content.

Barker then went on to reveal some details on his experiment. It revolved round a model that has three overlapping domains: E, ecological; F, futures; G, global. A paper on this model is available on internet.

Of particular salience to WCPS/WAPS is the notion of "learning leaders". Barker defined a learning leader as a person you will follow to a place you would not go by yourself. His vision for the academy was that it be filled with professionals who make a difference and who are true learning leaders for others, for their organizations, for their nations and for the world. Fellows are people who understand the promise and who are masters at the pathway.

Excellent Structuring

The congress sessions, as in all conferences, varied in scope, in content and in quality. That included a number of keynote, and plenary presentations (including one from Nobel Prize winner Gaiy Becker of the University of Chicago, live by satellite) and then a series of themed presentations in parallel sessions. Of course, again as in all conferences, these sessions served merely as a starting point for discussion and debate

on an informal level at coffee and meal breaks; they oil the wheels of the network.

Mr. Mathur was then the Chairman of Western Coalfields Ltd., a government-owned company under Coal India and Ministry of Coal, Government of India. He had very clearly brought out the various factors which influence the productivity of coal mine workers in India.

“Coal mine workers numbering about 0.7 million, needed special incentive packages and it was observed that best motivation was derived from the inspiration which one gets from working for his country and for its progress.”

The event was pretty grueling but rewarding. Business sessions went on from 9am to 6pm each day and there was a social event each evening. These included a boat-trip up the Bosphorus and a performance by the ‘Whirling Dervishes’ which proved to be a magical experience. These events were excellent and well-organised but gave little escape from the heated and serious discussions which characterise international conferences.

To focus on one or two points made during the congress as summarising the ethos of the event, the first made by Prof. Tor Dahl of the American Consultancy Tor Dahl & Associates, who is a Member of the Board of Directors of the WCPS: He finished his presentation with the comment, “It’s so simple — people just need to be encouraged.” and the second one made by the President of Turkey in his opening address, “Although producers have a responsibility for the efficient use of resources, that responsibility is shared with the consumer. Finally, we all have an interest in the sustainable use of natural resources — productivity operators and is important at the personal, the organisational, the national, the international and the global level. We need to educate in productivity issues not just those responsible for economic activity but all those who consume the world’s limited resources.

Before the closure of the congress, the chairman made very valuable observation:

“There is still a glow within all of us who were fortunate enough to attend the ninth World Productivity Congress in Istanbul, Turkey. The congress has never had a more splendid setting: The Ciragan Palace, with its gleaming marble steps against the blue Bosphorus, could not have evoked a greater feeling of excitement and anticipation. And who

could ever forget the opening reception at the Dolmabahce Palace, the extraordinary and memorable folkloric night at the Ataturk Culture Center with outstanding performers, haunting music, exotic fashions and the famous and unforgettable Sufi dancers. When the congress came to its final celebration at the Esma Sultan Mansion on the Bosphorus, all of us realized that we had experienced the best that country could offer of hospitality, culture and friendship.

When all this is said, let one not forget one person upon whose shoulders the total responsibility rested: my friend Dr. Ergun Yener. The contributions of Dr. Yener will be acknowledged and honoured as long as there is WCPS. Thank you, Ergun, for a job superbly done with the help of your national steering committee members!

Special to remember, things from this Congress: The thoughtful renaming of the presentation rooms: The James L. Riggs Hall, the Krish Pennathur Hall, the Martin T. Tveit Hall, the Stockholm Hall, etc. It was such an inspired gesture of grace and honor. The superbly bound proceedings and exquisite carrying case available at registration; the sumptuous meals on the Ciragan Palace terrace; the high-tech projection screens in the plenary hall; the camaraderie and friendship among all the participants... How can this ever be improved upon? And yet we know that it was, because Turkey was teaching us, just like Stockholm and Kuala Lumpur did, and all the other congresses that founded and shaped our traditions and multinational culture.

And who would have thought that at this time in our young and spirited organization we would have more than 30 Chapters worldwide, thanks to the energies and diplomatic skills of the Honorable Brita Borge? Or that we would have fellows of the World Academy of Productivity Science around the world, under the able leadership of Dr. Scott Sink and Dr. A.N. Saxena 'Who have the foresight to hold all this'.

And that all of this is being held together through a beautifully published international newsletter by Dr. A. N. Saxena? These three, plus the extraordinary Dr. Ergun Yener were honored with the Chairman's Award for outstanding dedication to our great cause."

Scholarly Pursuits

I don't know if you all have access to the great work that is being done by our colleague. Dr. M.R. Ramsay's monumental work on productivity statistics from around the world, which will be the standard reference work for all serious scholars in our field.

The recently published works of Dr. William Wrennal, Dr. Scott Sink, Carl Thor, John Heep, Dr. Kazukio Kurosawa, all add to the great legacy of Dr. James L. Riggs, Krish Pennathur, Martin T. Tveit, Walter Aigner and all the other outstanding contributors to our field. And Jean-Claude Lauzon added to the tradition of the state-of-the-art by opening address as Chairman, WCPS.

The Istanbul Declaration, June 7, 1995

We, the members of The World Confederation of Productivity Science and the World Academy of Productivity Science, meeting in plenum at the ninth World Productivity Congress in Istanbul, Turkey, believe and declare:

This is a direct positive linkage between
People, Technology, Productivity,
Sustained Economic Growth,
Quality of Employment and Human Condition and
Full Employment.

1997 Santiago, Chile

10th World Productivity Congress



The congress was held from October 12 to 15, 1997 in Santiago, Chile.

The theme was:

“Productivity: The Key to Quality of Life in the 21st Century”

Preamble:

The coming of the 21st century is forcing people to focus on the future. What are the factors that will enhance peak performance and value creation among societies and individuals? What factors will define the competitive edge that creates the corporate leaders of tomorrow? What are the barriers to productivity at the individual, corporate, community and national levels? How will peace, prosperity, and freedom be achieved in this new era to create a better quality of life for humanity?

.. And tracks related to

- Reaching new levels of human performance
- Predicting corporate success
- Networking and the global economy
- Public sector impact on peak performance
- Education and the learning process
- Energy in a century of environmental concern
- Improving productivity through transportation and logistics

The organising partner was the School of Industrial Engineering of the Universidad Del Mar.

Keynote speakers were:

Mr. Jean-Francois Gautier, Chairman, SalomanS.Aa. France

Dr. Curt Nicolin, Former Chairman, ASEA Brown Boveri, Sweden

Mr. Louis A. Tanguay, VP, Bell Canada

Patricio Aylwin Azocar, former President of the Republic of Chile, Joel Barker, Futurist, USA, Jean-Francois Gauthier, Chairman, Salomon S.A., France, Cesar Gaviria Secretary General of the Organization of American State, USA, and former President of Colombia, Curt Nicolin, former Chairman ABBL, Sweden, Lester C Thurow, Professor Sloan Business School, Massachusetts Institute of Technology, USA among others from WCPS.

It was an excellent opportunity for delegates to meet with colleagues from all continents interested in creating Peace and Prosperity through Productivity worldwide.

A Scenic Country:

Chile is an outstanding country to visit as it offers an interesting success story on democracy, on open economy and world economic alliances.

The Santiago World Productivity Congress was a tremendous success under the leadership of Sergio Vera Mutioz. It brought together some 150 speakers from all the five continents, a first for our World Productivity Congresses.

All the delegates were influenced and challenged by the 12 keynote speakers. And, no wonder Prof. Tor Dahl accepted to be the keynote speaker to deliver the James L Riggs Lecture, a key event which means a lot to WCPS. HE Eduardo Frei, President of Chile, H. E. Ketumile Masire,

President of Botswana, and R. H. Jean Chretien, Prime Minister of Canada were the heads of state who officially endorsed the World Productivity Congress.

The venue of Santiago was spectacular, and delegates felt enchanted by this city and this beautiful country from which we can learn how economic miracles are possible.

United Nations official recognition of WCPS

An official event was made by the President: It has been over a decade that the World Confederation of Productivity Science has had the dream to be recognized by the Economic and Social Council (ECOSOC) of the United Nations. Consequently Andre Miller, the Secretary General, made a formal request for accreditation by the United Nations.

On 8th May 1997, the General Assembly of NGOs, by an unanimous vote, recommended to the ECOSOC that the general consultative status be granted to the World Confederation of Productivity Science. This recommendation was endorsed by the general assembly of ECOSOC in Geneva late July 1997.

This recognition allows WCPS to provide expertise to all sub-committees on matters that can influence the quality of life and the quality of working life of all citizens. WCPS will be in a position to influence the United Nations to declare a year, month, week or day of Productivity worldwide with all the positive outputs that such a decision can bring to the benefit of mankind.

Sustainable development, nature of work, virtual organizations are among concepts discussed at the ECOSOC. The WCPS/ECOSOC status gives the opportunity to influence the decision making process on these important issues.

Eminent Speakers

Joel Barker, futurist, and Lester C. Thurow, Professor at the Massachusetts Institute of Technology, both from the USA; Jean-Marc Bruel, Deputy Chairman of Rhone Poulenc S.A. and Jean-Francois Gauthier, Chairman of Salomon S.A., both from France; Tor Dahl and Scott Sink both from the World Confederation of Productivity Science; Louis A. Tanguay, President of Bell Canada; Curt Nicolin, Former Chairman of Asea Brown Bovari, Sweden; KazuhifoOhta, Vice-President of Denso Corporation, Japan were some of the Keynote Speakers who addressed the various aspects of the major theme of the congress:

Of special mention at this event was the message received from Mother Teresa whom WCPS Chairman Mr. Jean Claude Lauzon had invited to address the Congress. Her message and kind letter are reproduced below.

“Dear Jean Claude Lauzon”

I received your letter dated 21st June 1996 sent to me by Dr. A.N.Saxena and I thank you very much for the same.

I am grateful for your kind invite to the 10th World Productivity Congress which will take place in Santiago, Chile in October 1997.

However, it is too early for me to give you any definite answer. If you would once again remind me in the month of August 1997. I will be able to give you a definite reply.

May God bless the wonderful work you are doing specially for the suffering poor.

God Loves You-love others as God loves you.

God bless you.

My Message:-

“The Fruit of SILENCE is Prayer

The Fruit of PRAYER is Faith

The Fruit of FAITH is Love

The Fruit of LOVE is Service

The Fruit of SERVICE is Peace”

World Academy Of Productivity Science (WAPS)

At the meeting of the World Academy of Productivity Science held at Hotel Crowne Plaza Dr.Scott Sink President highlighted some of the activities that took place during the last two years within the Academy: merger of the WAPS Secretariat with the Montreal WCPS Secretariat, establishment of a 1997 Fellow nominating process. discussion on the future of the Academy through a steering group headed by Kenneth Knott and preparation of a souvenir, WAPS-International Newsletter by Dr. A.N.Saxena.

WAPS Certificates for their valuable contribution were then given to the following:

Dr. A.N. Saxena

Dr. Kenneth Knott

Dr. Jan Visser

Mr. N.K.Bhatt

Mr. Ron Davison

Elizabeth Fulop

Mr. Carl G. Thor

Mr. William Wrennall

Mr. Andre Miller

Scott Sink then explained that the WCPS Board of Directors had nominated him as the WCPS President for the term ending 2001 World Productivity Congress. The WCPS Board of Directors had also nominated Carl Thor as the WAPS President for the same term.

Carl Thor, the new President of WAPS mentioned that he was extremely honoured to become the President of the Academy and that he counted on all Fellows to help him during his Presidency. He set the agenda as under:-

1. WAPS Board of Directors
2. Position Paper Concept
3. WAPS Directory
4. By-laws
5. WAPS priorities
6. 1999 WAPS fellow nominating committee members

Carl G. Thor presented the Directors of the WAPS Board :- Dr.A. N. Saxena. Jan Visser, Brita Borge, Jean-Marie Gonthier, Jean Kaspar. Thomas C. Tuttle and mentioned that, in addition, Ergun Yener from Turkey and Kasukiyo Kurosawa from Japan were included as directors on the board. He informed the participants that, at the WAPS Board meeting held on October 11, 1997 in Santiago, motions were passed to nominate Dr. A.N. Saxena as WAPS Executive Vice-President and Andre Miller as Secretary General of the WAPS.

Carl G. Thor explained the concept of Position Paper that he would like to organize this year. The intent was to provide a means of publishing

monograph full length papers on subjects of interest, primarily authored by Fellows, who might otherwise not be readily available to other Fellows. The Secretariat would play a major role in this by being the central contact point. Several logistic items such as pricing have to be cleared up before this could be launched. He asked the Fellows to think about the kind of papers they would propose in order to start this activity during the year.

WAPS Fellows Directory

WAPS being a networking organization amongst colleagues interested in the field of Productivity Science, it is of extreme importance that a Directory of Fellows exists that will facilitate the networking. He asked all participants to check their particulars in the WAPS list available in order to make all relevant modifications needed. A questionnaire will be prepared to lead further in this networking process.

WAPS Priorities

Carl G. Thor reported on the meeting that he had the day before with Kenneth Knott about the steering group, Kenneth had headed during the past year. He explained very briefly the mandate Kenneth had received in Istanbul, the approach he had taken with this group and the main recommendations the group made to the Academy. He pointed out that these recommendations were in line with what the WCPS also wants to do with the Academy. He thanked Kenneth and his group for the good work done.

Carl G. Thor then expressed that the first priority of the Academy will turn around administrative work (by-laws). Fellows nominating process 1999. WAPS Directory and around policymaking, international networking and scientific contribution to the WCPS activities. He added that all suggestions, comments. Projects will be more than welcome and this will require the collaboration of all Fellows.

Carl G. Thor mentioned that the 1997 WAPS Fellow nominating committee has shown the importance of such a mechanism to secure the quality of Fellows we all want for the Academy. He asked for volunteers to serve on the next process that will lead us to the induction of approximately 50 new fellows at the 1999 recognition ceremony during the next World Productivity Congress due to take place in the UK in October 1999. He finally requested all the Fellows to stay in close communication with him, the Secretariat and, more importantly, between themselves and hoped to

see all of them at the next congress in 1999 with strong delegations from their respective countries.

Chile Declaration

10th World Productivity Congress, — 1997

The Santiago Declaration

We, the members of the World Confederation of Productivity Science and the World Academy of Productivity Science, meeting in plenum at the Tenth World Productivity Congress in Santiago, Chile, believe and declare:

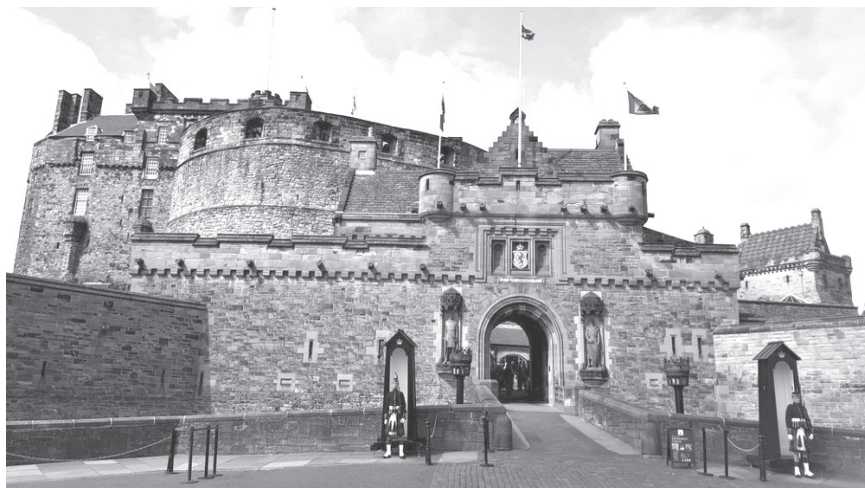
1. Productivity is the key to unlimited success at all human levels: individuals, family organization, nation and world_
2. Productivity improvement drives sustained economics growth, full employment, universal healthcare and education, and ultimately human freedom, dignity, Peace and prosperity.
3. 3 Productivity improvement drives by motivated and organized people who understand and locally apply principles of productivity, quality, human service and ethical behaviour and make balanced use of technology for human progress. The focus in on people.
4. The spread of productivity principles in the complex and changing world of the 21st Century will require the development and sustenance of multidisciplinary and multicultural continuity and human independence.
5. Universal understanding and acceptance of productivity principles is our personal and professional goal.
6. People have the right to dream and fulfill those dreams through freedom.

Approved and endorsed by the World Confederation of Productivity Science, meeting in plenum at the Tenth World productivity Congress in Santiago, October 15th, 1997.

1999 Edinburgh, Scotland

11th World Productivity Congress

Revitalising the Organisation



Patron: HRH The Duke of Edinburgh

Key Speakers

Sir Alan Langlands, Chief Executive, UK National Health Service

Sir Tom Farmer, Chairman and CEO, Kwik-Fit

David Poirier, Executive VP and CEO, Hudson Bay Company

This congress was organized in partnership with the Institute of Management Services.

The eleventh congress was held from the 3 to 6 October 1999 at the Edinburgh International Conference Centre in Scotland.

The theme of the congress was “Revitalising the Organisation” and within this overall theme were sub-themes representing:

- Innovation
- Improving the process
- Managing change

which were applied to tracks representing:

- Transport
- Financial services
- Public services
- Hospitality and tourism.

The patron was HRH the Duke of Edinburgh and the congress President was the right honourable Viscount Younger of Leckie, KT KVC. The partner organising organisation was the Institute of Management Services.

The eleventh World Productivity Congress was hosted by a consortium composed of the Institute of Management Services, Napier University, City of Edinburgh Council and Lothian and Edinburgh Enterprise Limited. More than 300 delegates from all parts of the world attended, besides guests and observers.

Tony Parry, IMS Chairman and World Congress Director introduced those on the high table to the congress President, Viscount Younger on behalf of HRH the Duke of Edinburgh who welcomed the 325 Delegates from 49 countries. He laid emphasis upon the expertise and knowledge that would be available during the three days and urged delegates to use their time to promote and learn best practices. The Lord Provost of Edinburgh, wearing a sparkling diamond-encrusted mayoral chain badge, welcomed the delegation present at the international Conference Centre.

For each day, the congress had a specific theme: innovation, process improvement and managing change, split into six tracks, industry topics and productivity areas:

- Information, communication and knowledge management
- Quality and customer care
- Global economy
- Hospitality and tourism
- Government and public sector
- The people factor

- Financial services
- Manufacturing and logistics

Congress review by Michael Truck

The eleventh World Congress was an ambitious programme, more comprehensive than any previous congress. The scale of the programme also meant that each track speaker had only 20 minutes per presentation. It's difficult to compress a complex topic into less than 20 minutes and take questions. It was clearly very less time for some speakers, and we were impressed by the tact and firmness that was displayed by the Session Chairman.

Keynote and breakout sessions included sessions with world-class gurus, pure academic papers and full audio-visual presentations by practitioners. Institute Patron, Viscount Thurso, posing some challenges to the tourist industry had the whole audience on the edge of their seats within 5 minutes, thus winning his bet with Paul Symes. And who could forget a paper entitled 'Management use of visual thinking techniques in problem solving' which did not include a single picture, diagram or chart - just text! The presenter himself said, "A picture is worth a thousand words." But the irony of not using one himself seemed lost on him.

Michael Porter gave the Gilbreth Memorial Lecture by video link from Harvard Business School. He agreed that productivity determined wealth, however they were measured. He suggested that productivity is changing and now every industry can and should be highly productive and high-tech. We need to look at productivity differently. Value creation is now more of a determinant of competitiveness and prosperity than value productivity (per hour/\$/week etc.). For example, the USA cannot compete on a purely cost basis with a country or region where the cost of living or labour is significantly different. This poses long term issues for the UK with foreign investors as a low-cost site rather than a high value creation life.

At the James Riggs Forum, the international panel from North America, South Africa, Far East and Europe agreed that a productivity revolution could be coming, much of it fueled by the internet and IT. The industrial world increased world productivity by 1-3% but the productivity revolution will increase world productivity and wealth by a huge (unquantified) shifts. It's all very well increasing worldwide productivity and overall wealth but a challenge for the future is how to distribute the benefits. There have been too many instances where the benefits from productivity gains have

been kept by too few. In Michael Porter's words, we have to expand the pie so that people can get a bigger slice – which needs political stability (regionally and nationally) and a loosening of controls.

Innovation and creativity

In Michael Porter's view, successful organizations had been getting their houses in order during the 1980s and 90s, concentrating on costs, efficiency, quality and time to market. For 2000-2010 they had to build and sustain the capacity for innovation and be constantly introducing new products and services. In his model, prosperity came from competitiveness created by innovation.

Only those nations and organizations that provided the right environment for innovation would prosper.

The national environment for innovation is a combination of factors: the industrial climate – protection of intellectual property rights and competition; together with demand conditions – clusters where innovations are spurred by local competition.

Michael Porter measures innovation using the number of international patents lodged per year and creates a league table of innovation. His analysis of 17 OECD countries' innovation had identified that no single factor was significant, and that Taiwan, Singapore and Korea were among the most innovative. Instead, in his view, Total Factor Productivity (TFP) was governed by five factors:

- Education
- Technical progress
- Intensity of demand
- Capital structure and
- Economic restructuring

He concluded that incorporating best practice alone is not enough. A concerted effort is needed to grow innovation. In his view, US innovative capability is eroding while there are some rapidly improving nations, e.g. Scandinavia.

Passion: Vision and courage to improve

Sir Tom Farmer, founder and CE of Kwik-Fit was the epitome of passion. He was passionate and proud about his company, its success and its people. In a touching display of humility, he also admitted to being

flattered to be invited to address the congress which –quoting from the letter inviting him to speak - “would be addressed by the great and the good and attended by experts and a few normal people.” He hoped he was one of the normal people.

Sir Alan Langlands’ passion was more subdued, but we wondered if the NHS could have achieved so much without a real intensity of purpose at the top. He was faced with ten key management challenges:

Best practice and the Process

Wearing one of his other hats as CE of Champneys’s, Viscount Thurso gave his views on tourism. It is a major worldwide industry representing about 10% of world GDP and growing 12% for the past 12 years. The challenge was to become more productive and promote peace and prosperity. He felt that tourism is an economic process designed, to create wealth. Its main issues are largely about processes and he issued three process related challenges:

- How to measure the benefits of tourism and the environmental, cultural and social damage it can do in order to get the balance right.
- How to square the employment circle so that people working in the industry (particularly in the hotel sector) are not underpaid.
- How to apply productivity techniques to tourism.

There has been some re-engineering already, especially in the budget hotels where people were taken out of the process (and guests were doing their work instead). But his vision for the budget was for more mechanisation of food preparation and cooking where the main human contribution would be the waiter who would be rewarded accordingly.

Closing Ceremony and Hong Kong Presentation

The congress President, Viscount Younger, delivered the closing address. He acknowledged the success of the Congress, due to the rare opportunity provided by the contribution and voluntary support made by productivity experts from all walks of life. Participants setting the high standards at the plenary sessions were thanked together with John Heap and the experts from around the world.

A thanks was given to the congress organizers Concorde – Jane Morrison & team; WCPS & especially President, Dr. Scott Sink; IMS Chairman, Tony Parry & DG, Paul Symes; Napier University; Lothian &

Edinburgh Enterprise Ltd; together with all the other partners, sponsors and supporters.

Finally, Dr. Scott Sink was invited to conclude with some words. He started that thoughts (brilliant minds) plus passion (energy & emotion), create a masterpiece.

“We take acquired major concepts, to be used to make a difference back home.”

“IMS has reached excellence and has provided good partnership. We now ask Tony Parry to pass the 2001 WCPS banner to the Hong Kong Chapters.” He thanked China and the Hong Kong Productivity Council as hosts of the 12th World Productivity Congress – which was due to take place from 6 to 9 November 2001 and extended a warm invitation to all to attend.

Reception, Awards and Prestigious Dinner

Scottish hospitality continued to accommodate the now well-oiled machinery of international networkers at the drinks reception.

Nycole Pageau, WCPS Chapter co-ordinator made several awards to Chapters in recognition of their contributions to the WCPS. Thirty members were also inaugurated as WCPS Fellows, due to their outstanding work, including our own IMS members: Lord Chilver (President of IMS for 10 years); Viscount Thurso (IMS Patron); Graham Briscoe (IMS Financial Sector and South West Regional representative); Andrew Muir (deputy chairman and Treasurer of IMS); and The Rt. Hon Viscount Younger (President of the eleventh congress).

Scott Sink then awarded a gift of recognition to the Dean of Napier University and IMS Chairman, Tony Parry.

As we sat around in the magnificently transformed Cromdale Hall of the conference centre, dinner commenced with a welcome speech from Lord Younger, after which he was thanked for his contributions to the congress. Scottish hospitality then sparked with wines, fine cuisine of a five-course dinner and attentive waiter service.

After dinner a toast was proposed to the HE the Queen and countries of the representatives, by Viscount Thurso. The guest speaker was Henry McLeish MSP, Minister of Enterprise and Lifelong Learning. He emphasized the importance of the WCPS, and the issue of productivity and standards being the key aims of the Scottish Parliament. Mr. McLeish

continued to give an outline strategy based on knowledge-based products and processes, a diversified export base, research, education and the knowledge economy.

This was a cracking congress: intellectually demanding and stimulating, yet with ample opportunity to network with some real world-class productivity experts.

ELEVENTH WORLD PRODUCTIVITY CONGRESS

BUCKINGHAM PALACE

It was a great honour to be invited to be Patron of the eleventh World Productivity Congress. Since I have been associated with the Institute of Management Services under this and previous titles, I was delighted to accept, particularly as the congress is to be held in Edinburgh.

It has always been evident that higher productivity benefits both employers and employees, but it will only be achieved as part of a wider package of efficient working practices, good working conditions and active collaboration across the whole spectrum of a company's activities.

I am quite sure that the co-hosts; the Edinburgh City Council, Napier University and Lothian and Edinburgh Enterprise, will provide a very warm welcome for all the delegates. I am also certain that the organisation of the congress by the Institute of Management Services will provide ample opportunities for every aspect of the interests of members to be fully discussed. I have no doubt that the working sessions will be most valuable, but it is always during the periods out of working hours when personal contacts are made, and friendships are formed.

Everything possible has been done to ensure that the congress is a success and I hope you will enjoy it.

Prince Philips
Duke of Edinburgh

2001 Hong Kong/Beijing, China 12th World Productivity Congress Creating Wealth in the Connected Economy

Part 1: Hong Kong Convention & Exhibition Centre

Part 2: Beijing International Convention Centre

5 - 10 November 2001



Patrons: Wen Jibao, Vice Premier, State Council, China

The Honourable Tung Chee Hwa, Chief Executive HKSAR Government

Key Speakers

George H W Bush

Dr. Supachai Panitchpakdi, Director-General Designate of WTO and former Deputy Prime Minister of Thailand

This Congress was organized in partnership with the Hong Kong Productivity Council and the Chinese Association of Productivity Science.

The 12th World Productivity Congress was unusual in that it was split between Hong Kong and Beijing, to reflect the re-unification of Hong Kong with Mainland China. So, the Congress overall was from 5th-10th November 2001 with part one being in the Hong Kong Convention & Exhibition Centre, and part 2 being in the Beijing International Convention Centre.

The joint patrons were:

Wen Jibao, Vice Premier, State Council, China; and the Honourable Tung Chee Hwa, Chief Executive HKSAR Government and the organizing partners were the Hong Kong Productivity Council, the Chinese Association of Productivity Science and the China Productivity Centres Association.

The theme was “Creating Wealth in the Connected Economy” and the tracks were:

- Cultivating innovation
- E-Enterprise transformation
- Green productivity
- WOW@China.nat (celebrating China’s accession to the World Trade Association)
- Best around the world

Key Speakers were:

George H W Bush (former President of the USA)

Wen Jibao, Vice Premier, State Council of People’s Republic of China; and

Dr. Supachai Panitchpakdi, Director-General Designate of WTO and former Deputy Prime Minister of Thailand

Preamble

Creating and distributing wealth in a connected economy requires the ability to:

- Innovate at increasingly rapid rates and being flexible and adaptable in the face of opportunities and challenges.
- Sustain growth and harmony with Nature.
- Transform to an effective and efficient e-enterprise which requires the capacity to intentionally optimize the exchange of value with

constituents (customers, employees, suppliers, partners).

- Develop and sustain successful new partner relationships globally.

The congress presented a new blueprint for success in our increasingly connected and dynamic economy. Wealth distribution must be aimed at progressive investments such as education, innovation, grants for SME's infrastructure of both the hard and soft kinds.

Brief Review

Congress XII uniquely offered the opportunity to understand how innovation, green productivity, e-enterprise transformation, and building relationship with China can come together to follow this blueprint for the productivity revolution and make it successful.

Imagine this: A young engineer in China, working at home in the evening with a PC over the Internet shapes a new deal with a company in the US. In doing so, he creates a new, long-term customer, adds value to his company and creates new pressure for even more productivity, innovation, quality and efficiency.

This simple anecdote is just one example of the power of our connected economy. Although enabled the connection, it will require on-going relationship management and exchange of value for these types of opportunities to be sustainable. Multiply simple example by 1,000; 10,000; or 100,000 and you begin to grasp the potential for this next productivity revolution. We have the blueprint; we now must commit to build it.

In doing so we will create and distribute wealth in a manner in a manner that will support the ultimate productivity outcome – a world at peace.

We know that productivity does vary by culture and country over time and capitalizing on this opportunity takes more than an innovative young engineer in China connecting with an American organisation in need of improved suppliers. And yet at the heart of creating wealth in this connected economy there must be people relating to people and sizing the opportunities for full potential with new processes and new technologies.

There has perhaps never been another time in the 30-year history of WCPS where our joint efforts with our network partners, in this instance the Hong Kong Productivity Council and the Chinese Association of Productivity Science, are needed more to affirm that our strength stems from our diversity and to promote peace and prosperity in our fragile World.

As a result of the ideas shared at this congress, we - representing government officials, policy-makers, experts, scholars, leaders of industry and commerce, from around the globe - decide that we will work together in a harmonious relationship to promote and develop:

- The scientific basis for increasing productivity.
- Structures and processes that permit and promote the simultaneous creation of business value, environmental values and social values.
- Intellectual property protection systems that protect the rights of those engaging in scientific development but do not inhibit wider goals that require the sharing of information and expertise.
- An understanding of the inter-relatedness of organizations and economic activity across all national and regional boundaries.
- International cooperation that will mobilize all countries to recognize their place in the global system' and take concerted actions to play their part in a shared solution.
- Identification, documentation and wide sharing of success stories that demonstrate how the application of the principles of productivity science have been used to create business success, enhance community well-being, improve the environment and improve the quality of life for citizens.
- Co-operation of individuals, organizations and governments across all national, racial and religious boundaries in support of the common good.
- An understanding of the need for coordinated development of the economy, the environment, and society. This understanding must be shared and acted upon by all - whether state policy-maker, business decision-taker, educator, or individual citizen.

Embrace, Create, Include

Our joint purpose is to share how to balance peace with prosperity by continuing to create and apply the knowledge of value creation (productivity). All periods of great turbulence and difficulty are also periods of great opportunity. They are tests of the character and the capability of humans to be human. We are on the crest of yet another great productivity revolution. The blueprint to capitalise on this opportunity has been laid out at this congress.

In a world so torn by strife and poverty, we rededicate our personal and professional energies and talents to peace and prosperity. Our purpose is to achieve and share wisdom about the methods by which to do this.

**World Academy of Productivity Science,
Fellowship Presentation Ceremony 7th November 2001,
Convention Centre - Hong Kong
Carl G. Thor (U.S.A.)**

At the Hong Kong/Beijing congress, the WAPS was pleased to add 81 new fellows, bringing the total fellowship of WAPS to 349 individuals from 45 countries. A tabulation of those whose occupational category is at least fairly clear shows about 20% from the business world, 30% from non-profits and governments, 30% academic and 20% consultants of course, many of whom were in more than one category, but this shows that we had a very wide distribution of backgrounds.

One area of improvement was that only 6% of the fellows were female. Fellows are encouraged to aid the expansion of WAPS by nominating additional fellows. Think about those who have influenced your career progress and your thought process regarding productivity. The rest of the fellows could certainly benefit from being exposed to their ideas. Nominations received were considered by the WAPS Board later in 2002, with new fellows being notified by the end of the year.

Special Award

At the congress the WAPS Board announced the creation of a new award honouring Dr. Walter Aigner, a long-time fellow from Australia who passed away in 2001. Dr. Walter Aigner was a visionary and philosopher in social sciences, religion, and cultural values and managed to seamlessly integrate these with productivity concepts. His perception of productivity as a complete way-of-life incorporated WCPS/WAPS focus on productivity as the ultimate source of world peace and prosperity.

Nominations for this award were to be accepted at the secretariat up to the end of 2002. Nominees should have been people who reflect Walter's broad-based characteristics as indicated above. The one-page nomination sheet should have clearly indicated how the nominee presented those characteristics. Each nomination was to be made by at least three fellows from three different countries to reflect Water Aigner's international

orientation. It was assumed that a nominee will already be a fellow of the academy, but if not, he would become a fellow on receipt of the prestigious Dr. Walter Aigner Award.

Hong Kong- Beijing Declaration

We, the members of the World Confederation of Productivity Science and the World Academy of Productivity Science, meeting in plenum at the eleventh World Productivity Congress in Hong Kong and Beijing declare our intention:

- To spark the creation and distribution of wealth in our increasingly connected global conomy through the application of productivity science.
- To continue to go to highest thought about ourselves and those around us in the spirit of one humanity living together to create common good.
- To have our thoughts, words, and deeds aligned to greatest good, hence promoting peace, prosperity and productivity.
- To observe life, people, situations without judging, to value and utilize differences and, to understand and work with diversity.
- To be resilient as individuals and organisations in highly volatile domestic and global environments.
- To practice self-discipline in the application of new approaches that will create prosperity and improve quality of life.
- To be responsible and accountable in our roles as learning leaders.
- To indulge in the arts while developing our strengths in the sciences to continue to create value for all in our world.
- To enjoy the camaraderie of other knowledge creators and to utilize this congress as a unique opportunity to spark innovation.
- To serve and to be conscious creators and servants of mankind.

The eleventh World Productivity Congress held in Hong Kong/Beijing provided a unique opportunity to understand how innovation, green productivity, e-enterprise transformation, and building relationships can bring together to follow this blueprint for the new productivity revolution and make it successful.

2006 Shenyang, China

14th World Productivity Congress



Chinese Vice Premier Zeng Peiyan addressed the opening session of the 14th World Productivity Congress held in Shenyang, capital of northeast China's Liaoning Province, October 9, 2006.

Chinese Vice Premier Zeng Peiyan says technology and innovation should be the major incentives in developing China's productivity and realizing its sustainable development. Zeng made the remarks at the ongoing 14th World Productivity Congress (WPC) held in Shenyang.

To realize sustainable development, China should institute an advanced system of productivity which considers new technology industries as the pioneers, the basic and manufacturing industries as supporting players, all of which will help the service sector develop to its fullest, said Zeng.

More efforts should be made to achieve the goal of reducing energy consumption by 20 percent per unit of GDP and cutting pollution by 10 percent in the five-year period from 2006 to 2010 as China's productivity develops in an efficient, clean and safe manner, he added.

He called for implementing the strategy of reinvigorating the country through science, education and trained personnel and building a system of innovation.

He urged to build systems ensuring scientific development which help transform the mode of economic growth to achieve harmonious and sustainable development.

Kofi Annan, secretary-general of the United Nations, said in his congratulatory letter to the congress, that China has made great achievements in developing its economy and improving people's living standards

The 14th WPC offers an opportunity for the world to seek solutions to achieving the Millennium Development Goals set in 2000, one of which is to reduce world poverty by half by 2015, he said.

The Theme

Congress XIV was held in Shenyang, China from 8 - 10 October 2006 with the theme of:

“Pursuing Sustainable Scientific Growth in Productivity and Performance”. The Honorary Chairman for the congress was: Zeng Peiyan, Vice-Premier of the State Council of China.

There were four Forums/Tracks:

- Globalization and the development of productivity
- Green productivity and competitiveness
- Urban development and regional economy
- Learning from the Chinese productivity revolution

This Congress was organised in partnership with the Chinese Association of Productivity Science and the Shenyang Municipal Government. Shenyang is the economic, cultural, financial and commercial centre of North East China.

The Shenyang Congress was a grand success in several ways. It attracted a galaxy of Global keynote speakers besides world-class presentations from all parts of the world.

The Congress had two special activities: One, WAPS Fellowship Award Presentation Ceremony followed by dinner on the evening of the October 9, 2006. This was specially graced by Mr. Zeng Peiyan, Vice- President of the State Council of China and Vice Chairman of the Standing Committee

of National Productivity Centre of China.

The Programme Conference as under:

Special Activity One: Induction Ceremony of fellows of WAPS and Celebration Dinner

Venue: Function Room on the Second Floor, No.1 Building, Liaoning Friendship Hotel

18:30-18:35 MC: Thomas Tuttle, President WAPS

18:35-18:40 Address made by Representative of WAPS Fellows

18:40-18:45 Presentation of Faraday Award

18:45-19:00 Conferring certificates and medallions to fellows of WAPS

19:05-19:10 Address made by representative of newly elected WAPS Fellows: Wang Huisheng President of State Development & Investment Corp

19:10-20:00 Celebration Dinner

At the ceremony, Dr. A.N. Saxena, Executive Vice- President of the World Academy of Productivity Science and Founder Fellow of the Academy was presented WCPS' highest award "The Fraday Award". It was presented by Mr. Jean Claude Lauzon, Chairman WCPS with the followership inscription:

"The Fraday Award"

Dr. A.N. Saxena

"In Recognition of your outstanding service to the World Academy of Productivity Science and to wider Productivity Community."

October-2006, Shenyang, China³

Special Activity Two: Awards Ceremony of 2006 Annual Chinese Top 10 Brands in the Global Market

Venue: At the Banquet Hall on the third floor of Shenyang Shangri-La Hotel

9:00-9:10 MC: Lang Yongchun, news anchor for CCTV news programmes and bulletins Liang Hong, news anchor for CCTV English News

9:10-9:20	Presenters: Zhai Ligong, Chairman of Supervision Committee of Large-scale Enterprises of the state-owned Assets Supervision and Administration Commission, Standing Vice Chairman of CAPS, Director of the Chinese Organizing Committee of the 14th World Productivity Congress
9:30-9:40	Awards to Chinese top ten internationally influential brands
9:40-9:50	Awards to annual top ten figures promoting internationalization of Chinese brands
9:50-10:20	Awards to 50 figures promoting internalization of Chinese brands
10:20-12:00	Awards to Annual Chinese top ten brands in the global market
Noon:	12:30-13:30

Buffet Lunch

Site: At Liaoning Friendship Hotel, Liaoning Mansion, Liaoning Phoenix Hotel, Shenyang Hotel, Sheraton Shenyang Lido Hotel, Shenyang Shangri-La Hotel

SHENYANG, CHINA – DECLARATION

14th WORLD PRODUCTIVITY CONGRESS – 2006

STRIVING FOR PRODUCTIVITY DEVELOPMENT

TO PROMOTE WORLD PEACE AND PROSPERITY

The Shenyang Declaration of the Fourteenth World Productivity Congress; October 10, 2006

We, the members of the global productivity community, gathered in Shenyang, China by the World Confederation of Productivity Science for its 14th World Productivity Congress under the theme “Pursuing Scientific and Sustainable Growth in Productivity & Performance”, believe and declare that:

One key to productivity improvement is the development, adoption and integration of advanced technologies. Technology has the potential to change both what we do and how we do it. Science, technology and human creativity are the engines of progress and economic development. National and regional progress is fueled by research, development and innovation in the arts and sciences of productivity.

However, the rapid development of science and technology and the resulting increases in the production of material goods has resulted in the increasing consumption of natural resources and a collateral damage to the environment of the world we all share.

The concept of sustainable development represents a paradigm shift in how modern society views productivity. Two apparently conflicting views must be reconciled. First, the human desire for progress is inevitable, and all global citizens should have equal rights to share in the fruits of development.

Second, development must be managed in a manner that protects the earth and its resources for future generations. Human rights must be informed by nature’s laws.

Our view of what is encompassed by the term ‘productivity’ must support harmonious development. It must allow us to cooperate responsibly in nature’s plan, to design and develop materials, products and processes that consume fewer resources and have a benign impact on the environment.

As a result of the ideas shared at this Congress, we — representing government officials, policy-makers, experts, scholars, leaders of industry and commerce, from around the globe, declare that we will work together in a harmonious relationship to promote and develop:

- The scientific basis for increasing productivity.
- Structures and processes that permit and promote the simultaneous creation of business value, environmental value and social value.
- Intellectual property protection systems that protect the rights of those engaging in scientific development but do not inhibit wider goals that require the sharing of information and expertise.
- An understanding of the inter-relatedness of organizations and economic activity across all national and regional boundaries.
- International cooperation that will mobilize all countries to recognize their place in the 'global system' and take concerted actions to play their part in a shared solution.
- Identification, documentation and wide sharing of success stories that demonstrate how the application of the principles of productivity science has been used to create business success, to enhance community well-being, to improve the environment and to improve the quality of life for citizens.
- Co-operation of individuals, organizations and governments across all national, racial and religious boundaries in support of the common good.
- The need for coordinated development of the economy, the environment, and society. This understanding must be shared and acted upon by all —whether state policy-makers, business decision-takers, educators, or individual citizens.

In doing so we will create and distribute wealth in a manner that will support the ultimate productivity outcome - a world at peace.

2008 Sun City, South Africa 15th World Productivity Congress Competing In The Global Economy: Leading Through Productivity

21- 24 September 2008



Tracks:

- Productivity Drivers
- Sustainable Enterprises
- Global Human Resource Migration
- Best Practices

The Congress was organised in partnership with Productivity SA, the National Productivity Centre of South Africa.

Proudly South African

The World Productivity Congress is the biennial event of the World Confederation of Productivity Science. Staged for the first time on the African continent, it was hosted by Productivity South Africa.

A Tree — Our Inspiration

The inspiration for the 15th World Productivity Congress came from one of Africa's enduring icons - the Baobab tree. This uniquely African tree shared compelling parallels with the objectives of this congress.

It celebrates the qualities of ingenuity and productivity; it reflects excellence, perseverance and challenges the status quo; it reminds us of our responsibility to the communities within which we exist; of our duty to harness the power of discovery to benefit the neediest amongst us, and to make a meaningful difference to every aspect of our environment.

Like all great countries...

It is adaptable, swelling or reducing its trunk to store nine months of water supply; some specimens have a growth of more than 25 metres.

Like all great ideas...

It has longevity... living for up to 3000 years. Some of our Baobabs were fully grown even before the Roman Empire began.

Like the most practical of technologies...

Providing enrichment to the communities it supports, offering shelter, water, nutrition, storage & supplying material for clothing, rope, fishing nets, paper, medicines, condiments... sometimes even enshrining their dead to transmute their souls back to nature.

Like great research, it stands up to adversity...

Its bark can be stripped, it can be flooded, struck by lightning, even cut down - and will grow again from its roots. And so, under the Baobab, 40 countries from around the world met to discuss "Leadership through Productivity in a Global Economy".

The Place - Sun City

Deep in the rugged Bushveld, in the heart of an ancient volcano, lies the world's most unique resort. This is the internationally acclaimed Sun City, rated by the World Travel Awards as the "leading conference hotel" for 2006.

Sun City Resort has a unique heartbeat and an African rhythm of its own and is unlike any other resort destination in the world. This is pure fantasy and every desire of the guests is met.

This congress was set firmly in its Africa context ... a context where improving productivity is seen as the only means by which African nations can raise their peoples out of poverty ... if productivity improvement is used to drive increased wealth.

As a speaker at the opening ceremony said, “We who are free to eat and sleep as we wish, who are free to travel where we will and are free to think whatever we might think must each commit ourselves to maximize our contribution to the fight against poverty and the factors that keep people in poverty.”

Jean Claude Lauzon, the Chairman of the World Confederation of Productivity Science extended the context by suggesting that globally, nations and organizations are facing real challenges relating to...

- providing sufficient energy to fuel the world
- providing sufficient, safe food to feed the world
- falling birth rates in most western countries meaning the next generation cannot replace this generation

Tor Dahl, a keynote speaker, suggested that only productivity has the following three simultaneous effects

It increase wages, so demand goes up.

It reduces prices, so demand goes up further.

It increases profits, so wealth is increased.

The second keynote speaker was Yvon d’Anjou, of Rio Tinto Alcan. He suggested that successful organizations:

- use the best people on business improvement projects
- have a business plan
- communicate that plan
- execute, execute, execute (get on and do it)
- ensure participation
- celebrate success

His last slide was of a dinosaur and a crocodile. The crocodile existed before dinosaurs and it is still around today, because it is adaptable.

John Heap, the President of WCPS gave the Riggs lecture and introduced the concept of SEE (social, environmental and economic)

productivities – the concept that an organisation or a nation must address all of these.

The Sun City Declaration

We, the members of the global productivity community who have gathered in Sun City, South Africa from 22-24 September under the shade of the giant Baobab tree, have been inspired and informed by three days of deliberation on the theme of “Competing in the Global Economy: Leading Through Productivity.” We have been energized by the vitality and joy we have experienced through our glimpses of South African culture. Our deliberations regarding the path to competitive success ranged from identifying key productivity drivers to building sustainable enterprises to the pros and cons of global human resource migration to learning the best practices of leading enterprises. Like the culture of South Africa, the dialog has been fueled by the richness of our differences and has generated sparks of innovation and inspiration. As a result, we, the members of the global productivity community declare that:

We affirm that sustained productivity improvement is the path to competitive success and poverty elimination and that in order to address our challenges, we must abandon incremental thinking and set our sights on creating breakthrough levels of productivity improvement.

We acknowledge the shifting paradigms of productivity and the need to pursue simultaneously the three productivities of economic, environmental and social wealth. At all levels, sustained productivity improvement must be built on a foundation of effective governance.

The people of Africa will take charge of their own productivity destiny through their own innovation and ingenuity assisted by partnerships, technology transfer, and peer-to-peer networking relationships with the more developed world that are grounded in mutual respect and trust. Strategic partnerships on the African productivity agenda should be strengthened and developed with key organizations including the World Confederation of Productivity Science and the Asian Productivity Organization.

The principles of environmentally and economically sustainable productivity and competitiveness are particularly suited to alleviating poverty in African communities and enabling the economic self-actualization of African individuals, enterprises, organizations, nations and regions.

The African Union Commission (AUC) is to develop and sustain the African Productivity Movement in partnership with the Pan-African Productivity Association (PAPA) and the World Confederation of Productivity Science (WCPS) with a view toward raising the awareness/mindset/culture change and creating breakthrough levels of improvement in African productivity and competitiveness.

The AU, regional economic communities (REC) and African governments should ensure that their policies support the mainstreaming of productivity in all economic sectors.

Africa will close the ICT gap between itself and the North in order to make its firms and nations more competitive.

Africa will create a greater focus on improving the productivity of manufacturing, tourism and the agricultural sectors and will recognize the necessity of dialog and collaboration among management, labour, government and education to achieve these results.

The AU should appoint PAPA as its official National Productivity Organisation (NPO) for driving the African Productivity Movement to achieve the African Economic Renaissance and Millennium Development Goals.

We call upon all members of the global productivity community to review our progress toward this agenda and to build on our Sun City dialog in two years at the 16th World Productivity Congress.

2010 Antalya, Türkiye 16th World Productivity Congress

2-5 November 2010



Jointly organized by the WCPS and the European Association of National Productivity Centres.

The host organization was MPM- National Productivity Centre, Türkiye.

Theme:

Productivity at the crossroads: Creating a socially, economically and environmentally responsible world.

Sub themes:

1. Global crisis and productivity
2. Sustainable productivity: best practices
3. New productivity perspectives
4. Building bridges for productivity enhancement

5. Productivity and training
6. Assessing or measuring social, environmental and economic productivity
7. Productivity in Türkiye's foreign trade.
8. Meeting the challenges faced by national productivity Organisations

Keynote Speakers:

1. Ms. Guyler SABANCI – Chairman and Managing Director, SABANCI Holdings
2. Mr. Dumus YILMAX – President, Central Bank of Türkiye
3. Prof. (Dr.) Nuket YETIS – President, Scientific and Research Council, Türkiye TUBITAK)
4. Prof. (Dr.) Frank. D.POT – Professor of Social Innovation, Radboud University, Netherland
5. Mr. Wang Mao LIN – President, Chinese Association of Productivity Science (CAPS)
6. Mr. Mustafa YILMAZ – General Manager, AKSA Acrylic Chemical Industry
7. Mr. Alain LEMAIRE – President and CEO, Cascades Inc. Canada

The sixteenth World Productivity Congress was held in Antalya, Türkiye from 2-5 November 2010. The theme of the Congress was 'Productivity at the crossroads: creating a socially, economically and environmentally responsible world'.

The congress was for the first time held in partnership with the European Productivity Conference and was thus jointly organized by the WCPS and the European Association of National Productivity Centres. The host organizing body was the MPM that is the National Productivity Centre of Turkey.

Declaration:

We, the members of the global productivity community who have gathered in Antalya, Türkiye from 2 to 5 November 2010, have been informed and inspired by three days of discussion, debate and deliberations on the theme "Productivity at the crossroads: creating a socially, economically and environmentally responsible world".

This theme echoed the position of Turkiye as being at crossroads between Europe and Asia, well placed to communicate and to translate across economic, social and cultural divides that should not, but often do exist.

The event was also set in the context of a world emerging from a global financial crisis making productivity development even more important as a means of stabilizing and enhancing productive capacity.

We welcome the National Productivity Organisation of Pakistan as the newest member of the global productivity family and we will continue to expand this family so that our collective knowledge and influence helps shape a more productive future for a wider range of global citizens.

As a result of our individual and collective activity, we, the members of the global productivity community affirm that:

1. Only improved productivity can address emerging problems relating to the sustainability of supplies of energy, food and water.
2. Productivity development is a simple concept but a complex process involving a number of interrelating and overlapping domains and disciplines.
3. We need to secure a common understanding among the individuals and groups operating within and across these domains and disciplines.
4. We will individually and collectively continue our efforts to bring about that common understanding.
5. We will find new ways to disseminate the results and outcomes of those efforts.
6. We will carry the messages relating to Turkiye's productivity & economic development to the world.

In so doing, we – the members of the global productivity family – can help bring about the conditions under which we can meet the growing aspirations of all the citizens of the globally connected world.

2015 Halifax, Nova Scotia, Canada
17th World Productivity Congress
Big Data for Productivity:
Everything Changes
19 - 21 October 2015



The theme for the seventeenth Congress in Halifax (from 19 - 21 October 2015) was: Big Data for Productivity: Everything Changes.

The Congress was held in partnership with the Big Data Congress.

Co-Chairs of the congress were:

Dr. Michael Shepherd, Professor, Dalhousie Faculty of Computer Science and member of the Board of WCPS

Mr. Peter Watkins, COO of QA Consultants and President, World Network of Productivity Organizations.

Tracks:

- Internet of Things
- Smart Cities
- Healthcare Analytics
- Business Productivity

Keynote speakers were:

David Kasik, Senior Technical Fellow, Visualisation and Interactive Techniques, Boeing

Bill Hutchinson, Chair, iCanada

Zhong Changhong, CEO, South China Rail

John Heap, President, WCPS

Dr. Zhou Youcia, Founder & Chief Pharmacist, Aolida Pharmaceutical Group

Ray Kurzweil, Futurist, Google

Dan Russell, Uber Tech Lead for Search Quality, Google

Wang Maolin, Chairman, Chinese Association of Productivity Science.

The congress was attended by 450 delegates of which 80 were not from Canada.

PURPOSE

Focusing on the Business Side of Big Data

Almost all Big Data conferences to date have focused heavily on the technologies that enable Big Data to work. This conference takes a different approach. We are focused on the business end of Big Data; how it can be applied to business and government to make a difference.

It's What Senior Leaders Want and Need

In both industry and government, executive and senior management outside the technology sphere have been seeking a way to understand what Big Data is and how it can be applied to improve productivity.

Why Big Data for Productivity?

Big Data can provide critical new insights into issues and opportunities that can affect productivity in manufacturing, marketing, healthcare, government services, insights that increase profitability, manage cost or avoid costly decisions.

The major interest points for the Delegates were:

Health Sector

Big Data is changing the way we deliver not just health services, but patient management, pharmaceutical development, hospital operations

and emergency care. In this congress we focused on the business end, not the technology side.

Retail Industry

Big Data has a massive impact on how large retailers deliver products and services. From downstream to upstream, from predictive analytics to localisation, we'll look at the business end of Big Data as it applies to retail.

Manufacturing

Big Data can play a key role in increasing productivity in the manufacturing sector. Smart analytics can reduce time to market, improve quality and speed to market among many other advantages. We'll look at this from a business perspective. Perhaps we can help shape some stories in advance with you?

Smart Cities

With over 50% of the world's populations living in urban centres, Big Data analytics will play a critical role in delivering effective services. We can provide insights from Turkey, Canada and China into the application of Big Data in a real-world reality.

Security

In a hyperconnected world filled with risk and low-grade conflicts, Big Data can make a difference in ensuring global, regional and local peace.

Transportation & Infrastructure

Who better to hear from than the world's largest railway (China) on how they use Big Data to keep people and products moving? Perhaps we can help you gain some valuable insights?

Oceans Management

We need to manage our oceans better, from fishing to transportation to security. We'll be looking at how Big Data can play a key role in this regard. Perhaps we can help drive some preliminary discussions for your audience?

The Halifax Declaration

We, the members of the global productivity and Big Data communities who have gathered in Halifax, Nova Scotia, Canada from 19 to 21 October 2015, have been informed and inspired by three days of discussion, debate and deliberation on the theme "Big Data for Productivity: Everything Changes".

Through the conference sub themes of Big Data for health, smart cities, the internet of things and business productivity, we are intrigued and enticed by the promise of Big Data to transform key factors in our world - healthcare, agriculture, business, and citizenship. We have been inspired by leading thinkers to dream of a future where our use of Big Data transforms our ability to address key societal concerns - how do we feed the growing world; how do we power a post-oil world; how do we eradicate poverty; how do we make the world safer and more secure?

At the same time, we have been reminded of the need to establish appropriate control and governance of the data generated by our various and numerous interactions with the ubiquitous data devices and sensors of the modern world, to ensure 'our' data is used for our good.

As a result, we pledge our individual and collective commitment to move forward the realisation of the potential of Big Data for change, for innovation and for productivity development whilst lobbying for increasing 'openness' of data and building governance structures and processes that ensure the benefits of Big Data are shared equitably across national, ethnic and social boundaries.

As 'everything changes' we need to ensure that 'everybody wins'.

The congress was followed by a High School Education Day, attended by 650 students.

World Productivity Assembly and International Events

International Seminar 1989 On Corporate Sector Productivity Challenges

An international seminar was organized by Coal India Ltd. And Neyveli Lignite Corporation with the association of WCPs (South Asia Division) in Delhi from 19th to 21st September 1990, at Hotel Ashoka on the theme 'Corporate Sector – Productivity challenges in the 90's'. The seminar was inaugurated by the Union Minister of Energy and Civil Aviation. The presidential address was given by the Union Minister of Petroleum and Chemicals and Valedictory address was delivered by the Minister for Public Enterprises.

Initiated by Dr. M.P. Narayanan, Chairman, Coal India Ltd. and organised in collaboration with the World Confederation of Productivity Science, a national seminar on 'Corporate Communication and Productivity in Public Sector Role and Challenges' was held in New Delhi from 2nd to 4th November 1989. The declaration issued on this occasion was signed by Dr. Martin T. Tveit, Chairman, International Advisory Council, World Confederation of Productivity Science (WCPS), Dr. Krish Pennathur, President World Academy of Productivity Science (WAPS), Dr. M.P. Narayanan, Chairman, Coal India Ltd., and Dr. A.N. Saxena,

Secretary General (WAPS), Dr. M.R. Ramsey, President WCPS (Australia and New Zealand), Mr. Walter Algner, President WAPS (Australia and New Zealand), Dr. G.K. Suri, Director General, N.P.C., India, Dr. S. Ramani, Director NITIE India, Ir. Haji Arshad, Director, N.P.C. Malaysia, Prof David J.S. Sumanth, University of Miami U.S.A., and Dr. Mahlok Abdulla, NPC, Malaysia.

Dr. M.P. Narayanan, Chairman Coal India Ltd., President WCPS South Asian Division and Fellow of the World Academy of Productivity Science, in his keynote address observed that participative management should be a thrust area for increasing productivity. He explained that 'Participative Management means taking into consideration the different stake holder groups and workers for overall improvement in productivity.

Theme areas comprised the following:

Inter-disciplinary Approach Leading to Consumer Orientation

As a natural corollary of the operations of different stake holders and due to technology advancement and breakthrough in communication technology the importance of a resultant ‘synergy’ of our functional efforts has to be clearly kept in mind. If we fail to create and satisfy the consumers, in the long run we wither away and then nobody talks of productivity. ‘Participative Management for Productivity’ is, therefore, not an end in itself, but is a necessary means for attaining the common goal of satisfying consumers.

Man-Technology Interface

We have people, workers who constitute the ‘epicentre’ of our operations and yet we have the compulsions of application of technology to improve productivity. We must strike a balance between these two and therefore, man-technology interface assumes critical importance. We have to think of training people at all levels of operations, be it unskilled, skilled, or professional. The consideration of different stake holders and training of people at all levels will give the desired impact of creating “corporate consciousness” for productivity. HRD and training, though intangibles, assume equal importance like tangible factors of capital, technology, machine, project commissioning etc.

Primacy of Decision-making Values- ‘Quality of Life’

We ought to have the “primacy of decision-making ‘values’ for bringing overall improvement in performance. Since we all are at decision making levels in one way or the other, the only common concern of our thinking is that our decisions should have corporate relevance for bringing social good. In simple words, what is necessary to convey is that we control the means of production with the help of the people but at times we are not clear about the outcome of our efforts. The outcome is through our productivity drive; the corporate sector will be economically viable and that the surplus will be reinvested for productive uses.”

A Declaration On India's Productivity Management Movement

Background

At the national seminar on 'Corporate Communication and Productivity in Public Sector-Role and Challenges' held on November 2-4, 1989 in New Delhi, several important issues were raised and deliberated upon, in order to accelerate a massive Productivity Management Movement in India.

The seminar was organized by the Coal India Limited, in association with India Bank, Canara Bank, HEC, NLC, Andre Yule, JESSOP, CCI, IBP Co. Ltd., CMC, MEMI (DELHI), NITIE and other public sector undertakings and institutions. Also, this event was organized in association with the world productivity organization, the World Confederation of Productivity Science (WCPS).

There was participation from virtually all public sector undertakings, organizations engaged in productivity movement, human resource development, public relations bodies, Doordarshan, Akashwani, the press, advertising and mass communication agencies etc. More than 400 delegates attended the seminar.

The main objectives of the seminar were:

- To focus on the importance of the state-of-the-art corporate image building and productivity in public sector enterprises (PSEs), and
- To evolve appropriate national strategies for corporate communications in the PSEs, thereby utilizing the vast human creativity and talent present in them.

Notable Speakers included: Swami Ranganathanda, Mr. Hiten Bhaya, Dr. K. Pennathur, Dr. P.K. Basu (India), Dr. Martin T. Tveit (Norway), Prof. David J. Sumanth (USA), Dr. M.R. Ramsay, Mr. Walter Aigner, Mr. R.J. Becker (Australia), Ir. Haji Arshad Marsidi and Ir. Mahlok Abdullah (both representing Malaysia). In addition, more than 20 other speakers presented papers related to the seminar's objectives.

Action Plan

Based on the formal presentations and informal discussions, the delegates recommended the following strategies to be adopted:

- Create a massive, national awareness among all enterprises about the importance of a 'total productivity perspective' (TPP) in managing human, material, fixed capital, working capital, energy

and other resources and do this through national conferences, seminars, symposia, in-house train-the-trainee programmes, TV and radio programmes and commercials.

- Create a regional awareness about the 'TPP' among the South Asian countries.
- While there is already an existing mechanism for industry-wise productivity awards, there is a need to create a national award for improvement in total productivity and develop the necessary guidelines for the administration of this award. This award must be the most coveted honour any enterprise (public/private) can strive for.
- Conduct regional debates on the TPP, in order to minimise the bureaucratic, managerial and union barriers for improving the three components of excellence: quality-competitiveness, price-competitiveness and time-competitiveness.
- Institute Productivity Engineering and Productivity Management academic programmes/education in the universities and institutions.
- Develop and nurture a grassroot movement in total productivity-based gain-sharing concepts for benefiting all employees, owners, customers and suppliers.
- Develop a cohesive plan for networking with various established national institutions devoted to the cause to total productivity improvement.
- Create a national focus for productivity research.
- Propose to the United Nations, the need for declaring the 1990s the decade of productivity, and to create a mechanism for assisting the nations of the world in improving their well-being; and
- Explore more extended definitions of the traditional output/input ratio as reflected by the presentations made at the seminar.

The conventional monolithic definition of output/input has been found to be inadequate. If productivity is to reflect the attitude of mind and quality of life, the search for an all-embracing definition should be on.

First Productivity Congress

Ankara, Turkey, 27th - 29th November 1991

The National Productivity Centre, Turkey organised the first Productivity Congress in Ankara from 27th to 29th November 1991. The congress was inaugurated by the Deputy Prime Minister Prof. Dr. Erdal Inonu who greatly commended the efforts and the initiatives of the NPC. in launching a massive national productivity drive and in providing specialised and need-based services in different sectors of the economy. He offered his government's full support in productivity enhancement programmes of the NPC.

The NPC Turkey being a tri-partite body had the unique distinction of having three important speakers at the inaugural functions: Mr. Ali Aydiri Dundar, Chairman, NPC Board, Mr. Retik Bayadur, President Turkish Confederation of Employers Unions, and Mr. Orhan Balla, Secretary General, Confederation of Turkish Trade Unions.

The keynote address at the congress was delivered by Dr. Krish Pennathur, President, World Academy of Productivity Science on the theme 'Innovation - A Key to Productivity'.

A Brief of the Address

At this first Productivity Congress organised by the National Productivity Centre, Turkey, the author was privileged to deliver a keynote address. The theme chosen was 'Innovation - A Key to Productivity', innovation being the harbinger of improved technology. The reasons for the choice of this theme by the author were the universality of its application in all countries, developed, developing and under-developed, and its wide spectrum of coverage ranging from a multi-billion-dollar R&D effort to one as simple as fitting rubber tyres to animal-drawn carriers.

The Term 'Innovation'

Innovation may be described as the introduction of something new in terms of products and services or a change in the method of doing things.

The aim is to achieve an increase in the productivity of the concerned activity. Innovation may pertain to decision-making or actual performance.

Innovation has been a continuous pursuit of mankind right from the Stone Age to the present day. While socio-cultural factors have given an impetus to innovation, other incentives have been 'demand', 'economic necessity' and 'political factors'.

Innovation is generally associated with technology, resulting in the latter's upgradation or replacement by a new and superior one. The prime source of such innovation is R&D. It must, however, be borne in mind that innovation is not confined to products only. It covers the entire gamut of 'services' where its application is woefully inadequate. Also, innovation pays rich dividends in the area of operational procedures, inputs for performance and working methods.

The two other speakers who made presentations on behalf of the academy were Dr. Martin T. Tveit, Executive Vice-President and Dr. A.N. Saxena, Secretary General. Their themes being, 'Productivity Science –as a Basis for National, Public and Corporate Policy; Productivity Concept Measurement and Linking Wages with Productivity; Quality of Work-Life and Role of Technology.' The concluding address was delivered by Prof. Dr. Ergun Yener, Secretary General, NPC Turkey, a distinguished Fellow of the World Academy of Productivity Science who heads the Turkish National Group of the Academy.

Productivity: The Future

Delivering the closing speech at the First Productivity Congress in Ankara (Turkey) on 29th November 1991, Dr. Ergun Yener, Secretary General, stated, "it is our sincere hope that the first Productivity Congress which ends today is actually a new beginning. Let us therefore make this day the landmark of a productivity drive, as individuals constituting the strongest pillars of the social and economic development and in self-contained, commonly motivated and jointly-acting groups, to set into motion in the most efficient manner the welfare and civilisation potential via creating a unison of hearts and hands between institutions, regions, countries and continents."

If we become unable to come abreast with the new conditions of the world which we change through our virtues, and sometimes our blunders, the responsibility clearly belongs to ourselves, our bigotry, our incorrect targets and illogically-identified priorities. Our planet seems to have entered

into a new evolutionary period capable of offering us the vestiges of a new and brighter future. We should therefore perhaps reflect on what changes we should make in our concepts and approaches and in our political, economic and social priorities to reap the fruits of this evolution. Among many replies that may be formulated to find an outlet from this impasse, some emerge as rather viable solutions:

Civilisation may not be national and regional. It should be global, since no country solving the hunger, misery, unemployment, illiteracy and social misdeed problems slovenly for itself in a world full of these scourges has the right to be proud of the qualification of being civilised.

If there are excessive numbers of haves" and "havenots" in the same country, the rise to higher ranks of a country in the international roster of gross national product and per capita gross national product is not indicative of a true development in this context.

We hope that the future wars, if they are ever waged, will not be conducted using the attack weapons designed to destroy buildings, bridges and dams in the most efficient and economic manner and to annihilate people. We will wage our future wars for erecting new infrastructure facilities, homes, schools, hospitals and factories, to preserve the natural environment, to maintain the international and national social peace and to expand the artistic and industrial success via launching a struggle to introduce science, technology and economic development in all the rural and urban areas and underdeveloped regions. We will display henceforth even greater effort and self-sacrifice for attaining these objectives than those spent in the traditional wars. We will use our potential in science and technology for leaving to the forthcoming generations a heritage of which they will be proud of, rather than using this for exterminating human beings, polluting nature and intimidating each other.

The newborn babies will not die without giving a smile to their parents. We will save them from malnutrition and offer them decent care, a good school to attend, and the pride for being useful to their countries.

We will get used to see all human beings as humans created by the same magnificent power irrespective of their colour, language, creed denomination, race and culture and people of equal value and equal footing, having the same rights and opportunities.

The only way leading to these objectives and to such a world which may well seem utopic to many is to launch a productivity mobilisation

drive geared to the most efficient use of all our natural resources (headed by the human ones), our science and technology potential and thereby to raise to new heights our global, national, sectorial, organizational and individual performances.

Our centre in this context will act as a catalyst by inculcating productivity consciousness into the minds of the coming generation and by spreading the knowledge on productivity-increasing methods and techniques among the public servants, bureaucrats, managers, professionals in all domains, trainers, researchers, engineers, technicians and line workers.

In his eloquent conclusion Prof. Yener proposed an inverted pyramid of responsibility by stating:

“Can we see our own organizations as an inverted pyramid of responsibilities with ourselves at the bottom? If we do so, we can start a culture where each individual would focus on his duties and not on his rights. If such a culture can prevail, no one will be worried about their own rights because – as part of their duties – others will be taking care of them. It is only such a culture that can allow Total Quality Management (T.Q.M.), Just in Time, and such other techniques to succeed.”

World Troductivity Assembly and H.R.D Asia Conference

Singapore 25-27th october 1994

The World Productivity Assembly and the HRD Asia Conference was held in Singapore from 25th to 27th October 1994. The two events brought together experts and delegates from all parts of the world.

The World Productivity Assembly was addressed on the opening day by Dr. Carl G. Thor (USA), Vice-President of the World Confederation of Productivity Science. The valedictory address was delivered by Dr. Haji Arshad (Malaysia), the second Vice-President of the WCPS from the Asian region.

The World Productivity Assembly was most ably organised by Dr. Koh Juan Kiat, Executive Director, National Productivity Board (NPB), Singapore, who is the National Chapter Coordinator (WCPS), Singapore.

The World Productivity Assembly was specially attended by the members of the International Advisory Council (IAC) of the WCPS, prominent being Dr. A.N. Saxena, Executive Vice President, World Academy of Productivity Science (India), Admiral Sudomo, President WCPS/WAPS Chapters Indonesia, Mrs. Brita Borge, Director, National Chapter Coordinator (Norway), Carl G. Thor (USA) Dr. Haji Arshad (Malaysia), Mr. Andre Miller, Secretary General (WCPS) Canada, William Wrennall (USA), Dr. M.R. Ramsay (Australia), Dr. Jan Visser (South Africa), Mr. Alemaycha Gesese (Ethiopia), Dr. Koh Juan Kiat (Singapore), Mr. Anaya Alberto (Spain), and Mr. Erikson Ingemar (Sweden).

Productivity issues were analysed and discussed in the context of globalisation of business and rapid advancement of information technology, and targets were set for the growth and development of national chapters to meet the impelling challenges. These were reviewed in the meeting of the International Advisory Council in Istanbul on the occasion of the 9th World Productivity Congress, 1st-7th June 1995.

Productivity 2000: Contribution To Growth In Singapore

In his inaugural address, Dr. Koh Juan Kiat, Executive Director - National Productivity Board Singapore, stated that in the past 25 years, productivity growth in Singapore had contributed nearly 60 per cent to its economic growth. This dependence on productivity would become more crucial when we would move in to the 21st century. It was estimated that a productivity growth of over 4 per cent was needed to support Singapore's long-term economic growth target of 4 to 6 per cent. This meant that around three-quarters of Singapore's future economic growth would have to come from productivity growth.

Achieving this long-term growth target would not be easy. Singapore companies would face keener competition in world markets. The growth rate of Singapore's labour force would slow down from 0.5 percent to 0.7 per cent per annum. This meant that the labour market would tighten considerably and the proportion of mature workers would increase. By the year 2000, workers aged 40 and above would account for 43 per cent of the labour force, compared to 29 per cent in 1987. The proportion of females in the labour force would also increase. Technological changes would quicken at the workplace. All these would impact the productivity movement in Singapore, which the National Productivity Board (NPB) was spearheading.

The Singapore Productivity Movement

What is the Productivity Movement? What do we mean when we refer to it? If I could summarise it in this way - The Productivity Movement refers to the policies, instruments, programmes and actions of the government, employers, unions and the workforce to increase productivity. The sum total of all these is an increase in productivity. The Singapore Productivity Movement was launched in September 1981. In the initial phase the focus was on raising productivity awareness at the national level, making Singaporeans understand what productivity is. The Movement has progressed from awareness to action at the workplace, and to individual ownership of productivity.

Productivity 2000

The primary source of productivity growth will come from the better use of machines and labour. Companies have to adopt new ways of managing their manpower, organising their work, and managing technology. Employees have to develop new ways of working and to acquire skills

to be flexible and adaptable. To achieve such a transformation, NPB launched the Productivity 2000 (or P2000, in short) project. Four tripartite committees, comprising mainly private sector representatives, were formed to study the key issues, and to make recommendations to steer Singapore through the nineties.

Meeting New Challenges

The Productivity 2000 report covered five key areas that would improve Singapore's productivity and help it remain competitive: positive work attitudes, skills upgrading, labour-management cooperation, progressive management practices, and better use of manpower. These areas are translated into a quantitative term called Total Factor Productivity (TFP), which is a measure of the improvements in the quality of labour and capital, and the efficiency with which they work together.

Positive Work Attitudes

In the area of attitudes, Singapore needs to achieve a fundamental shift in people's understanding of productivity. Today, many Singaporeans perceive productivity narrowly as maximizing output from given resources, i.e., productivity is synonymous with efficiency. This perception should give way to a much wider perception of productivity as an attitude of mind that strives for and achieves the habit for improvements.

"Productivity" is a good word with exact meaning when it comes down to statistics. However, the same word poses problems at the operational level. People have difficulty in understanding how they can improve productivity in the broad sense. After 14 years of promoting the productivity concept in Singapore, we think we are ready to reposition the productivity movement to a Quality Movement. "Productivity" will be used to refer to things we can measure, such as value added, etc. "Quality" will refer to the qualitative factors like work attitudes, work ethos, etc. However, we want our CEOs, managers, supervisors and workers, to all have the "productivity mind". They must continue to be made aware of the link between productivity and quality, and that only when quality is translated into productivity-increase, can our competitiveness be sustained.

We also want to make clear that the standard of productivity is quality. Productivity should not be taken to mean producing more but defective goods or serving more customers but in a rude manner. Quality can therefore be abused. It is not uncommon to find many companies frivolously offering "quality" products and services. That is why we have

set a standard for quality. This standard is to do our work 100% right, all the time. This attitude will prevent problems from occurring and will build quality into a product or a service. To achieve this, we must do it through training.

Skills Upgrading

A nation's most competitive asset are the skills and the cumulative learning of the workforce. We want to increase the value of our human resources by upgrading their skills continuously. Quantitatively, we want companies to increase their investment in training to a national average of 4 per cent of the payroll, which is the amount spent by the better corporations in the world. Qualitatively, the infrastructure of trainers, training delivery systems, training contents, and instructional technology have to be upgraded, so that training is cost-effective for employers and accessible to the workforce. Companies must want to train, and workers must want to be trained - using the best and most cost-effective technology or delivery systems available.

Labour-Management Cooperation

Productivity is sensitive to the quality of labour-management relations (LMR). Fortunately, the LMR climate in Singapore is stable and harmonious. Singapore's union leaders have accepted productivity as being mutually beneficial to management and workers. The active involvement of grassroot union leaders and the examples they set, have encouraged workers to respond likewise. Our task is to build on this foundation, to strengthen tripartism, and to upgrade the professionalism of personnel practitioners and union leaders. The objective is to catalyse management and union leaders to forge active partnerships to jointly tackle issues facing companies and workers in the 1990s.

Progressive Management Practices

Singapore companies can learn to compete more effectively by adopting practices based on basic principles like cost effectiveness, high quality products/services, customer satisfaction, and information technology. What is appropriate will depend on a company's stage of growth - whether they are start-up companies, established companies, or companies that are ready to go global.

To do this, we are building a culture of cooperation among Singaporean companies, so that they can compete as a group on productivity performance. Through linkages such as multi-company collaborations,

chain-store alliances, and collaborations among companies in different industries, local companies can grow and become a vibrant part of our economy. Singapore believes in free competition. We therefore believe that our local companies must be able to compete with the world's best operating in Singapore. As a start, we are concentrating our efforts on setting up chain-store alliances in highly fragmented small concerns like furniture shops, confectionaries and travel agencies.

Effective Use Of Manpower

As the labour force growth slows down in the 1990s, each and every worker will matter and should be optimally utilised. We have to ensure that mature workers are considered and accepted as part of a productive workforce. We have to entice the mature workers to be trained for new skills, and selected companies are being assisted to train these workers in areas such as communication skills and industrial automation. At the same time, jobs also have to be re-designed to accommodate the varying and new skills of workers and the new demands of work.

Another aspect is to promote pride in services. As services continue to be the largest sector in the economy, contributing more than 70 per cent to the GDP, service employees have to perceive themselves as adding value to a transaction by having the right knowledge, skills and attitude. To push for quality in the service sector, we have paired up with Singapore Airlines to set up a Service Quality Centre to train up CEOs, managers and workers on how to deliver quality service. Such partnerships with leading companies would mean that we can tap their expertise and resources for the benefit of more companies.

Productivity -A Marathon With No End

Improving productivity is like a marathon. It is a long-haul effort. We need to judge the terrain and vary our pace if we are to keep in the race. The late Mr. Kohei Goshi, former Chairman and President of the Japan Productivity Centre, summed this up very well: "All world-class marathons are designed to test the athlete's endurance and will to win. Flat courses are inevitably followed by "heartbreak hills" and any good athlete knows that you cannot maintain the same pace throughout the entire marathon if you expect to win."

The Productivity 2000 report provides us with a map of the terrain that will hopefully enable us to take the right roads. We want companies to take the whole package of solutions and persevere with their implementation.

The government and unions are moving in tandem with companies to help them achieve the competitive edge that they are seeking in a much tougher world environment. Unlike the usual marathon, the productivity marathon is a race without a finish line.

National Symposium on Productivity and Quality Global Challenge in 21st Century, Jakarta-1994

National Symposium on Productivity and Quality Global Challenge in 21st Century, Jakarta-1994

Under the auspices of the Indonesian Institute for Productivity (I.I.P), Indonesia launched its Productivity and Quality Month by organising a national symposium with international participation on 1st November 1994 in Jakarta on the theme “Productivity and Quality, as a Global Challenge towards the 21st Century”.

The symposium started with a keynote address by Hon’ble Hartarto, Coordinating Minister for Industry and Trade, Government of Indonesia. In his most thought-provoking address, Mr. Hartarto emphasized the need for productivity and quality as the only recipe for speedy economic and social development and to remain competitive in the global markets. He lauded the role of I.I.P and the World Academy of Productivity Science (WAPS) and pledged the government’s full support in promoting productivity and quality in Indonesia.

The national symposium commenced with a brilliant address by Admiral Sudomo, President (I. I.P) and Indonesian Chapter of WCPS/WAPS. He specially highlighted the importance of the National Quality and Productivity Month as stipulated by His Excellency President Soeharto.

The two distinguished speakers at the symposium were Prof. Dr. A.N. Saxena, Executive Vice President, World Academy of Productivity Science (India) and Prof. Dr. Thomas H. Lee of the Centre for Quality Management, M.I.T. (USA). The symposium concluded with a valedictory address by Mr. Soewarso Hardjosoedarmo, the Executive Director who out-lined the specific targets set by I.I.P in carrying forward the campaign for productivity and quality in Indonesia in defer-ence to the exhortations of His Excellency President Soeharto.

The Capstone address was delivered by Admiral Sudomo I.N. (Ret.) Chairman, Indonesian Institute for Productivity, the World Confederation

of Productivity Science and the World Academy of Productivity Science, Indonesia.

“It is a special privilege for me to deliver a capstone address and then open officially this symposium in a relevant atmosphere the National Quality and Productivity Month which is taking place in November month as stipulated by President Soeharto.

It is logical to proceed with the momentum of this month to disseminate the quality and productivity drive under the fresh Inputs from Professor Thomas Lee and Professor Dr. A.N. Saxena.

The theme adopted for this symposium is “Productivity and Quality as a Global Challenge towards the twenty first century”. On this theme, I feel confident that many of you attending here today have already achieved wide recognition among the community for your contributions to quality and productivity enhancement within your respective organizations.

In today’s symposium Professor Thomas H. Lee will speak about “TQM Leadership”. This topic will lend real substance to the National Quality and Productivity Month. We are familiar with TQM as a modern day “battle cry” in the struggle for fundamental change in management and leadership. In this light, and we must be aware and responsive to the consequences of the era in which we now live.

The final stage of the twentieth century in which we are now entering, has been characterized by a variety of terms, the industrial era, the technological era, the information era, and the era of globalization. The net result of these characteristics has been to produce a much closer world where the level of interlinkages between people, communities and nations is growing rapidly. From a management viewpoint, the consequences are that survival and growth of an organization, large or small, government or non-government, profit or non-profit, becomes dependent on several capacities of that organization. These include, that the organization operates more effectively on the basis of a focused mission, that it is also anticipative, more market and output-oriented, competitive, industrious, enterprising, empowering its members, conducts centralized planning and decentralized implementation and control, and catalytic to its members.”

Professor Thomas Lee of M.I.T., USA in his address stated:

“The overall capacity of an organization requires that it implements the contemporary management system called Total Quality Management or “TQM” which involves changing the attitude and thought patterns of

every worker in viewing their work and those he/she works for. TQM demands nothing short of a cultural transformation within an organization. The potential for availing of TQM in an organization can be identified:

- Firstly, TQM draws together all members of an organization in contributing to improvement of a process and a working environment to produce quality goods and services.
- Secondly, TQM improves the working atmosphere and levels of cooperation conducive to output, quality improvement and organizational productivity.
- Third, TQM raises efficiency and economy by reducing reprocessing operations and doing away with unnecessary processes.
- Fourth, TQM improves the quality of output, reduces production costs and enhances the productivity of an organization.
- Fifth, TQM allows an organization to achieve a competitive advantage for its survival and growth.

Aware of TQM's potential, I take this opportunity to invite all of you to work together to increase further momentum to the theme adopted for this symposium "Productivity and Quality as a Global Challenge towards the twenty-first century". On this theme, I feel confident that many of you attending here today have already achieved wide recognition among the community for your contributions to quality and productivity enhancement within your respective organizations."

Dr. A.N. Saxena in his address stated that quality management and productivity management are sister subjects sharing a common denominator. He further mentioned that the world is in a state of constant flux. Many old political systems are collapsing to be replaced by a system with a stronger emphasis on democracy and protection of human rights. We can also witness economic crises in various corners of the world, breeding poverty and hunger.

The recipe lies in feeding calls for a new economic order. In many countries there is a pressing need for protection of limited natural resources on a more efficient basis in order to raise the standard of living without destroying the natural environment.

This complex scenario calls for all permeating interdependency between nations, politically, economically, socio-culturally and in the

security field. This interdependence pushes nations towards sound cooperation and the challenge can be answered in the best interest of peace and welfare of man-kind.

At the national level, this cooperation means an integration of manpower, natural resources and funding to raise the quality of life of a nation. Integration of this nature must be directed at boosting productivity and the physical growth of the nation.

Conclusion

Any organization's greatest asset are its people, the most important component in productivity. Their contribution to increased productivity depends on key factors such as education and training as elements of human resources development, health and motivation. In this context, Kaizen is a vital TQM technique for the continuous improvement of a system, its process and product which will all culminate in improved quality and productivity.

Indonesia Marches Ahead In Productivity And Quality Drive 1994

The Indonesian Institute for Productivity (I.I.P) under the leadership of its dynamic President Admiral Sudomo and able Executive Director Mr. Soewarso Hardjosoedarmo is all set for implementing its Five Years Plan 1994-1999. It has Successfully completed its growth stage through orientation and consolidation during 1994.

As a first step the IIP is developing its critical mass, which comprises of people affiliated to IIP, having motivation, aptitude and TQM knowledge to achieve the missions of IIP and the Indonesian unit of the World Academy of Productivity Science (WAPS), in implementing and enchanting quality and productivity at the national, regional as well as at global levels.

To provide sufficient knowledge and power to the critical mass in conducting its mission, the IIP organised a critical mass seminar on 2nd November 1994 which was conducted by Prof. Dr. A.N. Saxena, Executive Vice-President World academy of Productivity Science.

Another important event was a one-day workshop held on 3rd November 1994, in the conference room of the Indonesian Institute for Productivity, on the programme and policies of the world body, the WCPS. The workshop was most ably conducted by Mrs. Brita Borge, Director, National Chapters Coordination.

In line with the development of productivity and quality concepts, the I.I.P in its drive is conducting four revolutions of thought as follows:

- The first revolution : Focus on customers
- The second revolution : Continuous improvement
- The third revolution : Total participation in the organization
- The fourth revolution : Societal networking.

After the seminar, the critical mass members are expected to be the embryo of the WAPS. Fellow candidates will conduct the development and dissemination programmes on productivity science as a synergistic entity of TQM.

World Confederation Of Productivity Science And World Academy Of Productivity Science

WCPS Indonesia Chapter is a national association with the objectives: to promote the increase of productivity in all sectors, to disseminate productivity knowledge, to initiate education in productivity, to develop strategies for productivity behaviour, to promote the increase of the quality of working life and to satisfy the need for constant improvement of the standard of living. It is a branch of the WCPS international headquarters and is a working partner of the Indonesian Institute for Productivity and of the other related national organisations.

WAPS Indonesian Chapter is a national organization with the objective to enhance and disseminate productivity science at the global as well as national scale. It is a branch of the WAPS International Headquarters and of the WAPS Asian Regional Division. It provides appropriate linkages to the WCPS Indonesian Chapter and is working in partnership with the Indonesian Institute for Productivity.

As WCPS and WAPS Indonesian Chapters are linked to each other with parallel and synergistic objectives, they launched a massive plan of action to form a part of the international mainstream by organising conferences, seminars, symposia to keep up with the state of the art of productivity science on the following themes :

- Global integration and productivity
- Productivity and market economy
- Productivity in terms of human resources
- Management of technology

- Productivity and quality interaction
- Productivity in the public service sector
- Productivity in educational system.

Our economic development strategy is pointed toward achieving the trilogy of equity, growth and stability. We are not focusing only on GNP, but our implicit concepts of national productivity are: first, enhancement of the quality of life, second, economic growth, and third, social progress, which is better known as equitable economic development.

WCPS/WAPS in Indonesia is organising a national symposium in Jakarta on 1-2 November 1994, on the theme 'PRODUCTIVITY AND QUALITY AS A GLOBAL CHALLENGE' synchronizing with the National Quality Month. Tor Dahl, Chairman, World Confederation of Productivity Science and Dr. A.N. Saxena, Executive Vice-President, World Academy of Productivity Science, will be addressing the symposium.

(Admiral Sudomo (Retd.) is a chairman WCPS/WAPS INDONESIA).

The World Productivity Assembly

3rd and 4th September 1996 Johannesburg (South Africa)

Delegates from 22 countries attended the World Productivity Assembly and participated in serious and exciting discussions on productivity and related issues. The world assembly was organized by the National Productivity Institute (NPI), The World Confederation of Productivity Science (WCPS) and Pan-African Productivity Association (PAPA).

The theme of the world assembly - “Achieving World Class Competitiveness - Strategies for Improving Productivity” is regarded as being of vital significance to the world’s countries.

The programme for the World Productivity Assembly included a wide range of topics, from national issues and techniques to improved productivity at the macro level, to specific human resource approaches and techniques, organizational issues, and the very important aspects of creating and sustaining a productive culture in organizations. An interesting array of well-known and new productivity improvement techniques was offered and reinforced the staunch belief of the experienced productivity experts that there is no area in which there cannot be a productivity improvement, be it in administration, manufacturing, marketing and sales, service industries or whatever; all can be improved. It requires a champion in the organization to accept that productivity improvement is vitally important, to set the process in motion. Creating a productive culture in every organization will ensure a nation with a productive culture - a winning nation.

- Encourage the development of a productivity culture in African economies in order to ensure better living standards on the African continent.
- Foster cooperation and collaboration between national productivity organisations and other related bodies in and outside Africa with a view to promoting sustainable growth in productivity in the economies in Africa.

- Facilitate the establishment and development of national productivity organisations in all African countries.

President's Message

I believe that South Africa is the most beautiful place on earth, but when you combine the natural beauty of sunny South Africa with the friendliness and cultural diversity of our people, and I realise that the region is a haven for Africa's most splendid wildlife, then I think even the most scrupulous critic would agree that we have been blessed with a truly wonderful land.

I would like to extend a personal invitation to you to come and see for yourself the splendour of South Africa. I know that my people will be delighted to welcome you and I think you will be enchanted by their warmth and hospitality. I am equally sure that you will enjoy our culture, our cuisine and the warmth of our people.

Nelson R. Mandela
President of the Republic of South Africa

Programme Schedule

- Managing knowledge for sustained competitive advantage
Jeffrey Bagraim, Lecturer, School of Management Studies, University of Cape Town
- Human resource development: A strategy for SA's international competitiveness
- **Dr P Nevhutalu**, Foundation for Research Development
- Improving quality in the service industry through an integrated production planning model
- K Von Leipzig and P D Strydom
- Department of Industrial Engineering, University of Stellenbosch

Plenary Session

Keynote speaker: The Square Wheels of continuous improvement

- Dr Scott J Simmerman, Managing Partner, Performance Management Company, South Carolina, USA

Keynote speaker: Improving industry and organizational performance by applying the “theory of constraints” management philosophy.

- Bob Fox, President, TOC Center, New Haven, Connecticut, USA

Keynote speaker: Fostering a culture of learning in South Africa In line with global competition.

- Alvan Riley, General Manager, Training and Education, NPI

Keynote speaker: Productivity improvement practices that work.

- Dr D Scott Sink, Director, Center for Organizational Performance Improvement, Virginia Polytechnic Institute, USA
- Summary and closure: Dr Jan Visser, Executive Director, NPI, and President of PAN-African Productivity Association (PAPA)

Conclusions

The programme for the World Productivity Assembly included a wide range of topics, from national issues and techniques to improve productivity at the macro level, to specific human resource approaches and techniques, organisational issues, and the important aspects of creating and sustaining a productive culture in organisations. An interesting array of well-known and new productivity improvement techniques was offered and reinforced the staunch belief of the experienced productivity experts that there is no area in which there cannot be productivity improvement, be it in administration, manufacturing, marketing and sales, service industries or whatever, it can be improved. It requires a champion in the organisation to accept that productivity improvement is vitally important, to set the process in motion.

Creating a productive culture in every organisation will ensure a nation with a productive culture -a winning nation. The World Productivity Assembly will have value only if we accept the challenge posed to governments, employers and workers in all countries to join hands and to work towards achieving the ultimate goal of improved living standards for all the people. Only by working together to improve productivity can a country become a winner and take its rightful place in the very competitive world.

Divided we fall

Together we stand

Productively we succeed!

WCPS National Chapters Meeting

Coinciding with the World Productivity Assembly, a meeting of the National Chapter, Coordinators of the World Confederation of Productivity Science (WCPS) was held in Johannesburg on 2nd September 1996.

Mrs. Brita Borge, Director, National Chapter Development Office in Norway, welcomed the representatives from around the world. She informed the delegates that there has been a significant improvement in the growth and activities of the national chapters since they met in Istanbul (Turkey) during June 1995.

Brita Borge was happy to inform that contacts have been established with Austria, Egypt, Malawi, Mauritius and Mozambique and hoped that national chapters will start functioning in these Countries shortly. She thanked Mr. Jean Claude Lauzon, President (W.C.P.S.) and Dr. Scott Sink, President (WA PS) for their guidance advice and encouragement.

Mr. Jean Claude Lauzon, in his statement expressed his views on the importance of each national chapter, as together they are the backbone of the WCPS along with all WAPS Fellows. He stated that the time had come to define clearly a set of outstanding criteria that chapters would have to meet as we want them to play the important role of change leaders nationally and worldwide.

Dr. Scott Sink mentioned that the WCPS National Chapters should be the pumping organisation by submitting the best minds of their country as nominees for induction as WAPS fellows. A nominating committee will then review the candidates in light with the criteria that are to be indicated on the call for nominees' document.

Brita Borge further informed the participants about her efforts to link the WCPS to the U.N.D.P. and stated that there were now "open doors" and exchange of information between the UNDP country offices and the WCPS National Chapters.

Mr. Andre Miller, Secretary General WCPS/WAPS in his observations informed that the request to the United Nations (UN) to receive consultative status to the ECOSOC had been sent to New York some time ago and that the proposal will be submitted to the relevant Committee for decision in February/ March 1997.

Annexures and Reference

Mission Forward

Progress creates problems and the solution to those problems creates more progress. This progress if not evenly dispersed, creates social, economic and political problems and the continuum goes on.

Historically, productivity movement characterizes instruments, policies, programs and activities initiated by the governments, employers and labor through their unions or their organizations with the sole objective of bringing about an incremental growth and overall improvement in the working and living conditions, to reflect in the long-run creation of more employment and improvement in the standard of living of their constituents.

Another thought that dominated productivity was to maximize output with reduced input (in statistical terms) an increase in the output-input ratio through techniques and technologies. However, in many countries, this led to wage-nibbling and long working hours with little concern for the human factor. And yet, in its wider concept, productivity continued to be acknowledged as an attitude of mind that strives to build and achieve excellence in every walk of life with improved skill and application of new techniques and technologies through training and development of people.

It is a historical fact that productivity in the past has been a victim of regulated monopoly of knowledge, side-tracking the immense talent and creativity that exists in the mass of the people, which must be tapped by recognizing that human beings have a dual role to play, firstly by increasing the productivity of the consumption cycle which fuels production cycle, and which in turn has to be concerned with the safety and wellbeing of not only the present generation but future generations as well.

This conviction is based on the premise that every human 'actively' is part of some existing system or discipline having its genesis in Man-Nature (MN) system intermediated by Man-Man (M-M) system and the two are

inseparable and cannot be distanced by technologies which threaten to destroy the ecology and environment and imperil human life and living.

Productivity science places the value system of the people on a high pedestal in one word 'humanity', and combines and collates social, philosophical and meta-physical sciences to restore the lost harmony between man and nature to integrate material and human resource which must come out of heart, head and hand, since the best can never be written; it must always be 'acted', it demands 'action'.

The Age of Discontinuity

In the past, extrapolation of data could predict the future, but currently, this is an age of discontinuity that does not rely merely on experience and past data, which no doubt is important, but needs to be used with caution and care. Today's decisions of success are the result of 'out of box' decisions. There are illustrations of 'illogical' ideas of individuals which are characterized as innovative or paradigm shifters.

Discontinuity no more conjures chaos or breaking norms. Even Industrial Dynamics, Empowered Teams, Lean Manufacturing underutilized capacity, policies and Six Sigma are no exception to the new generation of managers who have taken the cudgels to say that limits set by the above techniques are counter-intuitive and as such counter productivity science to discover tools to overcome such situations.

The age of discontinuity today influences not only the social ethos but even the politics and the economy. Each predicts a new future. And no wonder the forces that lead to creating a better tomorrow are governed by discontinuity, and I quote Bertrand Russel.

"Even when casual sequences are established for the past, there is not much reason to expect that they will hold good in future, because the relevant facts are so complex that unforeseeable changes may falsify our prediction"

(Bertrand Russel)

Peter Drucker also considers that there are four major areas of Discontinuity.

- I. The explosion of new technology that will result in new major industries.
- II. Change from an international economy to a world economy.
- III. A new socio-political reality of pluralistic situations, which pose drastic political, philosophical and spiritual challenges.
- IV. The new universe of knowledge, based on new education and its implications in work life, leisure and leadership.

While some of us are reacting to the future created by others, there are many who are not only retaining and reorienting their forecasting techniques but creating their own and that which are not distant in the future. The implications are obvious that we should be contributing to the future. It isn't surprising therefore, that the Nobel Prize winning physicist Feynman asked his research students, "Will your knowledge extend existing knowledge, or will it make a difference?"

Best Practices Are a Myth

Not long ago, an impressive and influential concept was that there are certain 'best practices' which need to be emulated to improve performance and for continuing to get quick successes. The Neo Leadership denounces this on the ground that it is not leadership, it is at best followership, which will always leave you behind. They visualize leadership as a quality of uniqueness which is one's own earned monopoly to achieve advantage in a highly competitive market. They equally contend that 'not to change' is very costly. In any case not to change is anti-growth and anti-ascendency. Changing values are the best compass in a rapidly changing world that we have inherited. Equally, a world without change is a world without hope. To reject change is to reject not only hope but to reject tomorrow.

Some Facts Cannot be Ignored

It is a fact that in life only a small percentage of people have the opportunity to work at jobs which seem to satisfy them. At best they can be classified as a fortunate minority. They belong to professions of artists, scientists, technologists and some business people who enjoy maintaining a positive attitude despite inadequate remuneration or work schedule. The real challenge therefore lies in making work places conducive to human health and happiness which can bring out the best in them at workplace, which again is a human and social problem.

Likewise, a major challenge of our times is the crises in 'human relations' emanating from dis-integration in the man's mind and which surfaces in behavior patterns, runs counter and destroys the broader objective of human and social welfare. We need to fathom deep into the causes and take remedial measures. Research studies have also proved the need to bring about a change in the work culture among the younger generation against jobs that are tedious and monotonous, with little challenge and with apparent lack of responsibility with less regard to the fact that technology and the new systems in the process have attendant problems and deserve serious consideration. Human passion cannot be subdued by force or authority. It can only be won over with love, equality, trust and mutual relationship.

The heart of the problem of productivity science basically lies in the motivation of the human factor. Based on research studies, specific techniques and devices can be recommended with comparative ease but bringing about change in the 'attitude' is both a complex and difficult task, in which leaders of all sections of society must play their part. Success no more lies only in the art of talking but lies equally in the 'art of giving' too. This is a task of developing social skills which alone can bring about tangible benefits.

Another challenge of our time is social ethos which implies application of scientific discoveries for the benefit of mankind. Its basic tenet being open mindedness, if one has an open mind, he is not content to find out errors. He goes a step further in an attempt to establish the true option, and when something better comes upon, he takes it, no matter who gives it.

With the passage of time we also find that a great change has taken place in the cycle of fundamental human needs. The first need now diagnosed is 'dignity'. This is the need for self-expression, the need for opportunity to grow to advance and to excel.

The second fundamental need is 'togetherness'. This is the need for membership in a team characterized by a sense of belongingness and the feeling of oneness or unity with the group or the family.

The third fundamental need is 'security' which has now acquired a much wider dimension. It is not merely physical security, but security provided through government and its institutions which is in the form of freedom and liberty. However, liberty must acknowledge that any security which ignores 'dignity' and 'togetherness', no matter how much security is provided, is likely to fail.

These three fundamental needs when aided and helped by innovation and empowerment can transform even Utopias into reality and which are the fountain source of discovery and invention.

In this backdrop, productivity science seeks to inculcate in the minds of the upcoming generation both knowledge and practice for improvement of methods and techniques among all stake holders to participate as a stream at all levels of human activity, be it social, environmental or economic. It is equally important that life, liberty and happiness must play a predominant role in making people realise that the world belongs to them and that they must work for it. This demands greater independence, inter action, better understanding and commitment to demolish the outclasses that have existed so far. Ultimately, it is people who dominate the rate of progress and parameters of human welfare.

Ecology and Environment

Modern society expects all segments to help preserve the environment. It demands humans to produce and provide safe products and services, to treat its employees equitably, to be truthful to its customers and to conform to safe and healthy conditions of work. If business is a part of society, its actions must have both economic and social impact. As humans, we are a part of a unified social system living together on one planet and we owe it to ourselves to maintain the ecological balance to sustain our life and that of the future generations.

In tackling the problems of ecology and environment, Albert Einstein wrote, “A problem can’t be solved on the same level of consciousness that created it”. Organizations will have to work towards developing symbiotic and integrative linkages with the environment and function adaptively to ensure sustainable growth.

It is a great travesty that rapid industrialization with little concern for environmental issues, coupled with greed to earn huge profits to enjoy affluent styles of living, have greatly polluted the virtual gifts of nature - air and water and have generated bio- degradable waste. Likewise, rampant use of pesticides has led to many new and unknown diseases impairing human health and wellbeing.

WCPS in its mission has been deeply concerned with environmental issues. It initiated its efforts in 1973 when the first World Productivity Congress was held in Bombay on the theme - Productivity Science For the benefit of mankind followed by world assemblies and international events around the globe.

The United Nation and its several agencies are also making valiant efforts in this regard. However, looking at the magnitude of the problem, these efforts need to be speeded up on war footing to ensure preventive and prospective action plans and to lay down measures for constant monitoring of air and water for a green environment.

Role of Productivity Scientists

Productivity scientists need to know what they should do and how they should do it. They need to be comfortable in a wide range of activities - government, business, industry, and social ethos. Above all, they should be concerned with human, social and environmental problems.

So far there are no models that productivity scientists can claim to follow or own. Models are getting out of date any way and their role at best could be paradigm shifters, and to provide need-based service for registering significant improvements in productivity. Their skill lies in identifying blind spots close to the sieve and desisting from correcting the past to create the future to become architects of success rather than problem-solvers. They need to have a vision and imagination which does not underestimate the power of a united small community capable of transforming the current landscape. It is a productivity scientist's duty to popularize the true meaning of productivity, which is much broader than merely efficiency or restructuring for registering profit. They have to discover ways and means to overcome the conflicts and contradictions which have universal influence.

Productivity science faces a major challenge - to overcome social tolerance, which is important for the application of scientific discoveries for the benefit of mankind, its tenet being "open mindedness" If one has an open mind, one is not content to find out errors. He goes a step further to establish the true opinion and when he comes upon something excellent, he accepts it and applies it, no matter from where the opinion came. He recognizes that in the new setting, adaptation and tolerance are essential tools. Intolerant people have a limited outlook in an age which demands that we take a wider view and imbibe change with sagacity. Even the concept of 'authority' today demands acceptance, respect, recognition and re-affirmation of the ideals cherished so far which have brought forth the current social evolution. Productivity science in this context seeks to sprout the seeds of hope and vitality with great expectations.

The most important factors which are going to have a profound role in productivity science success are envisaged as below:

1. Changing Values and Culture

A rapid change is taking place in the way of thinking and application of productivity techniques and practices. As Tennyson wrote, 'Old order changeth yielding place to new'. But the current rate of change is so fast that adaptation of new technology and techniques are throwing some segments out of board in the absence of adaptation and training which are making it difficult for people to respond, because that demands changes in attitudes and motivation levels.

2. The New World of Work

The world of work is not immune to this rate of change. It must be re-designed to expand the range to achieve quantum leaps for improvement of productivity.

3. Compulsion of Global Cooperation

No country in today's world can develop or grow in isolation or can claim to be self-sufficient. International trade and commerce and consumer propensities compel them to cooperate and to interchange knowledge and experience.

This fact was very ably illustrated by no other than Milton Friedman at the seventh World Productivity Congress in Kuala Lumpur when he held a simple pencil in his hand on a large screen and explained the magic of free markets:

"The wood from distant forests, the graphite from distant mines, the eraser from Indonesian rubber, the metal from another mine - all shipped great distances. All came together in the production of this low-cost item used by school children all over the world. It was free trade and markets that has made this little miracle possible."

So Economic Zones should also work to create a heritage of civilization which mankind should be proud of, and therefore, productivity improvements should come from productivity choices: integrity, intellectual relationships, competence, freedom and growth. No more can it be ignored that the essence of civilization ultimately depends on the values demonstrated and the preferences made, on its moral commitment, its standards of excellence and what it teaches its people about things which man shall live.

University of Productivity Science

It is our dream that by 2030, we should be able to setup a university of productivity science to provide authentic data to the U.N. and to all regional bodies on improved scientific methods and techniques in conformity with its vision and mission. Its research studies will help create a solid database to help resolve social, economic and environmental issues which vitally concern the life and living of people on this planet. To this end it will relentlessly continue to unravel those critical areas which are going to play a dominant role under fast changing socio-economic values demanding the need to solve global problems on global basis with global effort and global cooperation.

What beckons productivity science, is our belief that the lights that WCPS & WAPS have illuminated will turn into myriads of lights, opening new vision and vistas for proliferation of the productivity science mission of peace and prosperity through productivity.

WNPO's LIST

- | | |
|-----------------|--------------------|
| 1. Australia | 23. Japan |
| 2. Barbados | 24. Latvia |
| 3. Botswana | 25. Malaysia |
| 4. Brazil | 26. Mauritius |
| 5. Canada | 27. Mangolia |
| 6. Chile | 28. Nepal |
| 7. China | 29. New Zealand |
| 8. Costa Rica | 30. Nigeria |
| 9. Egypt | 31. Norway |
| 10. Ethiopia | 32. Philippines |
| 11. Estonia | 33. Poland |
| 12. Finland | 34. Singapore |
| 13. France | 35. South Africa |
| 14. Germany | 36. Spain |
| 15. Ghana | 37. Sri Lanka |
| 16. Greece | 38. Sweden |
| 17. Iceland | 39. Tanzania |
| 18. India | 40. Turkey |
| 19. Indonesia | 41. Ukraine |
| 20. Israel | 42. United Kingdom |
| 21. Ivory Coast | 43. USA |
| 22. Iranian | 44. Zambia |

WAPS FELLOWS

AUSTRALIA

1. Alan Michael Abrahams
2. Rakesh K. Agrawal
3. Richard James Barton
4. R.J. Becker
5. Richard Bull-Tuhus
6. Zheng Changhong
7. William G. Fenner
8. Kevin James Foley
9. Elizabeth Fulop
10. Bruce Hinchcliffe
11. Graham Kierath, MLA
12. Leonie Judith Kramer
13. Kenneth E. Loucks
14. Jianzhong Lu
15. Philip A. Neck
16. John Parsons
17. Giles Pickford
18. Mamphela Ramphele
19. John M. Samuels
20. Anne-Maureen Scarff
21. Martin J. Stone
22. Chris Strobel
23. Peter Sun San Wong

24. Kelvin Wu

BAHRAIN

25. Adkar Jaffari

BARBADOS

26. John Pilgrim
27. Anthony Sobers
28. Andrew Silvester Downes
29. André Vincent Henry

BELGIUM

30. Hendrik Van Landeghem
31. Anthony C. Hubert

BOTSWANA

32. Olibele Gabarone

BRAZIL

33. André Leite Alkmin
34. Edson Vaz Musa
35. Elton Fernandes
36. José Carlos Grubisich

CANADA

37. Jacques Malo
38. John McLennan
39. Nycol Pageau-Goyette
40. Robert-Louis Papineau
41. David F. Poirier
42. Andrew Sharpe
43. Michael Shepherd
44. Louis A. Tanguay
45. Gerald Tremblay
46. Peter Watkins
47. Michel Audet
48. Elizabeth Beale
49. Claude Béland
50. Marcel Boyer
51. Peter Brandon
52. Thorvald Brun
53. Sun Cheng
54. Donald J. Daly
55. Victor S. Deyglio
56. Erwin Diewert
57. Alain Dubuc
58. Robert Dutton
59. Yves Filion
60. Geoff Flood
61. Pierre Fortin
62. Florent Francoeur
63. Jean-Marie Gonthier
64. Serge Guay
65. Donald B. Hathaway
66. Bill Hutchison
67. Huguette Labelle
68. Luc Lacharité
69. Jean-Claude Lauzon
70. Claude F. Lefebvre,
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71. Jacques Malo
72. John McLennan
73. Nycol Pageau-Goyette
74. Robert-Louis Papineau
75. David F. Poirier
76. Robert-Louis Papineau

CHILE

77. Sergio Vera

CHINA

78. Ji Wanbin
79. W. Z. Wang
80. Liu Wei
81. Song Weijie
82. Wang Weicheng
83. Sun Wensheng
84. Teng Wensheng
85. Hu Wenyan
86. Frederick Ho Wing-huen,
87. Wang Xiancheng
88. Wang Xianglin
89. Li Xianzhi
90. Zhan Xiaoling

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| 91. Shu Xiaoxian | 121.Zou Dongtao |
| 92. Yang Xingfu | 122.Liu Fan |
| 93. Wu Xuexin | 123.Miao Fuchun |
| 94. S.Z. Yang | 124.Zhang Genhu |
| 95. Chen Yaoxian | 125.Zhu Guangbing |
| 96. Yang Baohua | 126.Su Guangqi |
| 97. Li Baoping | 127.Li Guangrong |
| 98. Li Baoping | 128.Yu Guang-yuan |
| 99. Wei Bingyi | 129.Shi Ding Huan |
| 100.Chu Bingying | 130.Zhao Huanran |
| 101.Zhou Changsheng | 131.Fang Jianshe |
| 102.Ji Chao | 132.Zou Jiangshi |
| 103.Zhan Chaoqi | 133.Li Jiaxiang |
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| 105.Yin Chengjie | 135.Tian Jie |
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| 107.Hung Chi Ching | 137.Li Jingwen |
| 108.Zhong Chutian | 138.Duan Jiwen |
| 109.Liu Cunzhou | 139.Liu Jun |
| 110.Zhou Daojiong | 140.Xue Jun |
| 111.Lu Daojun | 141.W.C. Keung |
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| 113.Li Dayou | 143.Huo Li |
| 114.Chang Dechuan | 144.Wang Li |
| 115.Wu De-Gui | 145.Cheng Lianchang |
| 116.Gao Dekang | 146.Cen Liefang |
| 117.Lu Dezhi | 147.Bi Men Lin |
| 118.Li Diankui | 148.Wang Lin |
| 119.Kong Dong | 149.Wangmao Lin |
| 120.Chen Dongliang | 150.Jinghai Liu |

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 154. T.L. Ng, Mbe
 155. Liang Mingming
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 157. Wen Motong
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 188. Zhou Yi
 189. Teng Yimin
 190. Gao Yingjie
 191. Xiong Yingwu
 192. Zhang Yinpeng
 193. Xie Yonggang
 194. Xu Yousheng
 195. Fang Youxin
 196. Xingqian Yu
 197. Wang Yusheng
 198. Sun Yushuang
 199. Xin-Chuan Zhang
 200. Xie Zhengfu
 201. Liu Zhenhua
 202. Xu Zheng
 203. Wang Zhiguo

ENGLAND

204. Patrick Joynt
 205. Alan Stainer

ETHIOPIA

206. Aster Abraham

HONKONG

224. Shu-Ting Chang

FINLAND

207. Tuomo Alasoini

208. Mika Hannula

209. Tiina-Mari Monni

210. Peter Rehnström

211. Erkki Uusi-Rauva

212. Gregory H. Watson

INDIA

225. Sunil Abrol

226. SK Acharya

227. B.K. Ahuja

228. Deepak Amitabh

229. S. Babu

230. R.K. Baisya

231. A.K. Balyan

232. Proshanto Banerjee

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234. N. K. Bhatt

235. S.K. Bhattacharyya

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237. Shyam Chowdhary

238. K. Dwarkanath

239. Sarosh J. Gandhi

240. M.K. Ganeshan

241. Shri Vikrant Gujral

242. Mahesh Gupta

243. C.P. Jain

244. Shyam Jaising

245. J.R. Jindal

246. Reddy K. Balaveera

247. Abdul Kalam

248. Vijay Kalantri

249. B.N. Kalyani

FRANCE

213. M. De Lamotte

214. Jean Kaspar

215. Henry Mintzberg

GERMANY

216. Hartmut F. Binner

217. Herbert Müller

218. Hans-Dieter Schinner

219. Wolfgang Schroeter

GHANA

220. T.K.A. Bibilavu

GREECE

221. Kostas N. Dervitsiotis

222. Constantinos Siakaris

223. Isidoros S. Tiano

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Kannampilly | 278. K.G. Ramachandran |
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Sharma |
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308. B.K. Sinha

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310. R. Sreenivasan

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312. T. Sudhakar Pai

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314. K. S. Narayana Swamy

315. Veena Swarup

316. Ratan N. Tata

317. A Thiagarajan

318. Prem Vrat

319. D. Datta



Dr. A.N. Saxena

Dr. AN Saxena is an internationally known productivity and management consultant. He retired as the Director General of the National Productivity Council in India in 1985. Thereafter he was chair Professor in the faculty of Management Studies (FMS), Delhi University.

Dr. Saxena represented India on the First International Advisory Council of the World Confederation of Productivity Science (WCPS).

In 1988, at the Montreal World Productivity Congress when the World Academy of Productivity Science (WAPS) was setup, he became its first Secretary General and at the Stockholm World Productivity Congress in 1993, he rose to become its President.

A Gold Medallist, a Fellow and a winner of the Special National Productivity Award of the Asian Productivity Organization (APO), he was empanelled as a Technical Expert under the Technical Expert Service (TES), and rendered professional expert service in Thailand, Malaysia, Nepal, Iran and Mongolia.

Dr. Saxena has an unbroken record of over 25 years of participation in World Productivity Congresses held around the world. He also rendered Consultancy Services in Turkey, Indonesia and Mongolia.

As a scholar, thinker and a writer, his next outstanding work has been the publication of two volumes on Planning & Promotion of Productivity (Indian Experience), besides management guides and training manuals.

This global publication, first of its kind on productivity science, seeks to highlights the origins, the vision and the mission and exposes the new horizons of Productivity Science in its wider spectrum of application in all aspects of human endeavor in pursuit of its goal of peace and prosperity through productivity.

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