

H. M. The King and the Environment
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Mr. President, Distinguished Guests, Ladies and Gentlemen,

I am honoured by your invitation to deliver an address on His Majesty the King's accomplishments in promoting environmental protection.

In this field, as in so many others, His Majesty has worked tirelessly on behalf of his people. In fact, he has continuously and actively dedicated himself to development work since 1951, and has been responsible for initiating nearly 2000 projects, spanning a range of development sectors, including land and water resources, agriculture, livestock, fisheries and forestry. Many of these projects have broken new ground in their respective fields. In a number of cases, His Majesty has pioneered what are now accepted as routine techniques.

At a time when public participation and cross-sectoral integration are high on the sustainable development agenda, we can look back at over four decades of Royal work based on these very principles. Undoubtedly, as we attempt to reconcile our nation's economic development with its social and environmental realities, we can do no better than follow the example set by our King.

To trace the evolution of His Majesty's commitment to the environment and development of Thailand we must go back 50 years, to the date of His Majesty's accession to the throne and subsequent departure to Europe to complete his studies. The overseas journey of Thailand's new monarch was greeted with some ambivalence, not least of all by the King himself. The mood of this period is best described by the King himself, in an extract from his writings dated August 19, 1946:¹

"...the car passed through the crowds extremely slowly and on approaching Wat Benjamabopitr began to speed up slightly. At that moment I heard the sound of someone crying out loudly 'Don't desert your people!'. I wanted to cry back that as long as the people did not 'desert' me, how could I ever 'desert' them?"

Some twenty years later, His Majesty met with the very person who had cried out and was able to say:²

¹ Quoted in: Office of the Royal Projects Board, "His Majesty King Bhumibhol Adulyadej and His Development Work". Bangkok, 1987, p. 11.

² Ibid., p. 11.

“Your words made me aware of my duty and brought me back”

This personal affirmation of duty and responsibility was an indication of the extraordinary discipline and dedication of the young monarch. It also served to underline that his coronation pledge on May 5, 1950, to:

“...reign with righteousness for the benefit and happiness of the Siamese people”.

Would indeed become the guiding principle of his life and work.

His Majesty's work began in earnest on his return to Thailand on a permanent basis in 1951. The very first Royal Development Projects were initiated in 1952, with infrastructural and water resource developments in the mid-south of the country. During this early period from 1952-1962, His Majesty's efforts were directed towards the immediate problems of what was then still an impoverished and predominantly rural society. Many of the early Royal projects were welfare-oriented initiatives aimed at providing basic health and education services for the very poorest members of Thai society.

After visiting the north-eastern region of Thailand for the first time in 1955, His Majesty began to formulate his determining thesis that integrated and systematic development, largely based on sustainable agricultural practices, would be fundamental to the long-term livelihood of the population. The focus of His Majesty's work, therefore, began to shift towards the areas of agricultural and water resource development, and the role that modern technologies could play in creating sustainable solutions.

The emphasis on technological solutions is not surprising, given His Majesty's early academic background in science and technology. However, what singled out his Majesty as an early leader in this field was his enduring belief in the importance of appropriate technology, or what may be termed local solutions to local problems.

Rather than wholesale import of foreign techniques and tools, His Majesty advocated trial and experimentation under Thai conditions as a more sustainable pathway towards development. Indeed, His Majesty's own talent for active experimentation allowed him to make a number of significant contributions from Chitralada Palace, his Bangkok residence.

The Royal projects at Chitralada Palace are, by now, well known. Experiments began as early as 1951, when His Majesty conducted breeding trials for tilapia fish (*Oreochromis mossambicus*) in the swimming pool at the Royal Residence.³ From these modest beginnings, His Majesty's research work

³ United Nations Food and Agriculture Organisation Regional Office for Asia and the Pacific. “The King and Agriculture in Thailand”. Bangkok, 1987, p. 7.

expanded to cover almost every sector of agricultural development. Since the 1970s, His Majesty's work programme has included the vegetative propagation of economic plant species, cultivation of medicinal herbs, hydroponics, livestock husbandry, and the development of biogas technology.

Although originally conceived as experimental trials and demonstration exercises, a number of these initiatives have matured into viable technologies. For example, water hyacinth (*Eichornia crassipes*) was first grown experimentally at Chitralada Palace in 1985, to assess its potential as a pollution control agent. This aquatic plant can act as a biological filter to remove heavy metals from severely polluted waters. Based on the experience gained from this trial, a successful water pollution control project was initiated at the Makkasan Swamp in Bangkok.

Research and development at Chitralada Palace has played an important role in the development of an integrated Royal strategy for resource management. Indeed, His Majesty's approach to problem solving incorporates many of the elements now considered vital to successful rural development programmes.

With respect to research, the two key elements of this approach are application and extension. Recognising that research work is a means to an end, rather than an end in itself, His Majesty has always sought to relate his results to the problems faced by rural people. Accordingly, the implementation of Royal projects in various villages and rural areas is usually based on the conclusions and lessons drawn from His Majesty's own experimental projects.

As I mentioned earlier, His Majesty began emphasising the importance of sustainable rural development and water resource management at an early stage in his reign. It is now in these areas that he is perhaps best known to his people,⁴ and in which His Majesty has developed and refined his characteristic approach to development and environmental management.

The emphasis on certain sectors in particular should not be construed as a limitation in the Royal development strategy. His Majesty has paid considerable attention to the need to find integrated development options that are consistent with both maintenance of environmental quality and conservation of the natural resource base. Indeed, His Majesty has sought not only cross-sectoral integration, but also harmonisation of spatial and institutional factors.⁵

His Majesty's perspective on environmental management can be demonstrated by recourse to two well-known initiatives: the introduction of Vetiver Grass Technology (VGT), and the development of the Chai pattana Water Aerator.

⁴ United Nations Environment Programme, "Sustainable Development of Natural Resources: A Study of the Concepts and Applications of His Majesty the King of Thailand". Bangkok, 1988, p. 26.

⁵ Ibid., p. 26.

For all practical purposes, topsoil is a non-renewable resource like petroleum. Yet, every year, both wind and water remove enormous quantities of soil from agricultural lands in Thailand, particularly in the steep, upland areas to the north of the country. A number of reasons lie behind these high rates of soil erosion, including deforestation, unsuitable farming practices, and a low awareness of effective soil conservation techniques amongst farmers.

Against this background of soil loss and unsustainable land usage, His Majesty introduced the use of vetiver grass (*Vetiveria spp.*) as a natural, or 'biological' method for soil conservation and the control of soil erosion.⁶ In its most common form, VGT is the establishment of vegetative hedges along contours to reduce the flow of water and sediment from eroding sites. Other applications include the stabilisation of reservoir embankments and prevention of gully erosion. Compared to more traditional, engineered practices, the cultivation of vetiver grass is a simple, effective and inexpensive soil management tool.⁷

The use of vetiver grass has been widely adopted by Thai farmers, and is now well established as a local soil conservation technique. This is not all. The study and experimentation into vetiver applications promoted by His Majesty has made Thailand one of the world's leading exponents of VGT, a fact amply demonstrated at the recent international conference on vetiver grass organised here in Bangkok by the Office of the Royal Development Projects Board.⁸

Vetiver grass represents a multi-purpose solution to the twin problems of soil and water resource conservation. It is an excellent example of the local approach allied to the development of appropriate technologies that has long been advocated by His Majesty. So too is the Chai Pattana Water Aerator, another simple, yet effective, tool, conceived and designed by the King himself.

Development of the Chai Pattana Water Aerator (models RX-2 to RX-7), and the associated Chai Pattana Bio-Filter (model RX-8), was initiated by His Majesty in response to the need for simple, inexpensive technologies for tackling water pollution, for example in the canals and waterways of Bangkok.

Between 1984 and 1987, His Majesty had advocated the flushing of polluted waterways with fresh water from the Chao Phraya River.⁹ He also promoted the use of water hyacinth as a biological filter, as discussed earlier. Later on, between 1988 and 1991, His Majesty sought to introduce further techniques for wastewater treatment, in order to build a composite and effective strategy for

⁶ Office of the Royal Development Projects Board, "His Majesty the King's Approach Towards Sustainable Agriculture". Bangkok (undated), p. 20.

⁷ Richard Grimshaw, "The Role of Vetiver Grass in Sustaining Agricultural Productivity". Asia Technical Department, The World Bank, 1994, p. 1.

⁸ "Vetiver: A Miracle Grass". February 4-8, 1996, Bangkok, Thailand.

⁹ The Secretariat Office of the Chai Pattana Foundation, "The Chai Pattana Aerator: A Royal Initiative for Wastewater Treatment". Chai Pattana Foundation Newsletter, December, 1991, p. 12.

the control of water pollution. One of the outcomes of this period of development was the Water Aerator, a tool that enhances biochemical processes for treating polluted water.

Biological treatment of wastewater involves the use of aerobic bacteria to consume organic pollutants. However, the efficiency of these bacteria is limited by the level of dissolved oxygen, which can be very low in highly polluted waters. The Water Aerator is designed to overcome this limiting factor by increasing the amount of dissolved oxygen available to aerobic bacteria.

The first designs for the Chai Pattana Water Aerator were introduced by His Majesty towards the end of 1988. Subsequent development and construction of the first Aerators by the Department of Irrigation was made possible with funding provided by the King's Chai Pattana Foundation. The Chai Pattana Foundation has also provided support for distribution of the Aerator and research trials aimed at improving its effectiveness.¹⁰

The preceding two examples have shown something of His Majesty's approach to environmental management, including his emphasis on the integration of development efforts and the application of small-scale, appropriate technology.

I would now like to explore in greater detail the methods by which Royal Development Projects are devised and implemented, including His Majesty's techniques for working in the field and appraising local requirements.

The first, and most important, point to note is His Majesty's personal, or 'people-oriented' approach.¹¹ As stressed by the King himself in an address delivered in November, 1970:¹²

"In working out a programme to help people, it is necessary that you know the people you intend to help. There is no short cut. One does not know a people by merely memorising some research papers prepared by research centres. You must meet them and like them."

The truth of this assertion is reflected in His Majesty's punishing work schedule. Even to the present day, His Majesty sets aside approximately 200 days out of every year for visiting rural areas¹³ and seeing for himself the challenges and obstacles being faced by his subjects.

Once on-site, His Majesty will begin a process of consultation with local communities, the potential beneficiaries of a Royal Project, and

¹⁰ Ibid., p. 13.

¹¹ Dr. Phaichitr Uathavikul, "Managing the Environment" (forthcoming).

¹² Quoted in: United Nations Food and Agriculture Organisation Regional Office for Asia and the Pacific. "The King and Agriculture in Thailand", op. cit., p.13.

local government officials, the usual implementers of a project. Only after identifying the needs of the people, and relating them to the existing management plans and operating constraints of local government agencies, will His Majesty make recommendations for development work. Even then, His Majesty will only suggest principles and guidelines for further work: local officials are free to implement what they consider feasible.

By allowing local communities to actively participate in the selection of objectives, strategies, and approaches for development projects, His Majesty manages to achieve five very important objectives:

1. Increase the awareness of all project participants of the social and economic benefits provided by the natural environment;
2. Identify the respective needs and aspirations of the various parties in relation to environment and development;
3. Strike a balance between the short-term with its immediate results and the long-term with the maintenance of environmental quality and conservation of natural resources;
4. Develop a sense of 'ownership' of Royal projects and their policy, strategy and operational components, so that decisions are made by all stakeholders;
5. Foster dialogue between government agencies working in different development sectors to highlight cross-sectoral problems and their solutions.

Underlying these objectives is a second, important principle in His Majesty's approach to the development of field projects. This is the requirement for site-specific solutions to the problems of environment and development. As has been pointed out, the Royal Projects are notable for their fine degree of differentiation in specific provisions according not only to the physical, but also the socio-economic environment.¹⁴

His Majesty's appreciation of the so-called 'reality of place'¹⁵ led him, in 1979, to introduce the concept of integrated study centres, each involved in the study and promotion of development alternatives in specific environments.

The Royal Development Study Centres, as they are now known, serve as 'demonstration models',¹⁶ each co-ordinating much of the existing information and research relevant to the problems of the specific areas in which the

¹³ Office of the Royal Development Projects Board, "Royal Development Projects". Bangkok, 1995, p. 7.

¹⁴ Dr. Phaichitr Uthavikul, "Managing the Environment", op. cit.

¹⁵ United Nations Environment Programme, "Sustainable Development of Natural Resources: A Study of the Concepts and Applications of His Majesty the King of Thailand", op. cit., p. 133.

¹⁶ Office of the Royal Development Projects Board, "His Majesty the King's Approach Towards Sustainable Agriculture", op. cit. P. 22.

Centres are sited. Methods and technologies developed at the Centres are disseminated to farmers in the surrounding rural region, allowing them to choose and adopt strategies that are relevant to their needs and feasible in terms of implementation.

His Majesty has described the Centres as 'living museums',¹⁷ a term which accurately reflects their role as open repositories of appropriate, locally-derived, technology. At the same time, however, the Centres also provide an accessible framework for development co-operation between local communities, non-governmental organisations, government agencies and other workers concerned with sustainable development.

To date, six Royal Development Study Centres have been established, and the network now broadly covers the range of bio-physical and socio-economic variation in Thailand.¹⁸ To illustrate the integrated strategies being promoted by these Centres, I would like to dwell briefly on the work of the very first Royal Development Study Centre, situated at Khao Hin Sorn in Chachoengsao Province.

The prevailing environmental and socio-economic conditions which prompted His Majesty to establish the Khao Hin Sorn Centre as the first Royal Development Study Centre provide an excellent example of the complex matrix of human and environmental factors that have influenced development in Thailand.

Logging and agricultural settlement on the rolling uplands of east and north-east Thailand have had major impacts on environmental quality in these regions. So too has the extensive cultivation of cash crops such as cassava (*Manihot esculenta*). Low input cash-cropping on sandy upland soils has reduced the nutrient status of these soils and increased their susceptibility to erosion.¹⁹

Against this background of soil erosion and fertility decline, His Majesty initiated the Khao Hin Sorn Centre as a focus for research and development into forestry and agricultural methods for soil and water resource conservation. Programmes at the Centre include intensive crop cultivation, livestock breeding and agro-forest development. Occupational development in small-scale cottage industries has also been promoted as a way of supplementing rural incomes.

¹⁷ United Nations Environment Programme, "Sustainable Development of Natural Resources: A Study of the Concepts and Applications of His Majesty the King of Thailand", op. cit., p. 31.

¹⁸ The six Royal Development Study Centres are: Central Region – Khao Hin Sorn Centre in Chachoengsao; Central Region, Western Sector – Huai Sai Centre in Petchaburi; Central Region, Eastern Sector – Kung Krabaen Bay Centre in Chanthaburi; North-Eastern Region – Puparn Centre in Sakhon Nakhon; Northern Region – Huai Hong Khrai Centre in Chiang Mai; and Southern Region – Pikun thong Centre in Narathiwat

¹⁹ United Nations Environment Programme, "Sustainable Development of Natural Resources: A Study of the Concepts and Applications of His Majesty the King of Thailand", op. cit., p. 69.

As the first of the Royal Development Study Centres, Khao Hin Sorn provided an important testing ground for His Majesty's concepts and principles. For example, the emphasis placed by His Majesty on integration of all efforts came as a challenge to government agencies and officials used to operating as discrete units with little or no horizontal communication.²⁰ The importance of extending research developments to the surrounding farming community, while undeniable, was also somewhat overshadowed by problems with land and resource ownership.²¹

Obviously, change can never be immediate, especially with respect to people's livelihoods. Nevertheless, the on-going efforts of those at Khao Hin Sorn have demonstrated the will to realise His Majesty's vision, and this is a strong foundation on which to build the strategies so necessary for sustainable rural development.

His Majesty's unstinting efforts in the fields of environmental management and sustainable development have long been a major factor behind the high level of environmental awareness that exists amongst Thai citizens today. The majority of the population were perhaps not aware of the true extent of His Majesty's concern until 1989.

On the occasion of His Majesty's birthday, a royal audience was granted to many thousands of well-wishers at Chitralada Palace on December 4, 1989. As is usual on such occasions, His Majesty delivered an informal address, touching on certain issues and concerns affecting Thailand and Thai society. On this occasion, his Majesty devoted his entire speech to the state of the environment, covering issues not only of national, but also of global, importance.

With respect to global issues, His Majesty dwelled at some length on the threat of global climate change, and the strategies necessary for combating it. His solution to the problem was simple and straightforward:

*"...carbon in the atmosphere increases every year by 3 billion tons. And this is what worries the scholars. The solution is: burn less fuel and plant more trees."*²²

At the national level, His Majesty concentrated on the problem of water management. On this subject he struck a positive note, emphasising that:

*"...the water cycle in this country is still adequate, it only requires proper management. If it is well managed, water is plentiful...If we use water with caution, as well as keeping a close control on polluted water, we can survive."*²³

²⁰ Ibid., p. 75.

²¹ Ibid., p. 78.

²² Office of the National Environment Board, "Royal Speech Given to the Audience of Well-Wishers on the Occasion of the Royal Birthday Anniversary on Monday, 4th December 1989. Bangkok 1990, p. 12.

²³ Ibid., p. 15-17

His Majesty concluded by stressing the need for careful, objective analysis of environmental problems, allied with an integrated approach towards developing solutions:

“If we study the problems calmly and reasonably, we will be on our way to their solution....The problems I mention here concern all branches of knowledge because they concern the very existence of humanity. These problems are all inter-dependent.”²⁴

Such was the impact of His Majesty’s speech on the cause of environmental protection and sustainable development in Thailand that the government subsequently declared December 4 as National Environment Day. Apart from marking an event of special importance, this day now serves to reinforce the common concern all Thai people have for their environment.

I would like to conclude my address by quoting from His Majesty’s Birthday speech once more. In the space of a few short words, His Majesty managed to conjure up an image of Thailand that we are in danger of losing forever. At the same time, however, His Majesty instilled a note of optimism and determination from which we can all draw strength and inspiration:

“Thailand is most suitable for human settlement, but we must preserve it well, lest this country of orchards and farms becomes a sterile desert. It can be protected; this can be done.”²⁵

We have no other option, but to see to it that it is done!

²⁴ Ibid., p. 15.

²⁵ Ibid., p. 17.