

## 7. KNOWLEDGE AND BELIEF SYSTEMS IN EUROPE

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*The early European peoples, such as the Celts and Germanics, expressed reverence to nature and worshipped different Gods. The fate of mankind was considered the result of the forces of Gods, giants and nature. From the 3rd century onwards, the Roman Empire became the stronghold of Christianity. The combination of indigenous and Greek-Christian worldviews allowed the emergence of a culture where thrift, planning the future and hard work were held in high esteem. These values, combined with missionary zeal, led to colonisation of large parts of the globe in the 16th and 17th century. The industrial revolution and the Enlightenment resulted in important economic and technological developments. After the colonial period, market protectionism and economic expansion kept Europe, and increasingly its former colony USA, in the driving seat of international power. Problems related to the environment, social stability and inequalities between the regions of the world have led to a renewed interest in diversity and sustainability.*

### Historical overview

The earliest hominids in Europe arrived from Africa some 700,000 years ago. The fluctuating climate and sea levels influenced human survival in the region, which depended on hunting and gathering. Migration in order to make use of the natural resources was common, and fluctuated over the seasons and years. The main tools were hand axes, made of stone and wood, while fire and clothing were necessary to live in this temperate climate. Some 120,000 years ago the Neanderthals lived in caves, and were the first type of humans known to bury their dead and to display a variety of ritual behaviour and social organisation.

Between 35,000 and 12,000 years ago, a period of technological change took place, as the pressure-flaking technique enabled people to produce more finely shaped tools, spear throwers, bows, fish nets, hooks and spears. Hunters were no longer forced to follow their herds all the time, but could live on stored meat, plants and smaller animals such as rabbits, fish and birds. The population increased and specialisation of roles emerged. This led to increased competition and group identification, or ethnicity, each with its rites and symbols. Rituals were practised for hunting, fertility and initiation of the young. Artistic expressions played a role in these rituals: mural paintings, sculptures, and engravings on animal bone, antler and stone have been found from this period.

**Original inhabitants.** After the most recent ice age came to an end some 10,000 years ago, temperatures rose, allowing people to inhabit the northern part of Europe as well. 3,000 years later agriculture was well established in northern Europe. The hierarchical, metal-using societies of the Copper and Bronze ages introduced the plough. People of the Celtic and Germanic cultures built places of worship, had their own creation myths, systems for maintaining law and order, and artistic expressions. Natural Gods, giants and natural forces had to be worshipped and respected, and a variety of rituals were held in sacred

places.

These early European societies had some matriarchal characteristics: women were respected as spiritual leaders and held important positions. Clairvoyant women, quite influential in these indigenous religions, could look into the past and future, reveal the myths of origins, and predict the future. The oak was considered a sacred tree, and often provided an appropriate place of worship in celebrating and respecting natural forces. The peoples built stone circles and ritual monuments with astronomic functions, such as Stonehenge on the British islands, while on the continent remnants of graves with enormous boulders and menhirs can still be seen today.

As the original occupants of Europe did not have an elaborate system of writing, the main sources of information on their belief system still available today are observations of Roman occupants, and the Edda, a book on Germanic wisdom, myths and saga written in the 13th century AD.

**Classical civilisations - the Greeks and Romans.** Inspired by both the Mesopotamian and Egyptian cultures, the first European urban-based civilisation emerged in Crete, around 4,000 years ago. This was the start of the Greek culture, which had its climax between 2,500 and 2,000 years ago. Later on its centre shifted to Rome. The Greek developed an elaborate cosmovision, with a pantheon of Gods, semi-Gods, and giants. Religious ceremonies were held and impressive temples and sculptures were constructed to honour the Gods and invoke their blessings.

This period also produced a class of people who were to think and teach about basic questions: the philosophers from this period, Socrates, Plato and Aristotle, are considered the three pillars of western philosophy. Socrates developed a system of reasoning and thinking aimed at finding the truth. He put great emphasis on ethical values, such as modesty, justice, courage, and truthfulness, and pointed at the immense potential of mankind once prepared to know itself. Plato developed ideas about the ideal state, which should be ruled by enlightened philosophers. Women and men were to be equal, with equal education and prospects. Marriages were to be arranged by the state, and children were to be removed from their parents in order to minimise personal and possessive emotions, and to foster public spirit. He put forward the notion of 'divine perfection': objects we can observe in the world are merely appearances of the perfect idea or form. Trees in the material world are merely copies of God's perfect tree. Aristotle made the distinction between 'form' and 'matter'. The form of something is its essence. Matter without form is just potentiality, but by acquiring form, its actuality increases. Humans, by increasing form to matter, by building bridges and making sculptures, make this matter more divine. Aristotle is also considered the founder of 'logic', the system of propositions and deductive arguments, which has had great influence on western scientific thinking

The Greek city-states had strong and centralised governments. Military technologies and organisations were developed, which allowed the Greek, and later on the Romans, to conquer the original inhabitants and occupy major parts of the Mediterranean, Asia and western Europe. The Greek empire lost its dominant position around 1,700 years ago, and Christianity became the dominant religion. Under the influence of the Roman emperor Constantine, state and church became strongly interrelated in the 4th century AD, and

western Europe was christianised from the 7th century AD onwards. The Holy Roman Empire and the Church of Rome formed an interdependent system of spiritual and political authority, which controlled the continent politically and substituted the traditional religions of the original inhabitants with Christianity.

**Christianity and colonisation.** Christians believe that the whole creation is an act of one God, who continues to take care of all aspects of its existence. People have one life in which their destiny after death is determined: either eternal bliss in heaven, or the eternity of torment in hell. Christ provided for the redemption of humankind by his death. Humans are permitted to explore and exploit nature, but not destroy it: people are to act as good stewards of natural resources. At the same time values like thrift, planning the future, and working hard to reach specific goals in life, became part of Christian societies. The new religion and church were male dominated, and women were not allowed to fulfil roles in rituals and priesthood any more.

The Church of Rome led the Christian missionaries within Europe. They were faced with widespread indigenous belief systems of the original inhabitants, in which worshipping of different Gods, the sun, moon and other elements in nature were common. In order to destroy these ancient religions, specific laws were established by the new Christian authorities. For example, clairvoyant women of the traditional belief systems were considered to be witches, and prosecuted by the Inquisition, a church based court of justice.

In a general sense, it is interesting to note the similarities between the strategies used during the early colonisation process of Europe, and the strategies used later on in colonising other parts of the world (see also chapter 2). These strategies included the following elements: the original culture and religion were declared to be barbaric and inferior, based on a superstitious belief system. Introduction of the new religion was presented as a liberalisation and as a general benefit for the people. Sacred places of worship of the original religion were destroyed and, where possible, replaced by churches on the same location and using the same materials. Traditional practices not wholly in contradiction with the new religion, were given a new label, and were thus gradually taken over by the new religious system. Alliances were made with the ruling political leaders, and the legal systems were changed to take on board the new morality and values. Indigenous traditional leaders were declared demonic, witches were prosecuted and killed, and non-believers in the new religion were convicted.

In this way the Inquisition could condemn and punish -even to death- those who did not comply with the laws of the new church. Through education, welfare and technological innovations the new religion was able to gain popularity, and to create an elite educated in the new system. These new leaders had the tendency of rejecting the old religion even more vigorously than the missionaries before them, as their new position and status in society depended on this. Policies that reinforced the dominant trend were adopted. But, the new religion and value system could not easily wipe out all traditions, and in spite of the threat of persecution and ridicule, the traditional leaders often continued to perform their roles as religious leaders, unnoticed by the new rulers. Europe was, initially, no exception in this process, which we still can observe in dominated traditional societies in other parts of the world today. But, after 700 years of domination by Christianity and sub-

sequent social, economic and political developments, most of the indigenous original European belief systems have been reduced to a vague memory, though a range of European values, popular beliefs, festivals and costumes can still be traced back to the Germanic and Celtic cultures.

In the course of its history, Christianity has strongly influenced the policies of the emerging nation states and has played an important role in the colonisation process in other parts of the world. Christianity has spread itself far beyond Europe: Latin and North America and Africa were strongly impacted by missionary activities. Meanwhile, Christianity has also gone through a number of reformations and changes. At present Christianity has a wide range of denominations, and its influence on the European society is no longer as prominent as in the past. In western cultures, the church and the state are separate identities. Christian values, however, as well as the linear time concept, the attitude towards nature, and emphasis on the material world, still have a major impact on European cultures today.

**Enlightenment and the industrial revolution.** European rulers of the middle ages were appointed, sanctioned and ordained by the Church. In the 18th century, a number of scientists decided to work without the limitations imposed on them by the religious dogmas. Francis Bacon, Isaac Newton and Descartes, considered the founders of modern science, formulated a new scientific paradigm: they shifted from the concept of a world controlled by God to the concept of a material world, which functions like a machine. This mechanical picture of nature, or Cartesian worldview, became the dominant paradigm of western science, and guided all scientific observation and formulation of theories. This new paradigm was called Enlightenment, as it implies an optimistic view on the potential of the human being, based on its rationality. In this perspective, humans were to use science to dominate and control nature (see also page 17, chapter 2).

In the 18th century, the new machinery developed for textile and metal processing through technological innovation could no longer be installed in small-scale home industries due to its size. As a result, factories gradually replaced home industries. Coal, iron and steam engines were used in the railway system and on steamships, which, combined with the construction of roads and railroads, allowed for more efficient transport of people and goods over large distances. This so-called industrial revolution led to high productivity of labour and capital, and to considerable economic growth. Its success is ascribed to factors such as: technological innovations, availability of capital to invest in equipment, availability of labour and raw material from colonised countries, as well as free and expanding markets. The growth of towns led to increased demand for food and increased agricultural productivity. At the same time, employment opportunities moved from the rural areas to the towns, and a poverty-stricken labour proletariat emerged, who over time started a class struggle.

The industrial revolution started in England, but spread to the USA, continental Europe and Japan. It did not get a foothold in tropical countries, as the necessary investments in infrastructure did not take place there. Instead, tropical produce was transported to the industrialised countries for processing. From the 16th century onwards, Spain, Portugal, England, France, Belgium, the Netherlands, Italy, Denmark and Germany

expanded their colonial activities. The New World of the Americas, Africa, and major parts of Asia came under colonial control. Slave trade resulted in major changes in populations, as well as de-humanisation of a part of human society. In 1914, European countries controlled 84% of the land surface of the world [Schultz et al., 2001].

This expansion was made possible by scientific advances, such as navigational devices and cartographic techniques. The 'newly discovered areas' were studied scientifically: botanists and geologists and ethnologists took stock, made inventories and studied the natural and human resources and potentials for its use. According to Adas (1997), the science carried overseas by European colonisers, was considered value neutral, objective in its procedure, privileging abstraction and reason, empirically grounded, somehow transcending time and space, and therefore universally valid. These assumptions about western science gave its practitioners and advocates confidence that the spread of western science, and the instruments and procedures associated with it, was beneficial and somehow inevitable for the local populations. In this process indigenous ways of learning and knowing were consciously pushed to the periphery.

**Post-modernity.** The scientific paradigm that emerged during the Enlightenment is considered to be modern. The impact of the technologies developed by this approach has been tremendous, and has enabled food security and wealth in various parts of the world. At the same time the disadvantages and limitations of this materialistic-mechanistic approach is now clearly visible, and the sustainability of present day food production systems, and economies in general, call for a new approach.

In the early 20th century, Einstein formulated his laws of thermodynamics and the theory of relativity, thereby laying the foundation of new physics and post-modernity. Development in quantum mechanics, pioneered by Niels Bohr and Werner Heisenberg, further modified the hitherto conventional concepts of time and space, matter, gravity and cause-effect relationships. They concluded that subatomic particles have a dual nature: depending on how we look at them they sometimes appear as particles, or matter, and sometimes as waves, or energy. Bohr considered the particle and the wave as complementary descriptions of the same reality. Heisenberg postulated the 'uncertainty principle', which is based on the concept that, at subatomic level matter does not exist with certainty at a definite place, but shows a 'tendency to exist'. In contrast to the former mechanistic Cartesian worldview, this post-modern worldview can be characterised as organic, holistic and ecological. The universe is no longer seen as a machine, made up of a multitude of objects that can be controlled, but as one indivisible, dynamic whole, whose parts are interrelated.

In the 1980s the General Systems Theory emerged, in which an organic, living system is not considered as a machine-like organ, that can be managed and controlled separately once its dynamics are known, but as a combination of living, interacting and self-organising elements. Competition, symbiosis, self-renewal and innovative creativity are important processes in a living system. Chaos can be a necessary step in the evolution of a system towards a new order of higher complexity and quality [Prigogini, 1984]. The notion of Gaia [Lovelock, 1979] assumes that earth behaves like a living organism, and her properties and processes cannot be understood and predicted from the mere sum of its parts. In

this notion, the reductionist description of organisms can be useful and necessary, but is considered dangerous when taken as the complete explanation of its characteristics. Reductionism and holism, analysis and synthesis are seen as complementary approaches, which, if used in a proper balance, help us to gain a deeper understanding of life [Capra, 1983].

Capra also pointed at the relationship between this Systems view and Taoism and other elements of eastern mysticism. The dualism, observed at sub-atomic level coincides with the Yin Yang duality within Taoism. Ruppert Sheldrake (1990) has elaborated the theory of morphogenetic fields and resonance. Other authors, like Ken Wilber (1996), are elaborating holistic theories to link science and spirituality. The boundaries of post-modern science are difficult to indicate. New paradigms are sometimes difficult to defend, prove or explain within the conventional paradigm; some may be speculative and many meet with resistance. Yet, post-modern science presents an interesting panorama of a diversity of approaches, perspectives and theories.

## Agricultural policies

Though the colonial system came to an end by the middle of the 20th century, the economic relationship between the new tropical countries and the formal colonisers maintained a character of dependency. With the exception of a number of countries in South Asia, the newly independent states continued to be suppliers of raw materials, while international enterprises did little to invest in the South. Export subsidies and import levies for food prevented access of tropical countries to the northern markets, and thus contributed to a stagnating agricultural development in the South. This combined with the policy of international debts has worsened the situation over the past decades. Development cooperation, now the responsibility of the governments of rich countries in the world, has not been effective in alleviating poverty, or in building local capacity for economic growth, in major parts of Africa, Latin America and Asia. Local capacities are hampered by corruption, undemocratic processes and unevenly distributed resources.

After the Second World War, Europe, USA and Japan adopted agricultural policies, which included the combination of market protection, technology development, human resource development, credit and improvement of physical and institutional infrastructure. Governments invested heavily in the development of knowledge and technologies in the process of rationalising agriculture. The triangle of research, education and extension was the major tool for strengthening the internal dynamics of the agricultural system. The Land Grant universities in the USA played a major role in research, training and agricultural extension. A number of agricultural universities and research centres were established in Europe, and rural extension was carried out by government agencies. Technologies for plant and animal breeding, soil management and fertilisation, mechanisation, irrigation, pest management, energy management, storage and processing were developed, and became even more sophisticated with the high-tech computer and genetic modification technologies.

The investment in agricultural technology development was far more intensive in the western than in the tropical countries. Evanson (1986) compared the expenditure in agri-



*Investments in agricultural technology resulted in a dramatic increase in productivity and farm scale.*

cultural research and extension across the globe, and concluded that in the 1980s, only 6% of the total expenditure on agricultural research and extension were spent in Latin America and Africa. In these regions the expenditure on extension exceeded the expenditure on research: the number of researchers per extension worker in Europe is around 1:1, in Asia 1:3, in Africa 1:10, and in Latin America 1:4. At the same time, the research focus in the tropics has long been a replication of the type of research being carried out in the North, with a focus on Green Revolution technologies, such as mono-cropping, fertilisers, herbicides, pesticides, irrigation and machinery.

The price policies of the northern countries were initially intended to reach self-sufficiency in food. The combination of import duties and export subsidies stabilised off-farm prices, and provided an acceptable income to the farmers. In the process, the domestic prices for products like grain, sugar, dairy products, and meat were between 1.5 and 2.4 times higher than the border prices! In contrast, the policy chosen in many developing countries kept the consumers prices as low as possible and provided subsidies for agricultural inputs as well as for food imports. These policies over-stimulated agricultural production in Europe and the USA, while agriculture in tropical countries was seriously hampered.

Other investments in the North included infrastructure, water management and land consolidation. This further increased soil productivity and allowed market access for remote areas. Rural institutions and farmers organisations successfully lobbied for the interest of farmers, to provide credit, insurance, processing industries, input delivery and other services. These government policies led to a dramatic increase in productivity and farm scale. Yields of 9 metric tons of grain or 60 tons of potatoes per hectare and 10,000

litres of milk per cow per year were within reach, and the productivity per unit of farm labour increased dramatically.

**Crisis in European agriculture.** Yet today, in the same northern countries, agricultural development can no longer be considered an undisputed success story: The export subsidies are no longer affordable, the reduction of agro-biodiversity is dramatic, and nature is hardly present in the landscape. The use of agro-chemicals has been a major contributor to the pollution of the soils, air and water, while the energy efficiency of agriculture is negative. Animal welfare is threatened by intensive animal production systems, which in turn are threatened by swine plague, foot and mouth disease and BSE. Over the past decades farmers have been confronted with a range of laws and regulations, first to increase the scale of farming, later to reduce environmental impacts. This has resulted in enormous bureaucracies, low farm incomes, and large numbers of farmers being pushed out of business.

Currently, there are several efforts to redirect European agriculture, though this is not without controversy. The mainstream innovation policies aim at further developing technologies for large-scale production, but with fewer disadvantages for the environment and animal welfare. In this option, genetic engineering and trade liberalisation are to lead to new technologies and economic opportunities. An increasing number of initiatives, however, advocate rural renewal, which builds on ecological and cultural diversity, and stimulates multipurpose farming. In this perspective, farming enterprises include nature management, processing of local produce, and rural tourism.

### From agricultural modernisation towards rural development

The scientific approach used for the rationalisation of agriculture mentioned above, has also been labelled 'the Cartesian theatre' [van der Ploeg, 1999]. In this approach the scientific (physics, biology, chemistry) and economic laws are used to control and influence the production process towards increased productivity and farm income. Once the processes involved are understood, and the technologies to control them are developed, the 'ideal farm model' and agricultural production system is determined. Extension services, subsidies, rules and regulations are then used to get the farmers to where the policy makers want them to be. These generic policy measures apply to all farmers, and are not adapted to sub-regions or cultural values held by the farmers.

Van der Ploeg found empirical evidence, however, that despite the consistent influence of the instruments of agricultural developments on the farming communities in the Netherlands, differences can be observed between regions and localities. The same is true for Europe. The value added by the Frisian dairy system, for example, is lower than that of the Italian region around Parma. In the latter, the farmers have not adopted the development process identified as the ideal farm type, but have built on their own traditions of ecological farming and on-farm processing. They have been able to market their Parmesan cheese as a well known, region specific, and high quality product.

Van der Ploeg also found that, despite the application of generic policy measures over several decades, farmers in Europe still have a wide diversity of farm styles. Depending

on their personal preferences and regional cultures, farmers have opted for intensification and rationalisation, or have attached more value to production systems based on local diversity. This includes the combination of farming with tourism or on-farm processing, animal welfare, and nature conservation, and has resulted in a diversity of farm styles. This diversity is now considered a major potential for developments within the European agricultural systems, as well as for enhancing diversity in the landscape and ecosystem. (see also box 9a on page 249)

This discussion about universality versus diversity has become a central theme in the search for new agricultural developments in Europe. As we have seen, the application of the universal paradigm in the North has brought progress as well as problems. A major challenge

now is to find the best relationship between science and technologies. Schakel [Van der Ploeg et al., 1990] has no doubt that soil chemistry, theoretical crop ecology, biochemistry and genetics can contribute to the improvement of local production systems. This depends, however, on the possibility of translating these insights into specific technologies that can contribute to sustainable livelihoods in the different corners of the globe. The cases presented in the next two chapters, illustrate that a diversity of cultures and farm styles exists in Europe, and interesting innovative processes are taking place.



*Dairy farmer in Italy. Despite the modernisation in Europe, family farms are still prevailing in a wide diversity of farm styles.*