

5.0 EASTERN EUROPE

5.1 SOVIET UNION

The Soviet Union is the largest country in the world (22.5 million km²) and has a population of more than 280 million. It has a large primary resources development sector which accounts for 85% of Soviet exports. Manufactured exports are largely in the machinery and equipment sector. ● ●

The push to restructure the economy and to accelerate production is based on the introduction of new technology.

TECHNOLOGY TRENDS

The new economic system set in place in 1988 links science and technology to the economy by placing research institutes on a contract basis with the clients of their services.

The following are major science and technology programs being undertaken by the USSR:

- high energy physics (e.g. investigation of electro weak and strong interactions, and solar and stellar particle streams and energy generating mechanisms)
- high temperature superconductors (e.g. development of industrial processes to manufacture HTS, and development of HTS devices)
- exploration of the planet Mars (e.g. development of a detailed engineering model of Mars, and study of the technical feasibility of a manned expedition)
- human genome program (e.g. complete decoding of the molecular structure of the human genome involving chromosome mapping and sequencing of DNA)
- emerging information technologies (e.g. development of super computers, ultra-high capacity external storage devices, artificial intelligence systems, and computerized information networks)
- advance manufacturing technologies, machines and production systems (e.g. new farming methods using high-density energy, ultra-high pressures, etc; CAM; intelligent or self-learning robots using opto and bio-sensory systems, and high precision machine tools)
- advanced materials (e.g. radiation and hydrogen resistant steels, alloys with amorphous and micro-crystalline structure; "shape memory alloys and steels"; new structural ceramics with high impact viscosity, tool ceramics with a damaging structure, ceramic membranes with adjustable channel size; metal and polymer matrix composites, structural polymers, special purpose polymeric materials, stalls with high bio-compatibility and super strong glass fibres)