



PRIME MINISTER

SPEECH BY THE PRIME MINISTER
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BARRY JONES' INITIATIVE IN PROMOTING THIS CONFERENCE STEMMED FROM A KEEN APPRECIATION OF THE CONTRIBUTION THAT TECHNOLOGICAL INNOVATION MIGHT MAKE TO THE FUTURE GROWTH OF THE AUSTRALIAN ECONOMY. BARRY'S ROLE, INCLUDING THROUGH HIS WELL-KNOWN PUBLICATION SLEEPERS WAKE, IN STIMULATING COMMUNITY AWARENESS AND UNDERSTANDING OF THE COMPLICATIONS OF TECHNOLOGICAL CHANGE HAS BEEN OF CONSIDERABLE IMPORTANCE.

THE LABOR GOVERNMENT WAS ELECTED TO GET AUSTRALIA MOVING AGAIN : TO STEM AND THEN TO REVERSE THE DECLINE IN EMPLOYMENT; TO RAISE THE LIVING STANDARDS OF AUSTRALIANS; AND TO RESTORE AUSTRALIANS' SENSE OF THEIR NATION AS A FAIR SOCIETY IN WHICH THE FRUITS OF ECONOMIC ACTIVITY ARE DISTRIBUTED EQUITABLY.

THESE GREAT COMMITMENTS CAN BE FULFILLED ONLY THROUGH STRONG AND STEADY ECONOMIC GROWTH OVER LONG PERIODS.

SUSTAINED ECONOMIC GROWTH IS GOING TO REQUIRE THE PROGRESSIVE ADOPTION OF PRODUCTIVE NEW TECHNOLOGIES, STRUCTURAL CHANGE IN THE ECONOMY, AND HIGH LEVELS OF INVESTMENT FROM HOME AND ABROAD.

SUSTAINED ECONOMIC GROWTH WILL PROVIDE THE MEANS OF ASSISTING AUSTRALIANS IN NEED, THROUGH THE GRADUAL DESTRUCTION OF THE SCOURGE OF UNEMPLOYMENT, AND THROUGH ADEQUATE AND EFFICIENT SOCIAL WELFARE POLICIES.

AND THE RESTORATION OF AUSTRALIA AS A SOCIETY THAT IS BROADLY UNITED AROUND THE GREAT NATIONAL GOAL OF PROVIDING ADEQUATELY FOR ALL CITIZENS IS NECESSARY IF AUSTRALIANS ARE TO ACCEPT THE CHANGE AND THE STRESS ASSOCIATED WITH RAPID ECONOMIC GROWTH AND TECHNOLOGICAL INNOVATION.

THUS OUR COMMITMENTS TO TECHNOLOGICAL CHANGE, TO ECONOMIC GROWTH AND TO THE EQUITABLE DISTRIBUTION OF THE BENEFITS OF GROWTH ARE PART OF THE ONE GREAT PROGRAMME OF NATIONAL ECONOMIC RECOVERY.

YOUR SPECIAL CONCERN HERE TODAY, TECHNOLOGY, IS OF CENTRAL IMPORTANCE TO THAT PROGRAMME.

THE EFFECTIVENESS WITH WHICH WE APPLY NEW TECHNOLOGY - NEW TECHNOLOGY FROM ABROAD AS WELL AS NEW TECHNOLOGY WHICH WE DEVELOP OURSELVES - WILL DETERMINE THE EFFICIENCY OF OUR INDUSTRY, ITS COMPETITIVE PERFORMANCE AND ITS CAPACITY TO GROW.

THE EFFECTIVENESS WITH WHICH WE USE NEW TECHNOLOGY WILL DETERMINE WHETHER WE CAN REVERSE THE LONG DOWNWARD SLIDE IN OUR LIVING STANDARDS RELATIVE TO OTHER COUNTRIES - FROM ONE OF THE HIGHEST PER CAPITA INCOMES IN THE WORLD THIRTY YEARS AGO, TO ONE OF THE LOWEST OF THE INDUSTRIAL COUNTRIES WHEN MY GOVERNMENT TOOK OFFICE SIX MONTHS AGO.

OUR WORK PATTERNS AND INDUSTRIAL STRUCTURES WILL NEED TO CHANGE IN RESPONSE TO NEW CHALLENGES AND OPPORTUNITIES. CYCLICAL FACTORS RELATED TO RECESSION ABROAD, AND COINCIDENCE OF BAD LUCK AND BAD MANAGEMENT AT HOME IN THE PERIOD PRECEEDING MY GOVERNMENT'S ELECTION TO OFFICE, EXPLAIN PART OF OUR CURRENT ECONOMIC DIFFICULTIES. BUT PART OF OUR DIFFICULTIES IS STRUCTURAL, REFLECTING THE ENTRENCHMENT OF LOW PRODUCTIVITY AND INAPPROPRIATE PRODUCTION PATTERNS IN MANY PARTS OF OUR ECONOMY.

THE DEVELOPMENT AND APPLICATION OF NEW TECHNOLOGY MUST BE EMBRACED AS ONE OF THE DRIVING FORCES BEHIND THE PROCESS OF ECONOMIC CHANGE WITH IMPORTANT CONSEQUENCES FOR THE COMPETITIVENESS OF INDUSTRIES. THERE IS NO ESCAPING THE FACT THAT INDUSTRIAL INNOVATION IS ESSENTIAL TO AUSTRALIA'S FUTURE ECONOMIC WELL-BEING, NOT ONLY IN INDUSTRIES PRODUCING GLAMOROUS NEW PRODUCTS, BUT THROUGHOUT ESTABLISHED INDUSTRIES AS WELL.

CHANGES IN TECHNOLOGY OVER TIME WILL PLACE PRESSURES ON SOME INDUSTRIES TO CONTRACT WHILE PROVIDING NEW OPPORTUNITIES FOR THE EXPANSION OF OTHERS. THE COST OF ADJUSTMENT IN SOME CASES MAY BE CONSIDERABLE. THE COMMUNITY AND NOT JUST THOSE AT THE FACE OF CHANGE MUST BE PREPARED TO BEAR PART OF THE BURDEN.

THERE IS A GROWING AWARENESS IN AUSTRALIA THAT OUR MAJOR COMPETITORS, ESPECIALLY THOSE WITHIN OUR OWN REGION, ARE UNDERTAKING NEW LONG-TERM INVESTMENTS, ADOPTING NEW BUSINESS STRATEGIES AND APPLYING NEW TECHNOLOGY. OUR LOCATION IN THE MOST DYNAMIC, FORWARD-LOOKING PART OF THE WORLD IMPOSES ON OUR INDUSTRIES A NEED TO DEVELOP NEW TECHNOLOGIES - NEW PRODUCTS AND PROCESSES - IF WE ARE TO COMPETE EFFECTIVELY. RAPID GROWTH OF OUR TRADING PARTNERS WILL PROVIDE MANY MARKET OPPORTUNITIES FOR FUTURE EXPLOITATION IF WE CAN IMPROVE OUR COMPETITIVE PERFORMANCE.

WHILE THE CHALLENGES ARE GREAT, AUSTRALIANS NEED NOT BE DAUNTED OR SEEK TO AVOID THEM. IN FACT, AUSTRALIA IS BETTER PLACED THAN MANY AUSTRALIANS APPRECIATE. WHILE THERE IS PLENTY OF ROOM FOR IMPROVEMENT OF OUR EDUCATIONAL SYSTEM AND RESEARCH ESTABLISHMENT, THEY ARE MUCH HIGHER IN QUALITY THAN IN MOST COUNTRIES WITHIN OUR REGION AND REASONABLY GOOD BY THE STANDARDS OF INDUSTRIAL COUNTRIES AROUND THE WORLD. IT IS AN ADVANTAGE THAT OUR CHILDREN GROW UP SPEAKING

ENGLISH, THE LANGUAGE OF MODERN TECHNOLOGY. IN COMBINATION WITH OUR STRONG RESOURCE BASE, THESE HUMAN RESOURCES SHOULD ENABLE AUSTRALIA TO MOVE FLEXIBLY AND EFFECTIVELY TO TAKE ADVANTAGE OF THE EMERGING OPPORTUNITIES. MANY OF THE TECHNOLOGICAL INNOVATIONS NOW IN THE PIPELINE FIT IN WELL WITH EXISTING AUSTRALIAN INDUSTRY STRUCTURES AND FACTOR ENDOWMENTS. OUR COMBINATION OF RESOURCE ENDOWMENTS IS VERY DIFFERENT FROM THOSE OF OTHER COUNTRIES AND OFFER THE BASIS UPON WHICH AUSTRALIA SHOULD BE ABLE TO MAKE A DISTINCTIVE CONTRIBUTION. WHETHER WE CAN REALISE THE POTENTIAL BENEFITS OF OUR SITUATION DEPENDS IN PART ON OUR DEALING EFFECTIVELY WITH SIGNIFICANT INSTITUTIONAL RESISTANCES TO CHANGE.

CONCERN ABOUT NEW TECHNOLOGY INCREASING UNEMPLOYMENT IS OBVIOUSLY AMONG THE MOST IMPORTANT CONSIDERATIONS IN THIS REGARD. INNOVATION OFTEN LEADS TO DIRECT DISPLACEMENT OF LABOUR AT THE POINT WHERE TECHNOLOGY IS INTRODUCED. THIS IS ESPECIALLY THE CASE IF TECHNOLOGICAL CHANGE, RATHER THAN INTRODUCING PRODUCTS AND CREATING ENTIRELY NEW INDUSTRIAL BASES, INSTEAD IS GEARED SIMPLY TO IMPROVING THE PROCESS OF MANUFACTURING AND THEREBY TO CUTTING COSTS.

OVER THE LONGER TERM TECHNOLOGICAL CHANGE IS GOING TO HAVE SIGNIFICANT IMPLICATIONS BOTH FOR THE NATURE OF JOBS UNDERTAKEN AND FOR PATTERNS OF WORK. INCREASING NUMBERS OF

AUSTRALIANS CAN BE EXPECTED TO MOVE INTO OCCUPATIONS ASSOCIATED WITH TOURISM AND LEISURE INDUSTRIES; STRONG TRENDS TOWARDS GREATER PARTICIPATION IN PART-TIME WORK ARE LIKELY TO CONTINUE. THESE QUITE FUNDAMENTAL STRUCTURAL EFFECTS OF TECHNOLOGICAL CHANGE WILL OCCUR ALONGSIDE CERTAIN POSITIVE, ALBEIT INDIRECT, EFFECTS OF TECHNOLOGICAL CHANGE. INVESTMENT NEEDED TO INSTALL NEW TECHNOLOGY MAY INCREASE OVERALL LEVELS OF DEMAND FOR LABOUR; IT MAY ALSO INCREASE REAL INCOMES. EMPLOYMENT MAY ALSO BE ENHANCED DIRECTLY IN THE INNOVATING INDUSTRY WHERE NEW TECHNOLOGIES BRING LOWER PRICES AND HENCE INCREASED REAL DEMAND FOR PRODUCTS, OR ENHANCE THE INTERNATIONAL COMPETITIVENESS OF THE INDUSTRY.

WHATEVER THE LONGER-TERM EMPLOYMENT EFFECTS OF NEW TECHNOLOGY, GOVERNMENTS CANNOT IGNORE THE IMMEDIATE SOCIAL COSTS ASSOCIATED WITH ITS INTRODUCTION. THE COMMUNITY MUST BEAR SOME OF THE COST. CONSISTENTLY WITH OUR WHOLE APPROACH TO NATIONAL ECONOMIC MANAGEMENT, THE LABOR GOVERNMENT WORKS FROM THE PRESUMPTION THAT RAPID TECHNOLOGICAL CHANGE IS DESIRABLE, AND ALSO FEASIBLE, ONLY IF MECHANISMS ARE FOUND FOR DISTRIBUTING THE COSTS AND BENEFITS EQUITABLY.

OUR APPROACH TO THIS CRUCIAL ISSUE HAS TWO MAIN ELEMENTS. FIRST, OUR WHOLE ECONOMIC STRATEGY IS DIRECTED AT IMPROVING THE LONG-TERM OUTLOOK FOR EMPLOYMENT AND UNEMPLOYMENT IN AUSTRALIA. SECONDLY, WE ARE COMMITTED TO INCREASING THE EFFECTIVENESS OF GENERAL SOCIAL SECURITY MEASURES DIRECTED AT SUPPORTING AUSTRALIANS IN NEED.

IN ADDITION, WE BELIEVE THAT GOVERNMENTS AND FIRMS MUST RESPOND SENSITIVELY TO THE IMMEDIATE PROBLEMS OF INDIVIDUAL AUSTRALIANS WHO ARE ADVERSELY AFFECTED BY THE INTRODUCTION OF NEW TECHNOLOGY. POLICIES ARE REQUIRED TO AMELIORATE THE HARSH IMPACT OF SOME FORMS OF TECHNOLOGICAL CHANGE.

PIECEMEAL APPROACHES WILL BE UNABLE TO MAINTAIN STRONG GROWTH, WITH THE ASSOCIATED STRUCTURAL AND TECHNOLOGICAL CHANGE, TOGETHER WITH AN EQUITABLE DISTRIBUTION OF THE COSTS AND BENEFITS OF GROWTH. IN ADDITION TO THE MACRO-ECONOMIC POLICIES DIRECTED AT MAKING PROGRESS AGAINST UNEMPLOYMENT, AND THE IMPROVEMENT IN GENERAL SOCIAL SECURITY ARRANGEMENTS, AN EFFECTIVE APPROACH TO THE PROMOTION OF TECHNOLOGICAL ADVANCEMENT NEEDS TO EMBODY:

- SOUND OVERALL MICRO-ECONOMIC AND TRADE POLICIES, DIRECTED AT PUTTING AUSTRALIAN RESOURCES TO THEIR MOST PRODUCTIVE USES.

- IMPROVEMENTS IN THE EDUCATION SYSTEM, ESPECIALLY THROUGH STRENGTHENING OF EMPHASIS ON BASIC NUMERACY AND LITERACY, INCLUDING COMPUTER LITERACY, SO THAT THE WORKFORCE IS BETTER ABLE TO COPE WITH TECHNOLOGICAL CHANGE, AND TO SEIZE THE OPORTUNITIES OFFERED BY NEW TECHNOLOGIES.

- INCREASING RESOURCES AVAILABLE TO OUR NATIONAL EFFORT IN SCIENCE AND TECHNOLOGY, WHILE MAINTAINING QUALITY AND INCREASING RELEVANCE IN RESEARCH.

- MAINTAINING A SOCIETY AND ECONOMY THAT ARE INVOLVED IN A LIBERAL INTERNATIONAL EXCHANGE OF GOODS AND SERVICES, INVESTMENT, PRODUCTIVE TECHNOLOGY AND IDEAS.

- MAKING SPECIAL EFFORTS TO ADJUST TO THE RAPID INDUSTRIALISATION OF COUNTRIES IN OUR NEIGHBOURHOOD, IN NORTHEAST AND SOUTHEAST ASIA.

- FACILITATING THE TRAINING AND RETRAINING OF WORKERS.

- ENCOURAGING CONSULTATION BETWEEN EMPLOYEES, MANAGEMENT, GOVERNMENTS AND THE GENERAL COMMUNITY, ON THE BENEFITS TO BE GAINED FROM TECHNOLOGICAL CHANGE, AND ON HOW ADVERSE CONSEQUENCES CAN BE AVOIDED.

- ACKNOWLEDGING AND RESPONDING TO THE SPECIAL NEEDS OF GROUPS MOST LIKELY TO BE DISADVANTAGED IN EMPLOYMENT BY TECHNOLOGICAL CHANGE.

OVER THE LONGER TERM, BEYOND RECOVERY FROM THE RECENT ECONOMIC CRISIS, TAKING INCREASES IN LIVING STANDARDS PARTLY IN THE FORM OF INCREASED TIME SPENT OUT OF EMPLOYMENT IN EDUCATION, TRAINING AND LEISURE RATHER THAN INCREASED WAGES, IN LINE WITH LONG-STANDING TRENDS IN ALL INDUSTRIAL COUNTRIES.

THE NATIONAL ECONOMIC RECOVERY THAT IS NOW IN PROSPECT WILL PROVIDE A CONGENIAL ENVIRONMENT FOR TECHNOLOGICAL ADVANCE. WITHIN THE FRAMEWORK OF GREATER EMPHASIS ON EMPLOYMENT, SOCIAL SECURITY AND POLICIES DIRECTED AT EQUITABLE DISTRIBUTION MORE GENERALLY, THE IMPROVED ECONOMIC CLIMATE WILL INCREASE THE FUNDS AVAILABLE FROM PROFITS FOR PRODUCT AND PROCESS INNOVATION. THE LABOR GOVERNMENT'S POLICIES WILL FURTHER ENCOURAGE THE USE OF PROFITS FOR TECHNOLOGICAL ADVANCEMENT. AND THE 1983-84 BUDGET DIRECTLY INCREASES THE FLOW OF FUNDS TO SCIENCE AND TECHNOLOGY.

WE NEED NOT AWAIT THE FULL REALISATION OF NATIONAL ECONOMIC RECOVERY BEFORE INTRODUCING IMPROVED TECHNOLOGY. COUNTRIES WHICH APPEAR TO HAVE HANDLED THE RECESSION BEST, BOTH WITHIN OUR OWN REGION AND ELSEWHERE, HAVE USED NEW TECHNOLOGY TO MAKE THEIR EXISTING INDUSTRIES AS EFFICIENT AS POSSIBLE. THEY HAVE ENCOURAGED A HIGH LEVEL OF RESEARCH AND DEVELOPMENT SO AS TO GENERATE NEW GOODS AND SERVICES, AND HAVE MADE A MAJOR INVESTMENT IN THEIR EDUCATION AND RESEARCH SYSTEMS.

OUR SUCCESS IN USING NEW TECHNOLOGY WILL DEPEND ON THE QUALITY OF OUR GENERAL EDUCATION SYSTEM, AND RESEARCH SYSTEMS, AND OF OUR CAPACITY AS A SOCIETY TO MANAGE STRUCTURAL AND TECHNOLOGICAL CHANGE IN A WAY THAT PLACES THE LEAST POSSIBLE STRESS ON INDIVIDUALS AFFECTED BY IT. WE MUST WORK TO ENSURE THAT HIGH STANDARDS OF A BASIC EDUCATION ARE MAINTAINED WHILE WE INCREASE PARTICIPATION RATES. WE MUST LINK OUR EFFORTS IN TRAINING AND RETRAINING TO THE DEVELOPMENT OF CONSULTATIVE PROCESSES FOR THE IMPLEMENTATION OF CHANGE. AND WE MUST MAINTAIN HIGH SCIENTIFIC STANDARDS IN OUR RESEARCH INSTITUTIONS WHILE INCREASING THEIR INTERACTION WITH AND RELEVANCE TO INDUSTRY. THESE ARE THEMES THAT I PROPOSE DEVELOPING IN MORE DETAIL IN MY ADDRESS TO THE AUSTRALIAN COMPUTER CONFERENCE LATER TODAY.

IN THE FINAL ANALYSIS THE SUCCESS WITH WHICH AUSTRALIAN INDUSTRY UTILISES TECHNOLOGY TO HEIGHTEN COMPETITIVENESS WILL DEPEND ON THE ABILITY OF THE WORKFORCE TO ADAPT TO, AND WORK EFFICIENTLY WITH, THE NEW TECHNOLOGIES BEING INTRODUCED. TRAINING OF THE WORKFORCE TO MAXIMISE THE BENEFITS OF MORE SOPHISTICATED CAPITAL PROCESSES IS CRITICAL. IT IS IMPORTANT TO PLAN FOR THE CREATION OF A BASE OF SKILLS ACROSS THE WHOLE WORKFORCE THROUGH THE GENERAL EDUCATION SYSTEM, AND ALSO TO ENSURE THE ADEQUATE RETRAINING OF THE EXISTING WORKFORCE TO HANDLE NEW TECHNOLOGIES MORE CAPABLY.

THE GOVERNMENT IN THE 1983-84 BUDGET HAS VERY SUBSTANTIALLY INCREASED ALLOCATIONS FOR TRAINING AND RETRAINING. AMONG THE MORE IMPORTANT MEASURES WERE \$268 MILLION, AN INCREASE OF 22 PER CENT, FOR TRADE, SKILLS, YOUTH AND SPECIAL TRAINING, AND \$54.4 MILLION FOR THE SCHOOL TO WORK TRANSITION PROGRAM - AN INCREASE OF 28.6 PER CENT.

CERTAIN CATEGORIES OF EMPLOYEES HAVE PARTICULAR TRAINING AND RETRAINING NEEDS. THE SITUATION OF WOMEN IS ATTRACTING PARTICULAR ATTENTION AT THIS TIME WHEN MY GOVERNMENT IS PRESSING AHEAD WITH ITS DETERMINATION TO ENACT THE SEX DISCRIMINATION ACT.

I BELIEVE WE MUST CONSIDER CAREFULLY THE IMPLICATIONS OF THE DOMINANT CONTEMPORARY FORMS OF TECHNOLOGICAL CHANGE FOR THE CONTINUED INVOLVEMENT OF WOMEN IN THE WORKFORCE, AND FOR CHANGES IN THE GENERAL SOCIO-ECONOMIC ROLE AND STATUS OF WOMEN.

DESPITE THE APPARENT IMPROVEMENT IN THE SOCIO-ECONOMIC POSITION OF WOMEN, THE UNFORTUNATE FACT IS THAT THE OVERALL SITUATION OF WOMEN IN THE WORKFORCE HAS NOT UNDERGONE THE REVOLUTIONARY CHANGES SUGGESTED BY THE HISTORICALLY SIGNIFICANT UPSURGE IN THEIR GENERAL PARTICIPATION RATES.

DURING THE 1970'S ALMOST TWO-THIRDS OF THE GROWTH OF FEMALE EMPLOYMENT CONSISTED OF PART-TIME JOBS - WITH ALL THE DISADVANTAGES NORMALLY ASSOCIATED WITH PART-TIME AND CASUAL EMPLOYMENT: POOR CONDITIONS AND THE REALITY OF LOW-SKILLED ACTIVITY, WITH FEW CAREER OPENINGS. WOMEN HAVE ALSO BEEN CONCENTRATED IN "TRADITIONALLY FEMALE" ACTIVITIES; CLERICAL AND SALES AND SERVICE OCCUPATIONS STILL ACCOUNT FOR OVER 60 PER CENT OF THE FEMALE WORKFORCE IN AUSTRALIA. OUR EDUCATIONAL SYSTEM IS TENDING TO PERPETUATE THESE TRENDS. LESS THAN 30 PER CENT OF LAW AND MATHEMATICS GRADUATES ARE FEMALE AND THE PROPORTION IS LESS THAN 2 PER CENT AMONG ENGINEERING GRADUATES. WOMEN ARE ALSO SHOULDERING A DISPROPORTIONATE BURDEN OF UNEMPLOYMENT AND RECEIVE SIGNIFICANTLY LOWER INCOMES ON AVERAGE THAN DO MALES.

WHAT WILL BE THE LIKELY IMPACT OF TECHNOLOGICAL CHANGE ON THE SOCIO-ECONOMIC POSITION OF WOMEN WORKERS? IN ALL PROBABILITY THEY WILL BE AMONG THE MOST SERIOUSLY DISADVANTAGED IF TECHNOLOGICAL IMPROVEMENTS ARE EFFECTED IN THE ABSENCE OF AN APPROPRIATE POLICY FRAMEWORK.

THE I.L.O. HAS CONCLUDED THAT IT IS NOW NOT APPROPRIATE TO TALK ABOUT THE LABOUR MARKET IN A GENERAL SENSE. WE NOW HAVE A SITUATION THE I.L.O. DESCRIBES IN TERMS OF A PRIMARY AND SECONDARY LABOUR MARKET. THE FORMER IS CHARACTERISED BY HIGH STATUS, STABLE EMPLOYMENT, HIGH SKILL REQUIREMENTS, HIGH EARNINGS AND GOOD PROSPECTS FOR ADVANCEMENT. THE LATTER DISPLAYS THE OPPOSITE TRAITS - LOW STATUS, HIGH

TURNOVER AND EMPLOYMENT INSTABILITY, LOW SKILL REQUIREMENTS, LOW EARNINGS AND FEW ADVANCEMENT OPPORTUNITIES. IN THIS DUAL LABOUR MARKET WOMEN DOMINATE THE SECONDARY MARKET.

UNLESS RADICAL CHANGES ARE CONSCIOUSLY SOUGHT IN THE TRADITIONAL LABOUR MARKET POSITION OF WOMEN, THE ENTRY AND ADVANCEMENT POSSIBILITIES OF WOMEN TO THE NEW TECHNOLOGICAL ELITE AMONG THE WORKING PROPULATION WILL BE CONSIDERABLY RESTRICTED. RELATIVELY FEW WOMEN ARE QUALIFIED TO PROCEED INTO JOBS THE NEW TECHNOLOGY IS CREATING OR INTO TERTIARY STUDIES THAT MAY LEAD TO THE HIGHER TECHNOLOGICAL JOBS.

IT IS AN IMPORTANT RESPONSIBILITY OF GOVERNMENTS TO ENSURE THAT THE ADJUSTMENT BURDEN ASSOCIATED WITH THE IMPACT OF NEW TECHNOLOGIES IS AS FAR AS POSSIBLE EQUITABLY BORNE BY ALL GROUPS IN THE LABOUR MARKET, JUST AS IT SHOULD BE TO ENSURE GREATER EQUITY IN ACCESS TO EMPLOYMENT OPPORTUNITIES RESULTING FROM NEW TECHNOLOGIES.

THE PROBLEMS OF DISADVANTAGED GROUPS HOWEVER GO DEEPER THAN THE ADEQUACY OR INADEQUACY OF POLICIES DEVELOPED TO MEET THEIR PARTICULAR NEEDS. THEIR SITUATION UNDERLINES THE NECESSITY OF BUILDING A COMMUNITY CONSENSUS AROUND HOW WE MIGHT BEST MOVE TO MEET THE RAPIDLY CHANGING DEMANDS OF A HIGHLY COMPETITIVE ENVIRONMENT.

THE BEST WAY TO MAXIMISE THE POSITIVE SOCIAL EFFECTS OF NEW TECHNOLOGY, AND TO REDUCE THE NEGATIVE, IS THROUGH THE FULL PARTICIPATION OF ALL CONCERNED IN DELIBERATIONS ON HOW THE NEW TECHNOLOGY IS INTRODUCED. A COMMON THREAD RUNNING THROUGH THE EXPERIENCE OF THOSE COUNTRIES MOST SUCCESSFUL IN HANDLING THE INTRODUCTION OF MODERN TECHNOLOGIES HAS BEEN THE WILLINGNESS OF THE SOCIAL PARTNERS - OF GOVERNMENT, UNIONS AND EMPLOYERS - TO CONSULT WITH EACH OTHER AT THE NATIONAL, INDUSTRY AND ENTERPRISE LEVEL AND TO ANTICIPATE AND RESOLVE PROBLEMS WHICH SEEM TO BE OF CONCERN.

THIS WILL SOMETIMES BE AN AREA IN WHICH INVESTMENT IN CO-OPERATION AND SOCIAL HARMONY, AT SOME ECONOMIC COST IN THE SHORT TERM, YIELDS HIGH ECONOMIC AS WELL AS SOCIAL RETURNS IN THE LONG-TERM. IT CAN MAKE SUSTAINED ECONOMIC GROWTH POSSIBLE, WHEN IT WOULD OTHERWISE BE FACED BY INCREASINGLY STRONG SOCIAL AND POLITICAL RESISTANCES. JAPAN PROVIDES A GOOD EXAMPLE OF THIS. JAPAN'S INSTITUTIONALISATION OF CONSULTATION BETWEEN GOVERNMENT, UNIONS AND EMPLOYERS HAS BEEN AN IMPORTANT FACTOR IN ITS ABILITY TO CAPITALISE ON THE BENEFITS OF TECHNOLOGICAL CHANGE.

THE STEEL INDUSTRY ASSISTANCE PACKAGE OFFERS AN EXAMPLE OF HOW WE SHOULD AIM TO PROCEED. THERE AN INTEGRATED APPROACH WAS ADOPTED AFTER AN EXTENSIVE PROCESS OF CONSULTATION WITH ALL PARTIES. THERE WAS A RECOGNITION THAT NOT ALL JOBS COULD BE RETAINED, BUT AT THE SAME TIME THE INDUSTRY ACKNOWLEDGED THE NEED TO ENHANCE ITS COMPETITIVE POSITION THROUGH INVESTMENT IN NEW TECHNOLOGIES.

ALONGSIDE OUR EFFORTS THROUGH EDUCATION AND TRAINING, AND OTHER MEANS OF INCREASING AUSTRALIANS' CAPACITY TO MAKE USE OF OPPORTUNITIES PROVIDED BY NEW TECHNOLOGY, AND THROUGH CONSULTATIVE PROCESSES AND OTHER MEANS OF MAKING RAPID TECHNOLOGICAL CHANGE ACCEPTABLE TO AUSTRALIANS, IT IS IMPORTANT THAT AUSTRALIA MAKES SUFFICIENT WELL-DIRECTED INVESTMENT IN THE DEVELOPMENT AND ADAPTATION OF NEW TECHNOLOGY. THIS EFFORT MUST ENCOMPASS NOT ONLY PURE RESEARCH, IN WHICH OUR ACHIEVEMENTS ARE IMPRESSIVE, BUT ALSO APPLIED AND INDUSTRIAL RESEARCH.

THE ENCOURAGEMENT OF R&D IN AUSTRALIAN INDUSTRY, OF INNOVATION AND OF A CLIMATE WHERE RISK-TAKING ON NEW PRODUCTS CAN FLOURISH, RATES HIGH AMONG THE LABOR GOVERNMENT'S PRIORITIES.

QUESTIONS ARISE WHEN WE REFLECT UPON THE DRASTIC DECLINE IN AUSTRALIA'S RESEARCH AND DEVELOPMENT EFFORT IN RECENT YEARS. BY COMPARISON WITH MANY COUNTRIES, AUSTRALIA DIVERTS A RELATIVELY SMALL PERCENTAGE - ONLY 1.03 PER CENT - OF ITS GDP TO THE FINANCE OF RESEARCH AND DEVELOPMENT. THE QUESTIONS ARE MORE DISTURBING WHEN IT IS RECOGNISED THAT A RELATIVELY LOW PROPORTION OF R&D WAS PERFORMED IN THE PRIVATE SECTOR. AUSTRALIAN BUSINESS ENTERPRISES IN 1979 ACCOUNTED FOR ABOUT ONLY ONE-FIFTH ON THE NATIONAL R&D EFFORT, WHILE IN MOST ADVANCED OECD COUNTRIES THEY ACCOUNTED FOR OVER 40 PER CENT OF THAT EFFORT.

AS A SMALL ECONOMY RICH IN NATURAL RESOURCES, WE HAVE DEMONSTRATED BOTH IN THE RURAL AND MINING FIELDS AN IMPRESSIVE CAPACITY TO GENERATE HIGH-QUALITY RESEARCH. WE ARE IN THE FOREFRONT, BOTH OF INNOVATION AND APPLICATION OF NEW TECHNOLOGY, IN MANY ASPECTS OF OUR PRIMARY PRODUCTION.

THE SAME UNFORTUNATELY HAS NOT BEEN THE CASE IN OUR MANUFACTURING INDUSTRY. I WOULD EXPECT THE ADAPTATION OF OVERSEAS DEVELOPMENTS TO CONTINUE TO BE A PRINCIPLE SOURCE OF NEW TECHNOLOGY FOR AUSTRALIAN INDUSTRY IN MANY AREAS. BUT ALONGSIDE THIS, IT IS IMPORTANT THAT LOCAL ENTERPRISES MOVE MORE DELIBERATELY TO ENHANCE THEIR OWN RESEARCH CAPACITIES.

LOOKING AT THE TECHNOLOGICAL ADVANCE IN OUR PRIMARY AND SOME OF OUR SERVICE INDUSTRIES, ALONGSIDE THE SLUGGISH PACE OF CHANGE IN MUCH OF MANUFACTURING, I CANNOT HELP THINKING THAT AUSTRALIAN GOVERNMENTS MUST ACCEPT A GOOD DEAL OF RESPONSIBILITY FOR POOR PERFORMANCE IN THE LATTER AREA. SOME FORMS OF PROTECTION AGAINST IMPORTS HAVE DULLED THE ENTREPRENEURIAL SPIRIT AND REDUCED THE COMPETITIVE PRESSURES FOR HIGH PERFORMANCE BY A NUMBER OF AUSTRALIAN MANUFACTURERS. AS A CONSEQUENCE, I SUGGEST THAT THE SCIENTIFIC COMMUNITY CAREFULLY CONSIDERS THE IMPLICATIONS OF ANY DEMANDS FOR HIGH PROTECTION FOR AUSTRALIAN PRODUCTS EMBODYING NEW TECHNOLOGY.

ACROSS THE WHOLE RANGE OF ACTIVITIES, AUSTRALIA'S RECORD IN TECHNOLOGICAL INNOVATION IS NOT UNIMPRESSIVE. IN PURE AND SOME APPLIED RESEARCH IT COMPARES FAVOURABLY WITH THAT OF LEADING DEVELOPED COUNTRIES. THE FANTASTIC PERFORMANCE IN RECENT DAYS OF AUSTRALIA II BEARS THIS OUT. IN THAT CASE THE COMBINATION OF AUSTRALIAN TECHNOLOGICAL SKILL, EFFECTIVE TEAM WORK AND DEDICATED COMMITMENT TO AN OBJECTIVE HAS PUT AUSTRALIA AHEAD OF THE REST OF THE INDUSTRIALISED WORLD.

THERE IS OTHER EVIDENCE OF AUSTRALIAN SUCCESS IN PRODUCT DESIGN. SEVEN OF THE THIRTEEN AWARDS PRESENTED AT THE TENTH ANNUAL INTERNATIONAL TECHNOLOGY EXCHANGE FAIR IN MARCH 1982 WERE WON BY AUSTRALIAN PARTICIPANTS AND THERE HAVE BEEN A NUMBER OF MANUFACTURING SUCCESSES WHICH HAVE ATTRACTED WORLD ACCLAIM, INCLUDING IN RECENT YEARS HARVESTERS, AUTOMATIC TOTALISATORS, YACHT WINCHES, THE WINE CASK, THE POP-TOP CAN, THE ROTARY CLOTHESLINE, BRAND NAME PROJECTORS AND WET SUITS, THE ATOMIC ABSORPTION SPECTROPHOTOMETER AND THE SELF-TWIST SPINNING MACHINE. OUTSIDE MANUFACTURING, WE HAVE LONG BEEN WORLD LEADERS IN RURAL TECHNOLOGY, MINING AND METALLURGY; THE INTERSCAN AIRPORT APPROACH SYSTEM IS AN IMPRESSIVE RECENT ADDITION TO A LONG HISTORY OF TRANSPORT INNOVATION.

BUT WE DO HAVE AN OBVIOUS WEAKNESS IN THE COMMERCIAL EXPLOITATION OF MANY OF OUR GOOD IDEAS. WHILE ON ONE REPUTABLE MEASURE AUSTRALIA IS RESPONSIBLE FOR SOME 2 PER CENT OF THE WORLD'S SCIENTIFIC KNOWLEDGE, WE CAN ONLY CLAIM 0.7 PER CENT OF THE PATENTS ON WHICH TECHNOLOGICAL INNOVATION IS BASED AND CAN ONLY COUNT 0.3 PER CENT OF TECHNOLOGY-INTENSIVE EXPORTS AND 0.1 PER CENT OF SALES OF TECHNOLOGY WITHIN THE OECD COUNTRIES.

THIS RECORD IS PATHETIC. THE GAP BETWEEN RESEARCH AND PRODUCT DEVELOPMENT MUST BE CLOSED. THE SLOW RATE OF TECHNOLOGY TRANSFER INTO NEW PRODUCTS AND PROCESSES MUST BE ACCELERATED. INDEED WE MUST GO BEYOND THIS. APART FROM PRODUCT INNOVATION, NON-PRICE COMPETITION THROUGH QUALITY CHARACTERISTICS HAS BEEN A MAJOR ELEMENT IN THE INDUSTRIAL SUCCESS OF OTHER COUNTRIES. WE MUST THEREFORE LEARN NOT ONLY HOW TO DEVELOP THE PRODUCT - WE MUST ALSO FOCUS ON WHAT IS REQUIRED TO MARKET IT.

THE PROBLEM IS IN PART ONE OF PRIORITIES AND EFFECTIVE CHANNELS OF COMMUNICATION. AUSTRALIA'S RESEARCH INSTITUTIONS ARE TOO ISOLATED, BOTH INTELLECTUALLY AND PHYSICALLY, FROM INDUSTRY; ACADEMIA HAS GIVEN INSUFFICIENT ATTENTION TO POSSIBLE ECONOMIC APPLICATIONS OF ITS RESEARCH; AND INDUSTRY HAS NOT CONDUCTED ENOUGH OF ITS OWN IN-HOUSE R&D. I AM PLEASED THAT THE SITUATION IS BEGINNING TO IMPROVE WITH UNIVERSITIES ESTABLISHING INDUSTRY LIAISON UNITS, CSIRO USING A VARIETY OF MEANS TO BUILD CLOSER INTERACTIVE LINKS WITH INDUSTRY, RESEARCH ASSOCIATIONS BEING FORMED AT THE INDUSTRY LEVEL, AND INNOVATION CENTRES BEING ESTABLISHED IN SOME STATES. THE VICTOR MOWER THAT I LAUNCHED RECENTLY PROVIDES A GOOD EXAMPLE OF WHAT CAN BE ACHIEVED BY EFFECTIVE CO-OPERATION BETWEEN GOVERNMENT SPONSORED RESEARCH AND PRIVATE SECTOR COMMERCIALISATION. SUCH MOVES ARE NECESSARY IF AUSTRALIA IS TO BE ABLE TO COMPETE EFFECTIVELY IN A RAPIDLY CHANGING WORLD.

AUSTRALIA'S INDUSTRIAL VIABILITY IS DEPENDENT ON INNOVATION, ADAPTATION AND COMMERCIAL EXPLOITATION. THIS GOVERNMENT IS DETERMINED TO PROVIDE AN ECONOMIC AND POLITICAL CLIMATE IN WHICH INDUSTRIAL INNOVATION CAN FLOURISH.

THE MAIN ROLE OF GOVERNMENT IS TO PROVIDE THE MACRO-ECONOMIC ENVIRONMENT, INCLUDING THE POLICIES DIRECTED AT ACHIEVING A FAIR DISTRIBUTION OF THE COSTS AND BENEFITS OF GROWTH, WITHIN WHICH ECONOMIC CHANGE CAN OCCUR. BUT IN SOME AREAS THERE IS A NEED FOR MORE DIRECT INTERVENTION TO INFLUENCE BUSINESS DECISIONS, WHEN IT SEEMS THAT THE MARKET IS NOT WORKING TO ACHIEVE AN EFFICIENT ALLOCATION OF RESOURCES.

THE GOVERNMENT IDENTIFIED ONE SUCH AREA OF MARKET FAILURE IN THE FINANCING OF SMALL, INNOVATIVE MANUFACTURING FIRMS.

THIS MARKET FAILURE SEEMED TO LEAD TO UNDER-INVESTMENT IN THESE ACTIVITIES, VIEWED FROM THE INTERESTS OF THE COMMUNITY AS A WHOLE.

ACCORDINGLY, WE HAVE RECENTLY TAKEN ACTION TO ENCOURAGE THE DEVELOPMENT OF A SUBSTANTIAL VENTURE CAPITAL MARKET IN AUSTRALIA. TAX CONCESSIONS ANNOUNCED THE WEEK

BEFORE LAST SHOULD LEAD TO SOME \$40 MILLION BEING AVAILABLE TO HIGH RISK INDUSTRY VENTURES. A MANAGEMENT AND INVESTMENT COMPANY LICENCING BOARD IS BEING ESTABLISHED TO ADMINISTER THE PROGRAM AND TO LICENCE MANAGEMENT AND INVESTMENT COMPANIES. SUCH COMPANIES - AFTER ASSESSING EACH VENTURE IN TERMS OF TECHNICAL AND MARKET PROSPECTS FOR ITS PRODUCTS - WILL BE ABLE TO PROVIDE NOT ONLY CAPITAL BUT ALSO OFTEN BADLY NEEDED MANAGEMENT SKILLS. WITH THESE STEPS A REASONABLE BALANCE HAS I BELIEVE BEEN STRUCK BY THE GOVERNMENT BETWEEN SUPPORT FOR POTENTIALLY VALUABLE ENTERPRISES AND THE COST THEY SHOULD LEGITIMATELY PLACE ON THE REST OF THE COMMUNITY.

THE GOVERNMENT IS ALSO CONCERNED TO INCREASE THE FLOW OF RESOURCES DIRECTLY INVOLVED IN PROMOTING STRUCTURAL CHANGE DIRECTED AT RAISING NATIONAL PRODUCTIVITY. TO THIS END, WE MOVED TO EXPAND THE AUSTRALIAN INDUSTRIES DEVELOPMENT CORPORATION'S LENDING POWERS. WE ARE ENHANCING THE AIDC'S ABILITY TO CONTRIBUTE TO THE DEVELOPMENT OF AUSTRALIAN INDUSTRY. ITS GEARING RATIO IS BEING INCREASED FROM 8:1 TO 15:1; THE GOVERNMENT WILL GUARANTEE AIDC'S BORROWING TO ALLOW IT TO MOVE INTO THE VENTURE CAPITAL MARKET IN A BIGGER WAY; AND THE AIDC WILL NOW BE ALLOWED TO EXTEND LOANS TO THE SERVICES SECTOR AND TOURISM. THESE MEASURES ARE IN ADDITION TO THE \$12.5 MILLION CAPITAL INJECTION PROVIDED IN THE 1983-84 BUDGET FOR THE AIDC WHOSE

STATUTORY CAPITAL BASE IS NOW TO BE RAISED FROM \$100 MILLION TO \$150 MILLION. THIS SUPPORT REPRESENTS PRACTICAL ACTION BY THE GOVERNMENT AIMED AT ASSISTING THE FINANCING OF THE NECESSARY RESTRUCTURING AND REVITALISATION OF AUSTRALIAN INDUSTRY.

THE UPGRADING OF AUSTRALIA'S TECHNOLOGICAL BASE IS ESSENTIAL IF THE COMPETITIVENESS OF AUSTRALIAN INDUSTRY IS TO BE IMPROVED. ACCORDINGLY INDUSTRIAL RESEARCH AND TECHNOLOGY DEVELOPMENT WAS ACCORDED A VERY HIGH PRIORITY IN THE 1983-84 BUDGET. MORE THAN \$71 MILLION WAS ALLOCATED TO THE AUSTRALIAN INDUSTRIAL RESEARCH AND DEVELOPMENT INCENTIVES SCHEME (A RISE OF MORE THAN 30 PER CENT ON THE 1982-83 ALLOCATION); \$23 MILLION WAS ALLOCATED TO CSIRO RESEARCH PROGRAMS RELEVANT TO THE DEVELOPMENT OF NEW TECHNOLOGIES AND \$1.2 MILLION WAS PROVIDED FOR THE ESTABLISHMENT OF SIROTECH, A COMPANY DEDICATED TO ENCOURAGING A HIGHER DEGREE OF PRIVATE SECTOR INVOLVEMENT IN PROMISING NEW TECHNOLOGIES DEVELOPED BY CSIRO.

A FURTHER \$8.5 MILLION WAS EARMARKED FOR MULTIPLIER AGENCIES, RESEARCH ASSOCIATIONS AND OTHER PROGRAMS TO PROMOTE AND DEVELOP HIGH TECHNOLOGY GROWTH INDUSTRIES, INCLUDING ANALYSIS OF NEW MARKET OPPORTUNITIES AND SUPPORT FOR INNOVATION CENTRES AND ASSISTANCE TO INVENTORS. ADDITIONALLY, THE GOVERNMENT HAS PROVIDED FUNDS FOR A

NATIONAL RESEARCH FELLOWSHIPS SCHEME DESIGNED TO BRIDGE THE GAP BETWEEN INDUSTRY AND ACADEMIA. THE SCHEME WILL GENERATE CROSS-FERTILISATION OF KNOWLEDGE AND TALENT WHICH IS A PRE-REQUISITE FOR DEVELOPMENT OF INDUSTRY BASED ON THE BEST AVAILABLE TECHNOLOGY.

IT SHOULD ALSO FACILITATE CLOSER LINKS BETWEEN INDUSTRY AND RESEARCHERS AND TERTIARY EDUCATION AND PROVIDE A SKILLED WORKFORCE FOR THE DEVELOPMENT OF HIGH TECHNOLOGY. THE AUSTRALIAN RESEARCH GRANTS SCHEME FOR 1984 HAS ALSO BEEN INCREASED BY 16 PER CENT OVER THE 1983 CALENDAR YEAR ALLOCATION. IT CAN BE EXPECTED TO CONTINUE TO CONTRIBUTE SIGNIFICANTLY TO THE STRONG PROGRAM OF BASIC RESEARCH ESSENTIAL TO AUSTRALIA'S DEVELOPMENT.

TOGETHER THESE MEASURES REPRESENT VERY SIGNIFICANT SUPPORT FOR RESEARCH AND DEVELOPMENT AND SHOULD NOT ONLY STIMULATE THE DEVELOPMENT OF NEW INDUSTRIES, BUT ALSO CONTRIBUTE TO THE BROADER GOALS OF ECONOMIC GROWTH, STRUCTURAL ADAPTATION BY EXISTING INDUSTRIES AND GREATER ORIENTATION OF AUSTRALIAN INDUSTRY TOWARDS EXPORTS.

WE HAVE IN THIS COUNTRY THE INTELLECTUAL WHEREWITHAL TO ADOPT A NEW ATTITUDE THAT ALLOWS US TO MAKE BETTER USE OF NEW TECHNOLOGY FOR OUR NATIONAL PURPOSES. WE HAVE GOOD SCHOOLS AND UNIVERSITIES, STABLE GOVERNMENT AND THE OBVIOUS POTENTIAL TO BUILD A GREAT FUTURE, BASED ON THE DEVELOPMENT AND APPRECIATION OF INNOVATIVE INDUSTRIAL STRUCTURES.

SOME WILL SAY TO THIS THAT AUSTRALIA IS NOT YET READY; THAT THE COST OF ADJUSTMENT IS UNACCEPTABLY HIGH; THAT PROTECTION MUST BE PROVIDED AGAINST THE GROWING POWER OF OVERSEAS COMPETITION. TO THEM I CAN SIMPLY SAY: "I HEAR YOU, BUT CANNOT AGREE".

OUR FUTURE IS IN OUR OWN HANDS. WE MUST ADDRESS THOSE ECONOMIC CONSTRAINTS AND POLICY FAILURES WHICH HAVE HAMPERED THE PROCESS BY WHICH TECHNOLOGICAL INNOVATION IS CONVERTED INTO REAL INCOME GROWTH RATHER THAN UNEMPLOYMENT. WE MUST RECOGNISE THE NEED FOR ADAPTATION IN TRADITIONAL INDUSTRIES AND A GROWING ROLE FOR NEW TECHNOLOGY-BASED INDUSTRIES WHERE OPPORTUNITY FOR NEW PRODUCTS, AND CONSEQUENT GROWTH ABOUND. IF NOTHING ELSE, THE INCREASINGLY COMPETITIVE CHARACTER OF THE WORLD AROUND SHOULD FORCE THIS RECOGNITION ON US.

THE TASK BEFORE US IS TO MAKE TECHNOLOGY WORK FOR AUSTRALIA. WE CAN CREATE THE INDUSTRIAL CAPABILITY, FIRST IN THE DOMESTIC MARKET AND THEN IN EXPORTS. THE RESULTANT GROWTH AND BENEFITS TO ALL WILL MORE THAN JUSTIFY THE EFFORT.
