

ADDRESS TO 1987 CONFERENCE OF ENVIRONMENT

AND CONSERVATIONS ORGANISATIONS OF NZ (ECO)

VICTORIA UNIVERSITY, WELLINGTON

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INTEGRATING ENVIRONMENTAL AND ECONOMIC POLICY

ECOLOGICAL PRINCIPLES ARE IDENTIFIED BY BARRY COMMONER IN HIS BOOK "THE CLOSING CIRCLE" AS:

- (1) EVERYTHING IS CONNECTED TO EVERYTHING ELSE.
- (2) EVERYTHING MUST GO SOMEWHERE.
- (3) NATURE KNOWS BEST.
- (4) THERE IS NO SUCH THING AS A FREE LUNCH.

IT SEEMS TO ME THAT THESE PRINCIPLES ARE IN MANY WAYS VERY CLOSE TO AN ECONOMICS VIEW OF THE WORLD. ECONOMICS IS CONCERNED WITH THE ALLOCATION OF SCARCE RESOURCES BETWEEN COMPETING OBJECTIVES IN ORDER TO MAXIMISE THE WELFARE OF SOCIETY AS A WHOLE. ITS CENTRAL CONCERNS THEREFORE ARE CHOICE.

VALUES AND BELIEFS UNDERPIN CHOICE AND INDEED ARE THE MOTIVATING FORCES WHICH CAUSE PEOPLE TO MAKE CHOICES. IT IS IMPORTANT TO NOTE THAT ECONOMICS DOES NOT HAVE ITS OWN VALUE SYSTEM AND ECONOMICS AS A DISCIPLINE IS NOT CONCERNED WITH DETERMINING VALUES IN ANY NORMATIVE SENSE.

ECONOMICS WORKS ON THE PRINCIPLE THAT EVERYTHING IS CONNECTED TO EVERYTHING ELSE, ALTHOUGH ITS CONNECTIONS GO BEYOND PHYSICAL-BIOLOGICAL ONES AND ALSO INCLUDE SUCH THINGS AS CAPITAL AND LABOUR.

IN ECONOMICS THE CONCEPT THAT THERE IS NO SUCH THING AS A FREE LUNCH ALSO HOLDS TRUE. WHAT THIS MEANS IS THAT ALTHOUGH MANY PEOPLE THINK THEY ARE HAVING A FREE LUNCH, SOMEONE ALWAYS PAYS FOR IT.

THE FREE LUNCH IDEA IS THE FIRST PROBLEM THAT HAS DIRECT RELEVANCE TO ECOLOGICAL SYSTEMS, ESPECIALLY THOSE THAT HAPPEN TO OCCUR IN THAT PART OF THE NATIONAL ESTATE CALLED COMMON PROPERTY OR THE COMMONS. THESE ARE THE AREAS OVER WHICH PRIVATE PROPERTY RIGHTS DO NOT APPLY, AND OF COURSE THEY TEND, IN PAKEHA SOCIETY AT LEAST, TO BE AREAS WHICH HAVE NOT BEEN ASSIGNED MUCH VALUE OR TO WHICH PROPERTY RIGHTS CANNOT EASILY BE APPLIED. THEY HAVE THEREFORE EITHER:

- (A) BEEN IGNORED AND/OR TREATED AS WASTE AREAS INTO WHICH THE EFFLUENT OF SOCIETY CAN BE Poured WITHOUT APPARENT COSTS,
- OR

(B) BEEN SEEN AS AREAS FROM WHICH RESOURCES (SUCH AS FISH OR WATER) CAN BE HARVESTED AT NO COST (OTHER THAN EXTRACTION COSTS) BECAUSE NO ONE OWNS THE RESOURCE AND CARES ABOUT WHO TAKES IT AT WHAT RATES.

THIS SECOND PROBLEM HAS BEEN CALLED THE "TRAGEDY OF THE COMMONS". IT IS A TRAGEDY, OF COURSE, BECAUSE IT RESULTS IN "HARVESTING" OF RESOURCES WITHOUT CARE TO WHAT HAPPENS TO THEM. AND IT IS THE CAUSE OF THE PROBLEMS SUCH AS WHALING AND CRAYFISHING IN THE CHATHAM ISLANDS, FOR EXAMPLE.

INDEED IT IS A PROBLEM WITH MOST EXTRACTIVE ACTIVITIES WHICH OCCUR IN SITUATIONS WHERE THERE ARE NO CLEARLY DEFINED PROPERTY RIGHTS. HENCE THE "FREE LUNCH" CONNECTION. TO THE WHALERS, WHALES ARE FREE, AT LEAST UNTIL THEY START TO BECOME SCARCE. THAT HAPPENS FIRST TO WHALES AND THEN TO WHALERS!.

BUT TO PEOPLE SUCH AS YOURSELVES AND ME, THE WHALER'S "FREE LUNCH" IS A POSSIBLY INFINITE COST ON AN ECOSYSTEM. IT IS A COST WHICH SIGNALS US WITH THE MESSAGE THAT NATURE IS THE ONE WHO PAYS THE PRICE OF THE FREE LUNCH. THE REASON YOU AND I SEE IT LIKE THAT IS THAT WE HAVE A SENSE OF PROPERTY IN RELATION TO THE COMMONS.

I DON'T, BY THE WAY, MEAN PROPERTY IN THE NARROW SENSE OF SELLING THE WHOLE RESOURCE AT THE HIGHEST PRICE TO WHOEVER COMES THROUGH THE DOOR. I MEAN PROPERTY IN THE SENSE THAT THE

TANGATA WHENUA MEAN IT: A CARING RELATIONSHIP FOR SOMETHING WITH A VIEW TO AT LEAST MAINTAINING IT IN ITS CURRENT STATE AND PREFERABLY IMPROVING THAT STATE SO THAT IT CAN BE TRANSFERRED TO THE NEXT OWNERS (WHICH TO THE MAORI PEOPLE IS THE NEXT GENERATION) IN A FORM THAT ENABLES ITS VALUE (AND ITS USEFULNESS) TO BE MAINTAINED.

I HOPE THAT THESE ILLUSTRATIONS SHOW THAT THE WORLD OF ECONOMICS WITH ITS ATTENDANT CONSTRUCTS OF PROPERTY RIGHTS, OWNERSHIP, TRANSFERABILITY, COSTS AND PRICES IS NOT SOMETHING WHICH IS UTTERLY ALIEN TO SENSITIVE AND SENSIBLE CARE FOR THE ENVIRONMENT.

BUT FOR THE WORLD OF ECONOMICS TO APPLY TO THE ENVIRONMENT, ESPECIALLY TO THOSE PARTS OF IT CURRENTLY CALLED "COMMON PROPERTY", SOME IMPORTANT CONDITIONS MUST APPLY. THESE ARE: FIRSTLY, EXCLUSIVENESS; SECONDLY, RIVALRY; THIRDLY, TRANSFERABILITY OF OWNERSHIP, AND; FOURTHLY, DEFINITION AND ENFORCEMENT OF PROPERTY RIGHTS.

MAY I DISCUSS THESE EACH IN MORE DETAIL.

FIRSTLY, "EXCLUSIVITY" MEANS THAT A PRICE SHOULD BE ABLE TO BE COLLECTED FROM THE USE OF A PROPERTY AND THOSE WHO ARE UNWILLING TO PAY (AND WHO THEREFORE DON'T VALUE THE PROPERTY SUFFICIENTLY) SHOULD BE EXCLUDED. THIS MEANS THERE SHOULD BE NO "FREE RIDERS" (WHO GET "FREE LUNCHES"). IF THERE ARE, THERE IS MUCH LESS INCENTIVE ON THE OWNER TO CARE FOR THE PROPERTY BECAUSE THE OWNER KNOWS MAINTENANCE OR IMPROVEMENTS MAY BENEFIT

SOMEONE ELSE AND, WORSE, THAT SOMEONE ELSE MAY HAVE NO INCENTIVE TO CARE FOR THE PROPERTY IN THE WAY THEY USE IT. AN OFTEN QUOTED EXAMPLE WHERE EXCLUSIVITY DOES NOT APPLY IS NATIONAL DEFENCE - IF A NATION DECIDES IT WANTS TO SPEND MONEY ON NATIONAL DEFENCE IT MUST PAY FOR IT COLLECTIVELY BECAUSE ALL PEOPLE RECEIVE THE PERCEIVED BENEFITS.

SECONDLY, "RIVALRY OF OWNERSHIP" MEANS THAT THE OWNER'S CONSUMPTION OF THE RESOURCE DEPLETES THE AMOUNT AVAILABLE TO OTHERS. THIS MEANS NOT THAT THE OWNER MUST CONSUME THE RESOURCE, BUT RATHER THAT POTENTIAL CONSUMPTION AFFECTS OTHER CONSUMERS. THIS MEANS VALUE IS THEN PUT ON THE RESOURCE. THIS IN TURN MEANS THAT THERE ARE INCENTIVES ON THE OWNER TO MAINTAIN PROPERTY IN A GOOD STATE BECAUSE IF THE OWNER DOESN'T, ITS VALUE WILL BE LOWERED.

THIRDLY, "TRANSFERABILITY" IS IMPORTANT. IF YOU CAN'T TRANSFER THE TOTAL PROPERTY INTACT ON TO SOMEONE ELSE (INCLUDING THE NEXT GENERATION) THERE IS NOT THE SAME INCENTIVE TO CARE FOR IT.

FOURTHLY "DEFINITION AND ENFORCEABILITY OF PROPERTY RIGHTS" IS ALSO IMPORTANT. IF THEY ARE NOT CLEARLY DEFINED OR DEFINABLE, THERE WILL NOT BE A CLEAR INTEREST TO PASS ON TO ANYONE ELSE. IF THEY ARE NOT ENFORCEABLE OR ENFORCED, THE PROBLEM OF "FREE RIDERS" ENTERS THE PICTURE.

I DON'T PRETEND THAT THESE CONDITIONS CAN APPLY TO ALL THE NATIONAL ESTATE WE CALL "THE COMMONS". NEITHER DO I PRETEND THAT EVEN WHERE THEY APPLY THEY WORK FAULTLESSLY FROM AN ENVIRONMENTAL PERSPECTIVE. THE REASON FOR THIS IS EXPLAINED BY WHAT ECONOMISTS CALL EXTERNALITIES.

EXTERNALITIES ARE REALLY EITHER UNINTENDED OR UNCOSTED SIDE EFFECTS OF USE OR TRANSFERS OF PRIVATE PROPERTY. THEY ARE THE EFFECTS WHICH USUALLY CAUSE PROBLEMS TO THIRD PARTIES (INCLUDING THE WIDER COMMUNITY) AND THEY CAN BE CAUSED BY IMPERFECTIONS (WHICH ALWAYS EXIST) IN THE DEFINITION OR ENFORCEMENT OF PROPERTY RIGHTS.

NOISE IS A RELEVANT EXAMPLE HERE. IT IS SOMETHING WHICH OFTEN TRANSCENDS THE BOUNDARY OF A DEFINED PROPERTY RIGHT AND WHICH, EVEN WHERE THERE ARE RULES DESIGNED TO CONTAIN IT WITHIN DEFINED PROPERTY RIGHTS, ENFORCEMENT IS DIFFICULT. THE SAME PROBLEM EXISTS WITH AIR POLLUTION AND INDEED WITH WATER POLLUTION.

SO IT ISN'T JUST THE ABSENCE OF PROPERTY RIGHTS THAT CAUSE ENVIRONMENTAL PROBLEMS, IT IS ALSO THAT THEY, LIKE THE MARKETS WHICH ARE THE MEANS BY WHICH THEY ARE TRANSFERRED, ARE NOT (AND CANNOT BE) PERFECT.

HAVING RAISED THE ISSUE OF MARKETS, I SHOULD EXPLAIN THAT THERE ARE REASONS OTHER THAN IMPERFECT PROPERTY RIGHTS DEFINITION THAT IMPEDE THEIR PROVIDING AN ADEQUATE MEANS OF REACHING RESOURCE USE DECISIONS. THESE ARE:

FIRSTLY, INDIVIDUAL SELF-INTEREST AS REFLECTED IN THE MARKET MAY NOT REFLECT WHAT IS IN SOCIETY'S INTEREST.

THIS MAY BE FOR A NUMBER OF REASONS:

- (A) VALUES REFLECTED IN THE MARKET MAY NOT REPRESENT ALL THE VALUES INVOLVED, FOR EXAMPLE THE NEEDS OF FUTURE GENERATIONS OR SOME COLLECTIVE VALUE NOT HELD BY INDIVIDUALS OPERATING IN THE MARKET.
- (B) SOME PEOPLE MAY BE PRECLUDED FROM THE MARKET BECAUSE OF INADEQUATE INCOME, WHILE OTHERS MAY HAVE CONSIDERABLE MARKET POWER.
- (C) AS I HAVE EXPLAINED, WHEN RESOURCES ARE UNOWNED OR ARE OWNED IN COMMON IT MAY NOT BE IN THE INTERESTS OF INDIVIDUALS TO CARE FOR THE RESOURCE WITH THE RESULT THAT IT IS DEGRADED.

SECONDLY, THERE IS INADEQUATE INFORMATION REGARDING THE VALUES OF THE RESOURCE AND THE LIKELY EFFECT OF DECISIONS.

THIRDLY, THE MARKET CANNOT ALWAYS DEAL WITH ETHICAL QUESTIONS SUCH AS EQUITY, BOTH WITHIN PRESENT SOCIETY AND BETWEEN GENERATIONS.

HAVING EXPOUNDED SOME OF THE MAJOR LIMITATIONS OF PROPERTY RIGHTS AND MARKETS, YOU MAY WELL CONCLUDE THAT ECONOMICS HAS SOME PROBLEMS. IT DOES, OF COURSE, BUT IT ALSO HAS CONSIDERABLE BENEFITS AS A MEANS OF RESOURCE ALLOCATION.

WHEN PROPERTY RIGHTS ARE DEFINABLE AND TRANSFERABLE AND ENVIRONMENTAL VALUES ARE INCLUDED IN THE INFORMATION RELEVANT TO SETTING AND NEGOTIATING PRICES FOR TRANSFER OF PROPERTY A DECENTRALISED MARKET PROVIDES SOME IMPORTANT SOCIAL, ECONOMIC AND ENVIRONMENTAL BENEFITS. THESE ARE:

- (A) DIVERSITY;
- (B) INDIVIDUAL AND COLLECTIVE FREEDOM;
- (C) CONSIDERABLE FLEXIBILITY AND INNOVATION INCLUDING CREATIVITY IN WAYS OF CARING AND IMPROVING THE CONDITION OF RESOURCES AND ECOSYSTEMS;
- (D) IMPROVED INFORMATION GENERATION AND TRANSFER, INCLUDING THE NEED TO KNOW RELEVANT INFORMATION ABOUT RESOURCES;
- (E) THE INCENTIVES TO MOVE GOODS AND SERVICES TO USES THAT ARE VALUED HIGHLY BY SOCIETY.
- (F) LEAST COST IMPLEMENTATION OF PARTICULAR OBJECTIVES.

THESE BENEFITS ARE GAINED BECAUSE THEY ARE THE RESULT OF A LARGE NUMBER OF INTERESTED PEOPLE WORKING FREELY, INDIVIDUALLY AND COLLECTIVELY, AND WITH CONSIDERABLE INCENTIVES TO KNOW MORE ABOUT THE THINGS TO WHICH THEY RELATE AND, TYPICALLY, TO IMPROVE THE CONDITION OF THE PROPERTY FOR WHICH THEY HAVE OWNERSHIP RIGHTS. OWNERSHIP, OF COURSE, CAN BE COLLECTIVE AS WELL AS ASSIGNED TO INDIVIDUALS.

THESE BENEFITS DO NOT STAND ALONE, HOWEVER, THEY SHOULD BE CONSIDERED IN THE CONTEXT OF SOME OF THE DISBENEFITS OF HAVING

RESOURCES ALLOCATED AND USES DETERMINED BY THE ALTERNATIVE TO
MARKETS : PUBLIC (COMMON) OWNERSHIP AND CONTROL. RICHARD STROUP
AND JOHN BADER IN NATURAL RESOURCES: BUREAUCRATIC MYTHS AND
ENVIRONMENTAL MANAGEMENT STATE:

"EVEN THE MOST SKILLED TEAM OF FORESTERS, BIOLOGISTS,
ENGINEERS, ARCHAEOLOGISTS, LANDSCAPE ARCHITECTS, WILDLIFE
MANAGERS, HYDROLOGISTS, SOCIAL SCIENTISTS, COMPUTER
PROGRAMMERS AND OTHER EXPERTS CANNOT DUPLICATE THE
COORDINATION PROVIDED BY PRICE STRUCTURES."

MANAGEMENT OF COMMON RESOURCES (OR PROPERTY) BY PUBLIC
REPRESENTATIVES INVOLVES TRYING TO REPLICATE THE NEED FOR
RELEVANT INFORMATION THAT DRIVES THE MARKET SYSTEM. IT ALSO
INVOLVES TRYING TO SIMULATE THE INCENTIVES THAT ACT ON
(INDIVIDUAL OR COLLECTIVE) PROPERTY OWNERS IN TRYING TO GET
THEIR DECISIONS RIGHT.

SIMULATION CAN ONLY GO SO FAR, OF COURSE, BECAUSE ULTIMATELY
PUBLIC DECISION MAKERS DON'T HAVE TO BEAR THE CONSEQUENCES OF
THEIR DECISIONS IN THE SAME WAY AS DO THOSE WHO OWN PRIVATE
PROPERTY. AND IN ANY CASE, AS PEOPLE SUCH AS YOURSELVES KNOW
ONLY TOO WELL, PUBLIC DECISION MAKERS ALSO HAVE CHOICES AND
THEIR CHOICES ARE NOT NECESSARILY ALWAYS FAVOURABLE TO GOOD
ENVIRONMENTAL OUTCOMES. THE LAST DECADE OF SUBSIDIES TO
MARGINALLY ECONOMIC ACTIVITIES HAS CLEARLY DEMONSTRATED THIS.

PUBLIC DECISIONS CAN ALSO BE COSTLY IF PROPER REGARD IS HAD, AS I BELIEVE IT SHOULD BE, FOR THE INCLUSION OF ALL RELEVANT VALUES. PUBLIC PARTICIPATION WITH ATTENDANT CHECKS AND BALANCES ON PUBLIC DECISION MAKERS (APPEAL TRIBUNALS, OMBUDSPEOPLE, ETC) NOT ONLY ADDS COSTS BUT SLOWS THE SPEED AND FLEXIBILITY OF DECISIONS.

IT IS FOR THESE REASONS THAT I BELIEVE IT ESSENTIAL TO EXPLORE THE RELATIONSHIP BETWEEN ENVIRONMENTAL VALUES AND ECONOMICS. WHERE ECONOMIC MECHANISMS CAN WORK, I CONSIDER THEY WILL PRODUCE BETTER AND LONGER LASTING ENVIRONMENTAL BENEFITS THAN MAINTAINING AND MANAGING EVERYTHING IN PUBLIC OWNERSHIP.

HOWEVER, THE ISSUE IS NOT THIS SIMPLE. THERE ARE A RANGE OF POLICY INSTRUMENTS WHICH BRIDGE THE GAP BETWEEN TOTAL PUBLIC OWNERSHIP AND TOTAL PRIVATE OWNERSHIP. OPTIONS AVAILABLE CAN BE PLACED INTO FOUR BROAD CATEGORIES WHICH RANGE FROM CONTROL TO PERSUASION. THE FOUR CATEGORIES ARE:

FIRSTLY, GOVERNMENT OWNERSHIP AND MANAGEMENT

SECONDLY, REGULATION

THIRDLY, ECONOMIC INSTRUMENTS (ALSO KNOWN AS MARKET MECHANISMS)

FOURTHLY, MORAL SUASION.

I WILL BRIEFLY OUTLINE EACH TYPE OF INTERVENTION BEFORE COMMENTING FURTHER ON HOW ECONOMIC INSTRUMENTS CAN BE USED TO HELP BRIDGE THE GAP BETWEEN GOVERNMENT AND PRIVATE OWNERSHIP.

FIRSTLY, GOVERNMENT OWNERSHIP AND MANAGEMENT

GOVERNMENT CAN RETAIN THE GREATEST INFLUENCE OVER THE WAY RESOURCES ARE USED WHEN IT OWNS AND MANAGES THEM. FOR EXAMPLE, THE MINISTRY OF ENERGY NOT ONLY MANAGED ENERGY RESOURCES ON BEHALF OF THE CROWN BUT ALSO UNDERTOOK ELECTRICITY, COAL, AND GAS DEVELOPMENT.

IRONICALLY THIS FORM OF CONTROL HAS IN MANY CASES RESULTED IN NOT ONLY POOR ECONOMIC PERFORMANCE BUT ALSO POOR ENVIRONMENTAL OUTCOMES. THIS IS NOT NECESSARILY A RESULT OF RESOURCES BEING CONTROLLED BY THE CROWN BUT OF AGENCIES BEING ASSIGNED MULTIPLE, OFTEN CONFLICTING OBJECTIVES. RECENT STATE SECTOR RESTRUCTURING HAS SOUGHT TO SEPARATE THE OBJECTIVES OF PUBLIC SECTOR AGENCIES TO IMPROVE BOTH COMMERCIAL AND NON-COMMERCIAL PERFORMANCE.

SECONDLY, REGULATIONS

REGULATIONS ARE DIRECT CONTROLS SUCH AS PROHIBITION OF CERTAIN ACTIVITIES, ESTABLISHMENT OF STANDARDS AND PROCEDURES TO BE FOLLOWED SUCH AS PLANNING APPLICATIONS AND ENVIRONMENTAL PLANNING AND ENHANCEMENT PROCEDURES. MOST POLLUTION CONTROLS TO DATE HAVE BEEN OF THIS FORM, SUCH AS REGULATING AIR EMISSIONS BY THE BEST PRACTICABLE MEANS, CONTROLLING WATER DISCHARGES AND EXTRACTATIONS BY GRANTING WATER RIGHTS, AND MANAGING LAND USE BY ZONING.

THIRDLY, MORAL SUASION

MORAL SUASION INVOLVES INFORMING PEOPLE OF THE ENVIRONMENTAL IMPLICATIONS OF THEIR ACTIONS. INFORMATION AND EDUCATION SHOULD

NOT BE UNDERESTIMATED AS A MEANS OF ACHIEVING ENVIRONMENTAL OBJECTIVES. IN FACT, I BELIEVE THEY ARE A POWERFUL AND SOMEWHAT UNDERUSED MECHANISM. EXAMPLES OF THIS APPROACH RANGE FROM "DO THE RIGHT THING" ANTI-LITTER PROMOTION TO EFFORTS TO MAKE LANDOWNERS AWARE OF THE HERITAGE ASSETS THEY OWN.

AN EXERCISE IN LANDSCAPE AWARENESS (UNDERTAKEN BY THE QUEEN ELIZABETH II NATIONAL TRUST IN CONJUNCTION WITH THE WAIPA COUNTY) HAS SUCCESSFULLY CHANGED THE ATTITUDE OF WAIPA LANDOWNERS TO THE LANDSCAPE AND RESULTED IN " ... THE PERMANENT PROTECTION OF SIGNIFICANT ELEMENTS OF COUNTY LANDSCAPE SUCH AS NATIVE FOREST REMNANTS, SCRUBLAND AND PEAT LAKES.." (TAYLOR 1986.)

FOURTHLY, ECONOMIC INSTRUMENTS

ECONOMIC INSTRUMENTS, ALSO KNOWN AS MARKET MECHANISMS, ARE OF COURSE THOSE MANAGEMENT TOOLS WHICH USE MONETARY INCENTIVES OR DISINCENTIVES TO IMPROVE OR PROTECT THE ENVIRONMENT. THEY ARE DISTINGUISHED FROM REGULATORY INSTRUMENTS WHICH DIRECTLY PROHIBIT OR CONSTRAIN BEHAVIOUR.

IN PRACTICE ALL FORMS OF INTERVENTION IMPACT ON THE ECONOMY AND INVOLVE FINANCIAL TRANSFERS, SO IT IS NOT ALWAYS EASY TO DISTINGUISH BETWEEN ECONOMIC AND REGULATORY INSTRUMENTS.

GIVEN THE PROBLEMS OF DEFINING AND ENFORCING PROPERTY RIGHTS, GOOD ENVIRONMENTAL MANAGEMENT SOMETIMES REQUIRES ECONOMIC INSTRUMENTS TO BE SUPPLEMENTED BY A DEGREE OF (AND WORK WITHIN A FRAMEWORK OF) REGULATION. ECONOMIC INSTRUMENTS CAN BE USED AS A SUPPLEMENT RATHER THAN AS AN ALTERNATIVE TO REGULATIONS.

THE ABILITY OF ECONOMIC INSTRUMENTS TO PROVIDE FLEXIBILITY AND INCENTIVE CAN BE ILLUSTRATED TAKING THE EXAMPLE OF SEVERAL FACTORIES EMITTING SMOKE IN A PARTICULAR AREA. THE LEVEL OF SMOKE EMISSIONS CAN BE CONTROLLED BY SEVERAL MEANS, BOTH REGULATORY AND ECONOMIC.

REGULATORY CONTROLS MAY INVOLVE EITHER ESTABLISHING A MAXIMUM EMISSIONS LEVEL FOR INDIVIDUAL FIRMS WITH THE AIM OF LIMITING TOTAL EMISSIONS TO A PARTICULAR LEVEL, OR CONTROLLING EMISSIONS BY THE "BEST PRACTICABLE MEANS". HOWEVER, THE FORMER MEASURE MAY NOT TAKE INTO ACCOUNT THE VARIATION AMONGST FIRMS IN THE COSTS OF REDUCING EMISSIONS, WHILE THE LATTER MAY DISCOURAGE OR AT LEAST PROVIDE NO INCENTIVE FOR FIRMS TO DEVELOP OR REVEAL TECHNOLOGY WHICH IS ABLE TO FURTHER REDUCE EMISSIONS. (OATES 1984.)

ALTERNATIVELY, ECONOMIC MECHANISMS COULD BE USED. ONE APPROACH WOULD BE TO TAX FIRMS ON THE BASIS OF THE AMOUNT OF SMOKE THEY EMIT. INDUSTRIES WOULD HAVE AN INCENTIVE TO REDUCE EMISSIONS TO THE POINT AT WHICH THE COST OF FURTHER REDUCING EMISSIONS BECAME GREATER THAN THE TAX. A SECOND APPROACH WOULD BE TO SET THE LEVEL OF TOTAL EMISSIONS FOR THE AREA AT THE DESIRED LEVEL AND ALLOW INDUSTRIES TO BUY AND SELL THE RIGHT TO EMIT SMOKE UP TO THIS LEVEL. THOSE WHO CAN EASILY REDUCE EMISSIONS WILL HAVE AN INCENTIVE TO SELL THEIR RIGHTS TO COMPANIES WHO FACE HIGHER COSTS IN REDUCING EMISSIONS.

AS CAN BE SEEN FROM THIS SIMPLE EXAMPLE THERE ARE A VARIETY OF ECONOMIC INSTRUMENTS WITH WHICH TO ADDRESS PROBLEMS. THE RANGE OF INSTRUMENTS CAN BE CATEGORISED AS FOLLOWS:

FIRSTLY, PRICE MANIPULATION OR INDUCEMENTS. THESE MAY BE EITHER

- * POSITIVE (SUBSIDIES) EG TAX REDUCTIONS, GRANTS, LOAN SCHEMES, ACCELERATED DEPLETION; OR

- * NEGATIVE EG TAXES, CHARGES.

SECONDLY, CREATION OF MARKETS IN "COMMON PROPERTY" RESOURCES. EG TRANSFERABLE DISCHARGE PERMITS, TRANSFERABLE DEVELOPMENT RIGHTS, TRANSFERABLE QUOTAS. THE INDIVIDUAL TRANSFERABLE QUOTA SCHEME INTRODUCED FOR OFFSHORE FISHING IS AN EXAMPLE.

THE LATTER AREA INVOLVES CREATING MARKET MECHANISMS BUT WITHIN A REGULATORY FRAMEWORK DESIGNED TO COMPENSATE FOR THE LIMITATIONS OF MARKETS WHERE PROPERTY RIGHTS CANNOT BE FULLY DEFINED OR ENFORCED.

CONCLUSION

IT SEEMS TO ME THAT THERE ARE A NUMBER OF AREAS WHERE ECONOMICS AND ENVIRONMENTAL VALUES COINCIDE. LET ME TRY TO ENUMERATE THEM.

FIRSTLY, THERE ARE LIMITS. ECONOMICS IS CONCERNED WITH SCARCITY. AWARENESS OF SCARCITY AND OF LIMITS IS CRITICAL TO ECOLOGICAL SURVIVAL. AS YOU MAY KNOW, THE RECENTLY PUBLISHED REPORT OF THE U.N. WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT CHAIRED BY GRO HARLEM BRUNDTLAND, PRIME MINISTER OF NORWAY, COMPARED THE ZONE OF LIFE, THE BIOSPHERE, AS "A FILM COVERING OUR PLANET AS THIN AS THE DEW OF AN APPLE":

"MANY BELIEVE THAT THERE HAS ALREADY BEEN A FUNDAMENTAL CHANGE WITHIN THE FILM IN THE RELATIONSHIP BETWEEN THE ECONOMY AND THE BIOSPHERE. WHAT ELSE IS THE BIOSPHERE TELLING US WHEN IT PROVIDES EVIDENCE OF MAN-MADE CLIMATE CHANGE, DESTRUCTION OF THE OZONE LAYER, ACIDIFICATION OF THE ENVIRONMENT, CHEMICALS IN THE FOOD CHAIN, THE NET LOSS OF A DENMARK-SIZED CHUNK OF FOREST EVERY TWELVE WEEKS, A SWITZERLAND-SIZED DESERT EVERY NINE MONTHS, AND A MASSIVE DETERIORATION OF THE SOIL BASE WORLDWIDE? WE MAY IN FACT BE WITNESSING THE RAPID UNIFICATION OF ECONOMICS AND ECOLOGY, NOT JUST AT THE LOCAL LEVEL -- THAT HAS LONG BEEN EVIDENT -- BUT, IN SOME INSTANCES, AT THE REGIONAL, AND EVEN AT THE GLOBAL SCALE."

THIS IS INFORMATION THAT IS VITAL TO OUR SURVIVAL. IF IT IS MADE A PART OF THE INFORMATION RELEVANT TO MARKET TRANSACTIONS, ECONOMICS WOULD ENSURE THAT ITS MEANING IS TRANSLATED INTO ACTION.

SECONDLY, ECONOMICS PROVIDES A USEFUL FRAMEWORK FOR, ALBEIT WITH SOME LIMITATIONS, DECISIONS ON HOW RESOURCES SHOULD BE ALLOCATED. ECONOMICS IS A DISCIPLINE WHICH DEALS WITH CHOICE AND AS SUCH IS CONCERNED WITH VALUES AND DECISION CRITERIA. IT IS POSITIVE, RATHER THAN NORMATIVE, THAT IS IT ACCEPTS THE VALUES OF CONSUMERS, WITH THE AIM OF MAXIMISING THE WELL-BEING OF PEOPLE. PROVIDED THE VALUES PROPERLY COVER ENVIRONMENTAL ISSUES, WELL BEING NOT ONLY OF PEOPLE BUT ALSO OF ECOSYSTEMS COULD BE ACHIEVED.

THIRDLY, THE MARKET IS NOT PERFECT AS A MEANS OF REACHING RESOURCE USE DECISIONS BUT IT CAN AND SHOULD BE MADE TO WORK BETTER.

FOURTHLY, NEITHER THE MARKET NOR PUBLIC OWNERSHIP MECHANISMS ARE UNIVERSAL PANACEA.

THERE ARE A RANGE OF POLICY INSTRUMENTS INCLUDING MARKET MECHANISMS, PLANNING, MORAL SUASION AND REGULATORY MECHANISMS. THE CHALLENGE IS TO APPLY SOME RIGOROUS POLICY ANALYSIS TO DETERMINE WHICH MECHANISMS ARE BEST IN PARTICULAR CIRCUMSTANCES. THE MINISTRY FOR THE ENVIRONMENT IS CURRENTLY TAKING A LEAD IN REVIEWING RESOURCE USE STATUTES. THE AIM OF THIS REVIEW IS TO ENSURE PROCESSES FOR RESOURCE ALLOCATION ARE EFFICIENT, EQUITABLE, AND CONSISTENT AMONGST RESOURCES, AND THAT THEY AIM TO SUSTAIN AND IMPROVE ENVIRONMENTAL QUALITY.

WE ARE IN THE MIDST OF WHAT COLIN JAMES HAS CALLED THE QUIET REVOLUTION. THERE IS UNQUESTIONABLY A REVOLUTION OF IDEAS AND CHANGES OF SYSTEMS AND STRUCTURES. OUT OF THAT REVOLUTION WILL COME ENORMOUS OPPORTUNITIES AND INEVITABLE CASUALTIES. THOSE OF US INVOLVED IN ENVIRONMENTAL POLICY MUST TAKE THE OPPORTUNITIES.

WE HAVE SOME BIG BIG QUESTIONS TO ANSWER AND THEY ARE POSED FOR US IN THE LONG TITLE TO THE ENVIRONMENT ACT:

HOW DO WE TAKE ACCOUNT OF

- THE INTRINSIC VALUES OF ECOSYSTEMS;
- ALL VALUES WHICH ARE PLACED BY INDIVIDUALS AND GROUPS ON THE QUALITY OF THE ENVIRONMENT;
- THE PRINCIPLES OF THE TREATY OF WAITANGI;
- THE SUSTAINABILITY OF NATURAL AND PHYSICAL RESOURCES; AND
- THE NEEDS OF FUTURE GENERATIONS?

IN ANSWERING THOSE QUESTIONS, THE CHALLENGE IS TO TAKE THE OPPORTUNITY TO BRING ENVIRONMENT AND ECONOMICS TOGETHER SO THAT EACH CAN WORK TO THE BENEFIT OF THE OTHER.