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Seminar on Tariffs, Regulatory and WTO Issues and their impact on the trade of telecommunication services in Central America

Tegucigalpa (Honduras), July 10-12, 2000

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UNIVERSAL SERVICE

PRESENTATION APPROACH

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- PROVIDES A PERSPECTIVE ON UNIVERSAL SERVICE IN THE CONTEXT OF TELECOMMUNICATIONS POLICY
- EMPHASIZES REGULATORY PRINCIPLES AND FRAMEWORK
- SHARES CANADIAN EXPERIENCE AND EXAMPLES OF OTHER COUNTRIES
- ADDRESSES THE ITEMS IDENTIFIED IN THE AGENDA
  - *UNIVERSAL SERVICE COSTING AND PRICE SETTING*
  - *FUNDING MECHANISM*
  - *PROVISION OF UNIVERSAL SERVICE AND MARKET STRUCTURE*
- INTEGRATED PRESENTATION SPREAD OVER THREE SESSIONS OF THE WORKSHOP
- FOCUSES ON
  - *EVOLVING COMPETITIVE MULTI-OPERATOR ENVIRONMENT*
  - *DEVELOPED AND DEVELOPING MARKET CONSIDERATIONS*
  - *CONCEPT AND DEFINITIONS*
  - *POLICY APPROACHES*
  - *COSTING METHODS*
  - *FUNDING MECHANISM*

COMPETITIVE MULTI-OPERATOR ENVIRONMENT

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- TELECOMMUNICATIONS AND INFORMATION INFRASTRUCTURE PLAY A VITAL ROLE IN NATION BUILDING AND ARE KEY TO RAPID ECONOMIC DEVELOPMENT
- WORLD-WIDE MONOPOLY MODEL OF SINGLE OPERATOR BEING REPLACED BY MULTI-OPERATOR COMPETITIVE ENVIRONMENT FOR BOTH FIXED NETWORK AND WIRELESS MOBILE SERVICES
- POLICY OBJECTIVES CENTRAL TO THE DEVELOPMENT OF EFFECTIVE TELECOMMUNICATIONS INDUSTRY ARE:
  - *TO MAXIMIZE THE USE OF TELECOMMUNICATIONS FACILITIES*
  - *TO ENCOURAGE INVESTMENT OF TELECOMMUNICATIONS INFRASTRUCTURE*
  - *TO ENHANCE EFFECTIVE COMPETITION*
- COMPETITIVE MULTI-OPERATOR ENVIRONMENT IS CHARACTERIZED BY DOMINANT MARKET POWER OF THE INCUMBENT AND CONFLICTING COMMERCIAL OBJECTIVES OF THE NEW ENTRANT AND THE INCUMBENT
- COMPETITION INVOLVES ENTRY DECISIONS BASED ON POTENTIAL PROFIT, THUS, MARKET LIBERALIZATION ALSO NECESSITATES A CHANGE TO THE MONOPOLY MODEL OF UNIVERSAL SERVICE

DEVELOPED AND DEVELOPING MARKETS

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- DEVELOPED MARKETS ARE IN HIGH TELEDENSITY COUNTRIES WITH FIXED LINES PER 100 POPULATION GREATER THAN 25, AND HIGH LEVEL OF HOUSEHOLD PENETRATION OF 80% OR MORE
- DEVELOPING MARKETS ARE IN LOW TELEDENSITY COUNTRIES WITH FIXED LINES PER 100 POPULATION LESS THAN 25, AND LOW LEVEL OF HOUSEHOLD PENETRATION OF LESS THAN 30%
- EVOLUTION OF COMPETITION IN DEVELOPING MARKETS IS DIFFERENT FROM HIGH TELEDENSITY MATURE MARKETS, AND POLICY AND REGULATIONS SHOULD REFLECT CONSIDERATION SPECIFIC TO SUCH DEVELOPING MARKETS
  - *LOW NETWORK PENETRATION REQUIRES CREATION OF RIGHT INCENTIVES FOR RAPID NETWORK BUILD AND BEST POSSIBLE USE OF INVESTMENT CAPITAL*
  - *PROBLEMS OF AFFORDABILITY BECAUSE OF LOW GDP PER HEAD, PARTICULARLY IN RURAL AREAS*
  - *RETAIL PRICES FOR BASIC SERVICE ARE OUT OF BALANCE WITH COSTS. MOVE TOWARDS COST-BASED PRICING ALTHOUGH DESIRABLE FROM AN ECONOMIC EFFICIENCY POINT OF VIEW SHOULD BE GRADUAL*
  - *GREATER RISK FOR MARKET FAILURE AND ITS IMPACT ON LEVEL OF INVESTOR CONFIDENCE*
- TELECOMMUNICATIONS POLICY NEEDS TO SET APPROPRIATE AND DIFFERENT UNIVERSAL SERVICE OBJECTIVES IN THESE TWO MARKETS

UNIVERSAL SERVICE CONCEPTS

- **DEFINITION OF UNIVERSAL SERVICE IN BOTH DEVELOPED AND DEVELOPING MARKETS REQUIRES THE IDENTIFICATION OF ATTRIBUTES FOR EACH RESPECTIVE MARKET ASSOCIATED WITH THE CONCEPT OF:**
  - ***AVAILABILITY***
  - ***ACCESSABILITY***
  - ***AFFORDABILITY***

DEFINITION IN DEVELOPED MARKETS

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- **THERE IS GENERAL AGREEMENT ON THE DEFINITION OF UNIVERSAL SERVICE IN TERMS OF:**
  - ***AVAILABILITY; NATIONWIDE, WHEN AND WHERE REQUIRED***
  - ***ACCESSIBILITY; TO ALL ON A NON-DISCRIMINATORY BASIS IN TERMS OF PRICE, SERVICE AND QUALITY***
  - ***AFFORDABILITY; PRICED SO THAT MOST USERS CAN AFFORD IT***

DEVELOPED MARKETS EXAMPLES

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- **AUSTRALIA**
  - *ACCESS ON EQUITABLE BASIS TO STANDARD TELEPHONE SERVICE, PAYPHONE AND CARRIAGE SERVICES TO ALL (TELECOMMUNICATIONS ACT, 1997)*
- **CANADA**
  - *RELIABLE AND AFFORDABLE TELECOMMUNICATIONS SERVICES OF HIGH QUALITY ACCESSIBLE IN BOTH URBAN AND RURAL AREAS IN ALL REGIONS OF CANADA (TELECOMMUNICATIONS ACT, 1993)*
- **USA**
  - *EFFICIENT NATIONWIDE TELECOMMUNICATION SERVICES AT REASONABLE CHARGES TO ALL WITHOUT DISCRIMINATION (TELECOMMUNICATIONS ACT, 1996)*

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UNIVERSAL ACCESS IN DEVELOPING MARKETS

- **IN DEVELOPED MARKETS, THE UNIVERSAL SERVICE OBJECTIVE OF BASIC TELEPHONE SERVICE BEING AVAILABLE, ACCESSIBLE AND AFFORDABLE TO ALL**
  - ***WAS ESTABLISHED AT A STAGE WHEN HOUSEHOLD PENETRATION WAS ALREADY WELL ON THE WAY TO UNIVERSAL LEVELS I.E. NEAR 90%***
  - ***WAS AIMED AT FEW RATHER THAN THE MAJORITY OF THE POPULATION WHICH ALREADY HAD TELEPHONE SERVICE***
  - ***SHOULD BE VIEWED IN THE CONTEXT OF A SUSTAINED PERIOD OF PRIOR NETWORK DEVELOPMENT AND AN ESTABLISHED NETWORK INFRASTRUCTURE***
- **IN CONTRAST IN DEVELOPING MARKETS**
  - ***NETWORK PENETRATION IS LOW***
  - ***GDP PER HEAD IS LOW***
  - ***NETWORK INFRASTRUCTURE IS INADEQUATE***
- **AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY ARE NEITHER MUTUALLY EXCLUSIVE NOR SIMULTANEOUSLY ACHIEVABLE**
- **THUS THERE IS A NEED TO SHIFT THE OBJECTIVE TO <u>UNIVERSAL ACCESS</u> FROM UNIVERSAL SERVICE**

DEVELOPING MARKET EXAMPLES

- **UNIVERSAL ACCESS IN DEVELOPING MARKETS HAS BEEN DEFINED IN TERMS OF COMMUNITY ACCESS USING ONE OF THE FOLLOWING CRITERIA:**

  POPULATION

  - ***DEFINITION; A TELEPHONE FOR A POPULATION GROUP OF A CERTAIN SIZE***
  - ***EXAMPLES; ANGOLA, A TELEPHONE IN EVERY TOWN, CUBA, A TELEPHONE IN EVERY VILLAGE WITH MORE THAN 500 PEOPLE, MALDIVES, A TELEPHONE ON EVERY ISLAND***

  DISTANCE

  - ***DEFINITION; A TELEPHONE WITHIN A CERTAIN DISTANCE***
  - ***EXAMPLES; MOZAMBIQUE, A TELEPHONE WITHIN 5 KILOMETERS, NIGER, A TELEPHONE WITHIN 50 KILOMETERS***

  TIME

  - ***DEFINITION; A TELEPHONE REACHABLE WITHIN A CERTAIN TIME***
  - ***EXAMPLE; SOUTH AFRICA, A TELEPHONE WITHIN A 30 MINUTE WALKING DISTANCE***

STAGES OF UNIVERSAL SERVICE

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- UNIVERSAL SERVICE IN DEVELOPED MARKETS BASED ON AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY HAS IN REALITY BEEN ACHIEVED IN STAGES
- PURSUING ALL THREE ASPECTS OF UNIVERSALITY SIMULTANEOUSLY REQUIRES CONFLICTING POLICY CHOICES
  - *BUILDING A NATIONAL NETWORK FOR AVAILABILITY AND ACCESSIBILITY IS COSTLY AND TAKES TIME*
  - *AFFORDABILITY THROUGH REGULATED PROCESS MAY GENERATE LOWER REVENUES*
- RECONCILING THESE THREE CONTENDING CRITERIA WOULD BE DIFFICULT IN A DEVELOPING MARKET
- CONSIDERING THESE CRITERIA AS REPRESENTING DIFFERENT STAGES OF TELECOMMUNICATIONS NETWORK DEVELOPMENT AND PROGRESSIVELY ADVANCING UNIVERSAL GOALS IN TERMS OF INCREASING TELEDENSITY OR HOUSEHOLD PENETRATION AND FROM UNIVERSAL ACCESS TO INDIVIDUAL UNIVERSAL SERVICE IS MORE REALISTIC

STAGES OF UNIVERSAL SERVICE

TABLE BELOW SHOWS HOW UNIVERSAL SERVICE GOALS MAY PROGRESSIVELY CHANGE WITH INCREASE IN LEVEL OF TELEPHONE PENETRATION

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	STAGE 1	***STAGE 2***	***STAGE 3***	***STAGE 4***
TELEDENSITY	LOW: 0-10%	LOW: 10-25%	HIGH: 25-40%	HIGH: OVER 40%
CONSTRAINTS ON NETWORK EXPANSION	CAPITAL SCARCITY OF SKILLED STAFF	CAPITAL SCARCITY OF SKILLED STAFF	LACK OF MANPOWER TO MEET MASS DEMAND	AFFORDABILITY OF SERVICES IN POORER HOUSEHOLDS LACK OF PEOPLE WHO WANT TELEPHONE SERVICES
APPROPRIATE UNIVERSAL SERVICE GOALS	LINK ALL POPULATION CENTRES	WIDESPREAD TAKE UP BY BUSINESSES	WIDESPREAD TAKE UP BY RESIDENTIAL USERS	TELEPHONE AFFORDABLE TO ALL
	PROVIDE PUBLIC TELEPHONES WHERE DEMAND WARRANTS	PUBLIC SERVICE AVAILABLE IN ALL POPULATION CENTRES	MEET ALL REASONABLE DEMAND QUICKLY	MODIFIED PHONES AVAILABLE FOR USE BY THE DISABLED

POLICY APPROACHES

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- **UNIVERSAL SERVICE POLICY APPROACHES ARE CLEARLY DISTINGUISHABLE BETWEEN MATURE OR DEVELOPED AND DEVELOPING MARKETS**
- **HOWEVER, THERE IS DEGREE OF COMMONALITY OF ISSUES THAT HAVE TO BE ADDRESSED AND INCORPORATED INTO THE POLICY CONSIDERATIONS**
  - ***EXTENT AND SCOPE OF POLICY IN TERMS OF SERVICES COVERED AND SOCIAL/LEGAL ENTITLEMENT***
  - ***PRACTICAL DEFINITION OF AFFORDABILITY IN THE CONTEXT OF THE COUNTRY CONCERNED***
  - ***TIME SCALE***
  - ***MEANS OF DELIVERY***
  - ***FUNDING***
- **CRITICAL DIFFERENCE IS THAT UNIVERSAL SERVICE IN DEVELOPED MARKETS IS ESSENTIALLY A MAINTENANCE POLICY ASSOCIATED WITH AFFORDABILITY AND THE NEEDS OF THE ECONOMICALLY AND GEOGRAPHICALLY DISADVANTAGED**
- **WHEREAS IN DEVELOPING MARKETS, UNIVERSAL SERVICE IS A FUNDAMENTAL POLICY CONCERN ASSOCIATED WITH EXTENDING AND INCREASING NETWORK AND SERVICE INFRASTRUCTURE TO OFFER BASIC TELEPHONY SERVICES TO SUBSTANTIAL SECTIONS OF THE POPULATION**

DEVELOPED MARKET POLICY PERSPECTIVE

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- **IN HIGH TELEDENSITY COUNTRIES WITH DEVELOPED MARKETS, UNIVERSAL SERVICE OBLIGATION (USO) OF MAKING BASIC TELEPHONY SERVICES AVAILABLE TO ALL AT AN AFFORDABLE PRICE IS SEEN AS A SOCIAL NECESSITY**

- **FROM THIS PERSPECTIVE, THE POLICY IS GEARED TO THREE IDENTIFIABLE GROUPS**
  - ***THE DISABLED AND THOSE ON LOW INCOME***
  - ***CUSTOMERS IN HIGH COST SERVING AREAS (RURAL)***
  - ***UNPROFITABLE CUSTOMERS IN OTHERWISE PROFITABLE AREAS.***

  THESE ARE CUSTOMERS THAT GENERATE SUCH LOW ADDITIONAL TRAFFIC ON THE NETWORK THAT THE PROFIT ON CALLS IS LESS THAN THE NET COST OF PROVIDING THEM SERVICE

DEVELOPING MARKET POLICY PERSPECTIVE

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- **IN LOW TELEDENSITY COUNTRIES WITH DEVELOPING MARKETS, THE FOCUS IS ON UNIVERSAL ACCESS RATHER THAN UNIVERSAL SERVICE OBLIGATION, PARTICULARLY IN THE SHORT TERM**
- **THE FOCUS ON ENHANCING UNIVERSAL ACCESS RESULTS IN POLICY PERSPECTIVES ORIENTED TOWARDS:**
  - ***STRATEGIES FOR NETWORK BUILD TO ENCOURAGE PROGRESS TOWARDS HIGHER STAGE OF UNIVERSAL SERVICE***
  - ***SHARED ACCESS INITIATIVES FOR THOSE WITHOUT INDIVIDUAL TELEPHONES***
- **STRATEGIES FOR NETWORK BUILD INCLUDE**
  - ***PRIVATIZATION***
  - ***BUILD/TRANSFER***
  - ***MULTI-OPERATOR ENVIRONMENT***
- **SHARED ACCESS INITIATIVES INCLUDE**
  - ***PAYPHONES AND PUBLIC CALL OFFICES***
  - ***RURAL/UNSERVED LOCALITIES***

NETWORK DEVELOPMENT STRATEGIES

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PRIVATIZATION

- FOR A NUMBER OF DEVELOPING ECONOMIES IN LATIN AMERICA, CENTRAL AND EAST EUROPEAN COUNTRIES, AS WELL AS IN SOME AFRICAN COUNTRIES, PRIVATIZATION HAS BEEN A SIGNIFICANT TRANSFORMATION IN THE INDUSTRY STRUCTURE
- PRIVATIZATION OF THE MONOPOLY INCUMBENT OPERATOR PROVIDES CAPITAL AND OPERATIONAL KNOW HOW FOR BUILDING UP THE NETWORK
- NETWORK EXPANSION TARGETS ARE IDENTIFIED AS A PART OF THE TERMS AND CONDITIONS OF PRIVATIZATION
- IN MEXICO AND ARGENTINA EXPANSION TARGETS INCLUDED BOTH NETWORK GROWTH AND COVERAGE AREA. TELEDENSITY INCREASED FROM 10 TO 18 IN ARGENTINA, AND FROM 6 TO 9 IN MEXICO OVER A PERIOD OF SIX YEARS
- PRIVATIZATION IN CENTRAL AND EASTERN EUROPE (ESTONIA, LATVIA, HUNGARY AND CZECH REPUBLIC) HAS BEEN MORE RECENT THAN MEXICO AND ARGENTINA WITH VERY POSITIVE GROWTH. SINCE PRIVATIZATION, BOTH CZECH REPUBLIC AND HUNGARY HAVE RANKED AMONG THE TOP IN THE REGION IN TERMS OF TELEDENSITY, HOUSEHOLD PENETRATION AND PAYPHONE GROWTH
- IN SOUTH AFRICA AND GHANA, THE TARGETS FOR INSTALLED LINES INCREASE OVER A PERIOD OF 5 YEARS IS 2.8 MILLION AND 225,000 RESPECTIVELY. FOR GHANA THAT WOULD BE A THREEFOLD INCREASE IN TELEDENSITY

NETWORK DEVELOPMENT STRATEGIES

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BUILD/TRANSFER

- BUILD AND TRANSFER (B/T) APPROACH HAS BEEN USED IN MANY DEVELOPING ECONOMIES FOR INFRASTRUCTURE PROJECTS NOT ONLY FOR TELECOMMUNICATIONS BUT ALSO POWER, ROADS AND PORTS
- IN B/T ARRANGEMENTS, NETWORK BUILD IS CONTRACTED OUT WITH THE PROVISO THAT INVESTMENT CAPITAL WILL BE PROVIDED BY THE BUILDER, THE NETWORK WOULD BE OPERATED BY IT FOR A PERIOD OF TIME AND THEN TURNED OVER TO THE STATE OWNED OPERATOR
- COUNTRIES IN SOUTH-EAST ASIA WHICH HAVE USED THE B/T APPROACH ARE THAILAND, INDONESIA AND VIETNAM
- IN THAILAND B/T HAS BEEN NOT ONLY USED FOR VOICE TELEPHONY, BUT ALSO FOR MOBILE, DATA, PAGING AND SATELLITE COMMUNICATIONS
- THE B/T ARRANGEMENT WAS BETWEEN THE PRIVATE SECTOR AND TWO STATE OWNED OPERATORS
- OVER A PERIOD OF 5 YEARS, SINCE THE INCEPTION OF THE CONTRACT, TELEDENSITY INCREASED FROM 2.7 TO 6.0 WITH INCREASED COVERAGE IN THE PROVINCIAL AREAS

NETWORK DEVELOPMENT STRATEGIES

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BUILD/TRANSFER (CONT'D)

- INDONESIA HAS USED B/T FOR TWO NETWORK EXPANSION PROGRAMS
- THE FIRST INITIATED AS EARLY AS 1990 WAS TO HELP ALLEVIATE UNDER SUPPLY IN JAKARTA AND PROVIDED FOR SIX SEPARATE CONCESSIONS FOR 120,000 LINES EACH. THE TERMS OF THE B/T INCLUDED AN INCENTIVE TO KEEP 70% OF THE OPERATING PROFITS

- THE SECOND PROGRAM HAS A TARGET OF INCREASE IN LINES BY 5 MILLION IN YEAR 2000, 3 MILLION INCREASE BY THE INCUMBENT OPERATOR, PT TELEKOM, AND 2 MILLION INCREASE BY PRIVATE INVESTORS IN FIVE REGIONS WITH LOW TELEDENSITY. THE SIZE OF THE EXPANSION IS EXPECTED TO INCREASE NETWORK CAPACITY BY 60%

NETWORK DEVELOPMENT STRATEGIES

MULTI-OPERATOR ENVIRONMENT

- LIBERALIZATION OF THE TELECOMMUNICATIONS MARKET BY ALLOWING ENTRY OF NEW OPERATORS HAS BEEN ANOTHER STRATEGY WHICH HAS BEEN ADOPTED TO EXPAND NETWORK CAPACITY IN DEVELOPING MARKETS
- COMPETITIVE MULTI-OPERATOR ENVIRONMENT HAS BEEN FOSTERED BOTH IN MOBILE AND FIXED NETWORK SERVICES
- LICENSES HAVE ALSO BEEN AWARDED IN SOME CASES FOR OPERATIONS IN SPECIFIC LOCATIONS OR USE OF SPECIFIC TECHNOLOGY SUCH AS WIRELESS LOCAL LOOP
- IN THE PHILIPPINES, LICENSES WERE AWARDED TO MOBILE CELLULAR OPERATORS WITH THE PROVISO TO PROVIDE 400,000 FIXED NETWORK LINES OVER A PERIOD OF 5 YEARS
- IN ADDITION, COMPETITIVE ENTRY WAS FOSTERED IN THE INTERNATIONAL LONG DISTANCE MARKET WITH THE NEW ENTRANTS BEING OBLIGATED TO INSTALL 300,000 FIXED NETWORK LINES OVER A PERIOD OF 3 YEARS

NETWORK DEVELOPMENT STRATEGIES

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MULTI-OPERATOR ENVIRONMENT (CONT'D

- **TO ENSURE THAT INSTALLATION OF NEW LINES ARE NOT CONCENTRATED IN HIGH DENSITY URBAN CENTRES, TARGETS WERE STIPULATED FOR RATIOS OF URBAN AND RURAL LINES. THE TELEPHONE DENSITY INCREASE OVER 5 YEARS WAS QUITE AMBITIOUS, INCREASING FROM 1.67 TO 10.05. THE INCUMBENT OPERATOR, PLDT, WAS ALSO TO CONTRIBUTE TO THIS TARGET. INTERCONNECTION DISPUTES HAVE HAMPERED THE ACHIEVEMENT THE TARGET, BUT NEVERTHELESS THE TELEDENSITY HAS INCREASED TO 5.4**

- **BANGLADESH HAS AWARDED A CONTRACT TO A JOINT VENTURE COMPANY FROM USA FOR AN INCREASE BY 123,000 LINES FROM THE CURRENT 7,000 LINES TO SERVE THE RURAL NORTH OF THE COUNTRY**

- **SRI LANKA HAS USED A TECHNOLOGY SPECIFIC APPROACH TO PROVIDE LOCAL SERVICE USING WIRELESS LOCAL LOOP. INCREASE IN LINES ARE 200,000 BY TWO NEW OPERATORS**

NETWORK DEVELOPING STRATEGIES

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MULTI-OPERATOR ENVIRONMENT (CONT'D)

- **IN DEVELOPING COUNTRIES, COMPETITIVE CELLULAR MOBILE SERVICES HAVE BEEN INTRODUCED FOR A LONGER PERIOD AND MORE EXTENSIVELY**

- **THE IMPACT OF ENTRY OF NEW CELLULAR OPERATORS ON TELEPHONE ACCESS IS TWO FOLD**
  - ***HIGH RATE OF PENETRATION OF WIRELESS SERVICE ITSELF***
  - ***OVERALL INCREASE IN SUPPLY OF TELEPHONE SERVICE I.E. SIGNIFICANT INCREASE IN TELEDENSITY IF BOTH FIXED AND MOBILE NETWORK ACCESS ARE INCLUDED***

SHARED ACCESS INITIATIVES

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PAYPHONES AND PUBLIC CALL OFFICES

- BECAUSE OF CAPITAL CONSTRAINTS, GEOGRAPHY AND DEMOGRAPHY, IT MAY NOT BE POSSIBLE TO PROVIDE INDIVIDUAL TELEPHONE LINES. HOWEVER, COMMUNITY ACCESS CAN BE PROVIDED THROUGH PUBLIC PAYPHONES AND CALL OFFICES
- PUBLIC PAYPHONES HAVE BEEN TRADITIONALLY PROVIDED AND OPERATED BY THE INCUMBENT OPERATOR
- TWO APPROACHES FOR INCREASING PAYPHONES ARE
  - *MANDATED TARGETS FOR PAYPHONE INSTALLATIONS*
  - *COMPETITION IN PAYPHONE PROVISION*
- IN MEXICO, TELEMEX, THE INCUMBENT OPERATOR, WAS REQUIRED TO INCREASE PAYPHONES TO AN ESTABLISHED TARGET RESULTING IN A TWO AND A HALF TIME INCREASE IN PAYPHONES OVER A PERIOD OF 4 YEARS

SHARED ACCESS INITIATIVES

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PAYPHONES AND PUBLIC CALL OFFICES (CONT'D)

- PAYPHONE COMPETITION HAS EXISTED IN DEVELOPED MARKETS. ITS INTRODUCTION IN DEVELOPING MARKETS IS MORE RECENT
- CHILE ALLOWS PROVISION OF COMPETITIVE PAYPHONES WITH THE ADDED INCENTIVE THAT SUCH OPERATORS CAN ALSO OBTAIN LICENSES TO PROVIDE LOCAL SERVICE IN THE SAME GEOGRAPHIC TERRITORY
- FRANCHISING OF PUBLIC CALL OFFICES TO PRIVATE ENTREPRENEURS THROUGH USE OF PRIVATE LINES FOR PUBLIC ACCESS HAS BEEN VERY SUCCESSFUL IN INDIA AND INDONESIA
- IN AFRICA, THERE IS AN INCREASE IN PUBLIC CALL OFFICES IN MANY COUNTRIES, MOROCCO, TUNISIA AND SENEGAL TO NAME A FEW
- CELLULAR TECHNOLOGY HAS ALSO BEEN USED IN THE PROVISION OF PUBLIC TELEPHONES IN SOUTH AFRICA (30,000 PUBLIC PHONES) AND BANGLADESH (68,000 VILLAGE PAYPHONES ARE PLANNED)

SHARED ACCESS INITIATIVES

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RURAL/UNSERVED LOCALITIES

- IN MANY DEVELOPING COUNTRIES, COMMUNITY ACCESS HAS BEEN SPECIFICALLY FOCUSED ON UNSERVED LOCATIONS OR RURAL VILLAGES
- BECAUSE OF CAPITAL CONSTRAINTS, SELECTION OF LOCALITIES IS PREDICATED ON CRITERIA OF SOME SIGNIFICANCE I.E. SIZE OF LOCALITY, ITS GEOGRAPHIC LOCATION ETC.
- AN APPROACH USED IN MEXICO WAS TO MANDATE THE INCUMBENT OPERATOR TO PROVIDE TELEPHONE LINES IN ALL TOWNS WITH A POPULATION GREATER THAN 500 WITHIN A GIVEN PERIOD OF TIME
- SOME COUNTRIES, LIKE THAILAND, HAVE ESTABLISHED SPECIFIC RURAL PROJECTS WITH SPECIFIC TARGETS WITHIN STIPULATED TIMEFRAMES
- GHANA HAS LICENSED OPERATORS TO PROVIDE SERVICE IN SPECIFIC RURAL LOCATIONS ONLY

SHARED ACCESS INITIATIVES

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RURAL AND UNSERVED LOCALITIES (CONT'D)

- SOME COUNTRIES HAVE ESTABLISHED SPECIFIC RURAL PROJECTS WITH FUNDING FROM GOVERNMENT BUDGET
- POLAND FUNDED A SPECIAL RURAL PROJECT TO INSTALL AT LEAST ONE TELEPHONE LINE IN EACH UNSERVED LOCATION, COVERING APPROXIMATELY 7,900 LOCATIONS WITHIN A FOUR YEAR PERIOD
- CHILE ESTABLISHED A SPECIAL PROGRAM WITH FUNDING FROM ITS NATIONAL BUDGET TARGETING LOCALITIES WITH ROUGHLY 10% OF THE POPULATION IN WHICH THERE WAS NO TELEPHONE SERVICE. THE PROJECT COVERED 1,285 LOCATIONS WHICH HAD LESS THAN 1,000 INHABITANTS AND WHICH WAS LOCATED WITHIN 50 KILOMETERS OF EXISTING TELECOMMUNICATIONS FACILITIES

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BREAK

UNIVERSAL SERVICE AND PRICE DISTORTIONS

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- **USO - UNIVERSAL SERVICE OBLIGATION IS THE REQUIREMENT IMPOSED ON OPERATORS TO MAKE BASIC TELEPHONY SERVICES AVAILABLE TO ALL AT AN AFFORDABLE PRICE**

- **THE CONCEPTS OF AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY ASSOCIATED WITH UNIVERSAL SERVICE RESULT IN PRICE DISTORTIONS WHEREBY THE PRICE OF TELEPHONY SERVICE FAILS TO REFLECT THE COST OF PROVISION BECAUSE:**
  - ***PRICES ARE GEOGRAPHICALLY AVERAGED***
  - ***PRICES ARE UNBALANCED I.E. NOT COMPENSATORY IN ALL CASES***

- **THESE PRICE DISTORTIONS GIVE RISE TO TWO TYPES OF COST:**
  - ***USC: UNIVERSAL SERVICE COSTS FOR MEETING USO***
  - ***ACCESS DEFICIT: SHORTFALL DUE TO THE REVENUES FROM BASIC TELEPHONY SERVICES NOT RECOVERING THE COSTS OF PROVIDING THESE SERVICES***

UNIVERSAL SERVICE COSTS

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- **USO GENERATES THREE MAIN CATEGORIES OF COSTS:**
  - ***COSTS TO SERVICE CUSTOMERS IN HIGH COST AREAS (RURAL)***
  - ***COSTS TO SERVICE CUSTOMERS WITH DISABILITIES OR LOW INCOME***
  - ***COSTS TO SERVE UNPROFITABLE CUSTOMERS IN OTHERWISE PROFITABLE AREAS***
- **TOGETHER, THESE COSTS ARE RELATIVELY SMALL COMPARED TO OVERALL ACCESS DEFICIT**
- **THE COST OF THE USO IS USUALLY HIGHER IN COUNTRIES WITH A LARGE RURAL POPULATION**

ADC & USC

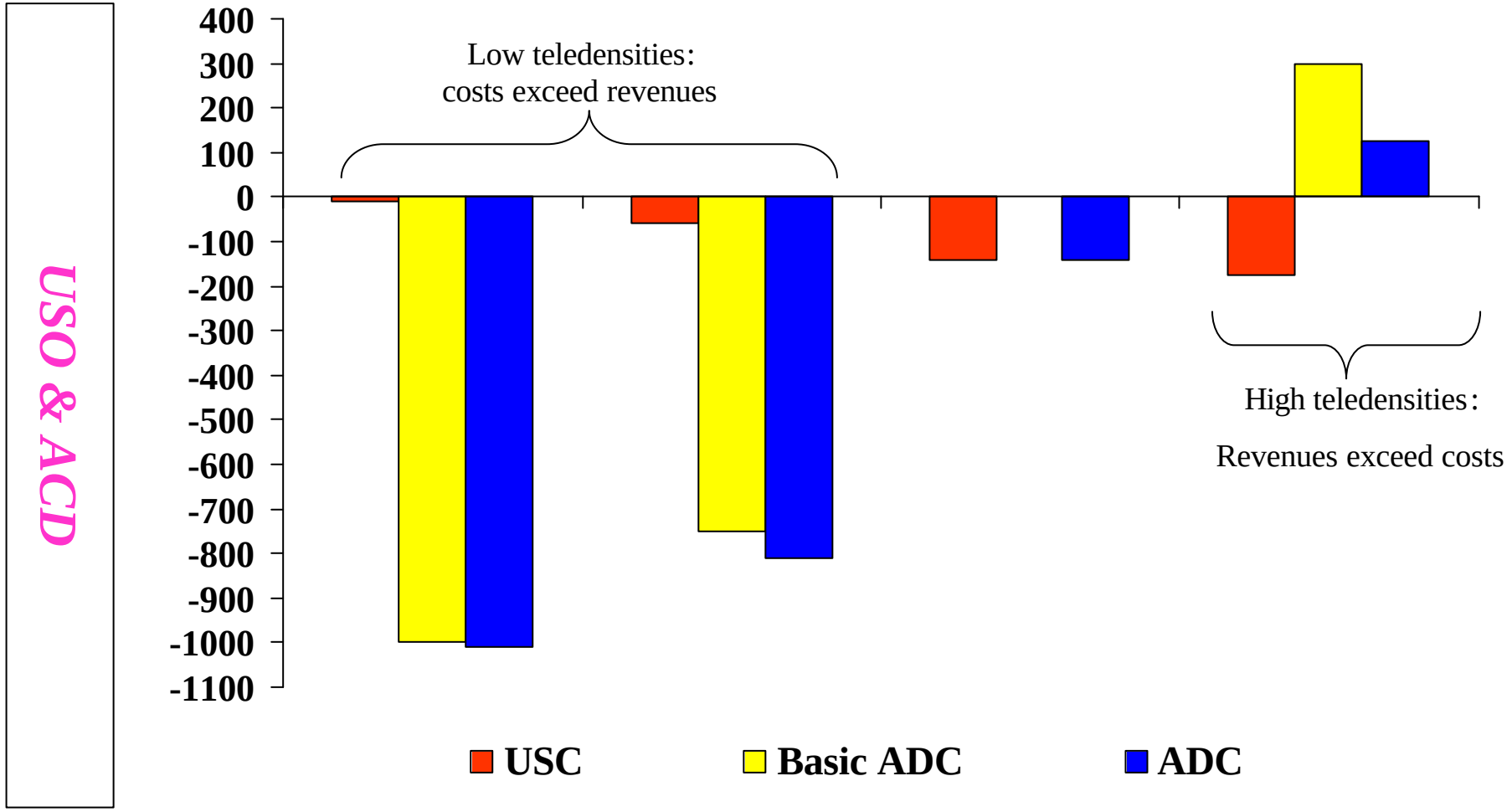

Figure 1

ACCESS DEFICIT AND USC

INTERRELATIONSHIP

- **FIGURE 1, HELPS TO DESCRIBE USC AND ACCESS DEFICIT, AND SHOW THEIR RELATIONSHIP:**
  - ***THE BASIC ACCESS DEFICIT COST IS HIGH FOR IN LOW TELEDENSITY NETWORKS***
  - ***THE UNIVERSAL SERVICE COSTS (USC) MAY GROW WITH THE TELEDENSITY***
  - ***THE GLOBAL ACCESS DEFICIT (ADC) IS THE SUM OF OF THE USC AND THE BASIC ACCESS DEFICIT COST***
  - ***COST REDUCTION SHOULD OCCUR WHERE REVENUES EXCEED COSTS***
- **THERE IS STRONG INTERRELATIONSHIP BETWEEN ACCESS DEFICITS AND COST OF UNIVERSAL SERVICE OBLIGATION**
- ***TREAT USC AND ACCESS DEFICIT AS A PACKAGE AND AVOID DOUBLE COUNTING***

ACCESS DEFICIT AND USC

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INTERRELATIONSHIP (CONT'D)

- **FUNDING THE INCUMBENT'S ACCESS DEFICIT IN FULL THROUGH ACCESS DEFICIT CONTRIBUTION (ADC), WILL LARGELY ELIMINATE THE NET COST OF SERVING RURAL AREAS AND UNPROFITABLE (LOW CALLING RATE CUSTOMERS) BUT WILL NOT ELIMINATE OTHER UNIVERSAL SERVICE COSTS**
- **THIS HAS TWO IMPORTANT IMPLICATIONS:**
  - ***FUNDING OF USC SHOULD TAKE ACCOUNT OF ANY ACCESS DEFICIT CONTRIBUTION IN CALCULATING THE SIZE OF THE FUND***
  - ***USE OF ADC DOES NOT RULE OUT THE NEED FOR A UNIVERSAL SERVICE FUND, IT SIMPLY REDUCES ITS SIZE***
- **COST RECOVERY, COSTING METHODS AND FUNDING MECHANISMS ARE DISCUSSED IN DETAIL IN SUBSEQUENT PART OF THE PRESENTATION**

EXAMPLES

- THE TABLE BELOW PROVIDES EXAMPLES OF TREATMENT OF ACCESS DEFICIT AND USC IN SOME COUNTRIES:

COUNTRY	USC		ACCESS DEFICIT FUNDING
	UNIVERSAL SERVICE OBLIGATION	FUNDING	
AUSTRALIA	YES	EXPLICIT	INTERCONNECTION USAGE CHARGE AND UNIVERSAL SERVICE FUND
CANADA	YES	NONE*	SEPARATE CONTRIBUTION CHARGE AS PART OF INTERCONNECTION CHARGES
UK	YES	NONE	INTERCONNECT USAGE CHARGES WHICH REGULATOR CAN WAIVE
USA	YES	EXPLICIT	INTERCONNECT USAGE CHARGES AND UNIVERSAL SERVICE FUND

*IN CANADA, WITH RATE REBALANCING AND PRICE CAP REGIME THE CONTRIBUTION CHARGE HAS REDUCED FROM 6¢/MIN TO O.5¢/MIN. HOWEVER, HIGH COST SERVING AREA PROCEEDING IS UNDERWAY TO DETERMINE THE EXPLICIT USC FUNDING

ACCESS DEFICIT AND USC

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COST RECOVERY

- **UNIVERSAL SERVICE COSTS COULD BE RECOVERED AS A SURCHARGE ON INTERCONNECTION RATES**
- **ALTHOUGH THE EU INTERCONNECTION FRAMEWORK ALLOWS FOR SUCH A COST RECOVERY MECHANISM, IT HAS NOT BEEN USED**
- **FOR EXAMPLE, IN GERMANY, AUSTRALIA AND USA, THERE IS A SEPARATE FUND ESTABLISHED FOR RECOVERY OF USC WITH CONTRIBUTIONS MADE BY OPERATORS IN PROPORTION TO REVENUE**
- **TWO MAIN REASONS FOR SEPARATE RECOVERY OF USC ARE:**
  - ***TO MAXIMIZE ECONOMIC EFFICIENCY. ADDING A SURCHARGE TO INTERCONNECTION RATES WOULD DISTORT PRICE SIGNALS WHEN NEW ENTRANTS MAKE THEIR ENTRY DECISION ON WHETHER TO BUILD OR RENT FACILITIES***
  - ***FOR COMPETITIVE EQUITY. FUNDING OF USC IS ESSENTIALLY A SOCIAL TAX AND SHOULD RELATE TO AN OPERATOR'S ABILITY TO PAY AND NOT ON HIS RENT/BUILD DECISION***

ACCESS DEFICIT AND USC

USO & ACD

COST RECOVERY

- FOR RECOVERY OF ACCESS DEFICIT, THE TRADITIONAL APPROACH HAS BEEN THROUGH ACCESS DEFICIT CONTRIBUTION (ADC) ON A CHARGE PER MINUTE BASIS. HOWEVER IN SOME JURISDICTIONS CHARGE PER CIRCUIT OR LINE HAS ALSO BEEN USED

- IN CANADA, ADC FOR BOTH LINE SIDE AND TRUNK SIDE INTERCONNECTION WAS ON A PER LINE/TRUNK BASIS. HOWEVER, IN ESTABLISHING THE CHARGE, THE REGULATOR HAD USED AN ASSUMPTION OF TRAFFIC MINUTES/TRUNK WHICH WAS NOT VALID BASED ON THE ACTUAL TRAFFIC EXPERIENCE AFTER THE INTRODUCTION OF COMPETITION. ON THE PETITION BY INCUMBENTS THE REGULATOR CHANGED THE CHARGING ON PER MINUTE BASIS LEVIED ON ACTUAL MEASURED TRAFFIC

- IN CONTRAST IN USA, FCC WANTS LOCAL EXCHANGE CARRIERS TO SWITCH FROM A CHARGE PER MINUTE TO A MONTHLY CHARGE PER LINE. THE PER MINUTE CHARGE WAS LEVIED ON BOTH CALL ORIGINATION AND TERMINATION WHEREAS THE PER LINE CHARGE WOULD APPLY TO CALL ORIGINATION ONLY

ACCESS DEFICIT AND USC

USO & ACD

COST RECOVERY (CONT'D)

- **THIS CHARGE IS DESIGNED TO INCREASE ECONOMIC EFFICIENCY. UNDER THE PER MINUTE CHARGING SYSTEM, LONG DISTANCE OPERATORS BUILT ACCESS NETWORKS TO HIGH VOLUME CUSTOMERS TO MINIMIZE ADC CHARGES WHICH RESULTED IN LESS REVENUES TO THE LOCAL EXCHANGE CARRIERS AND INEFFICIENT BYPASS FACILITIES WHICH COULD HAVE BEEN PROVIDED BY THE INCUMBENT LOCAL CARRIER AT A LOWER COST**

- **WHERE ADC CHARGES ARE USED, THEY FORM A SUBSTANTIAL PORTION OF THE TOTAL INTERCONNECTION CHARGES**

- **THERE IS A TREND AWAY FROM ADCs. BOTH UK AND SWEDEN HAVE ABANDONED THEM OVER THE PAST FOUR YEARS**

- **IN CANADA, ADC CHARGES HAVE REDUCED TO APPROXIMATELY 1/10TH OVER THE PAST FIVE YEARS DUE TO RATE REBALANCING AND INTRODUCTION OF PRICE CAP REGULATION**

ADC AND USO MARKET CONSIDERATIONS

USO & ACD

ADC IN DEVELOPED MARKETS

- **IN HIGH TELEDENSITY COUNTRIES WITH DEVELOPED MARKETS AND FULLY BUILT FIXED NETWORKS, ACCESS DEFICIT CONTRIBUTION SHOULD BE AVOIDED, IF POSSIBLE, BECAUSE IT LEADS TO ECONOMIC INEFFICIENCY AS THERE IS NO INCENTIVE FOR THE INCUMBENT TO BALANCE RATES**
- **TO ENSURE THAT RATE REBALANCING TAKES PLACE, HAVE SET TIME LIMITS**
- **IF NECESSARY FOR POLITICAL OR SOCIAL REASONS, HAVE SPECIFIC CRITERIA AND OBJECTIVES ESTABLISHED**
- **ACCESS DEFICIT CONTRIBUTION SHOULD BE AVAILABLE TO ALL FIXED LOCAL NETWORK OPERATORS**
- ***ADC SHOULD BE CALCULATED USING THE SAME COSTING METHODOLOGY AS USED FOR OTHER INTERCONNECTION CHARGES*, PREFERABLY CAUSAL INCREMENTAL COSTING WITH MARK UP FOR FIXED COMMON COSTS, WHERE APPLICABLE.**

ADC AND USO MARKET CONSIDERATIONS

BDT

USO & ACD

ADC IN DEVELOPING MARKET

IN LOW TELEDENSITY COUNTRIES WITH DEVELOPING MARKETS AND PARTIALLY BUILT FIXED NETWORKS, ACCESS DEFICIT CONTRIBUTION SHOULD:

- **BE ALLOWED BECAUSE THERE IS AN ECONOMIC CASE FOR CONTINUING TO SUBSIDIZE LINE RENTALS AS IT ALLOWS USERS TO JOIN THE NETWORK MORE QUICKLY WHICH ENCOURAGES NETWORK GROWTH, AND BY INCREASING CALL COMPLETION OPPORTUNITIES FOR EXISTING NETWORK USERS, IT INCREASES THE VALUE OF THE NETWORK TO THESE CUSTOMERS**

- **PROVIDE A CONTINUING SUBSIDY WHEN COMPETITION IN LONG DISTANCE MARKETS IS INTRODUCED. OTHERWISE THERE IS A DANGER THAT NEW ENTRANTS COULD "CREAM SKIM" THE PROFITS GENERATED BY LONG DISTANCE, THEREBY DAMAGING THE ABILITY OF INCUMBENT OPERATORS TO CONTINUE NETWORK BUILD**

USO IN DEVELOPED MARKETS

IN HIGH TELEDENSITY COUNTRIES WITH DEVELOPED MARKETS, UNIVERSAL SERVICE OBLIGATION:

- **REQUIRES THE INCUMBENT OPERATOR TO PROVIDE SERVICES TO EVERYONE, WHEREVER THEY ARE LOCATED, AT AFFORDABLE AND GEOGRAPHICALLY AVERAGED PRICE**
- **REQUIRES A SUBSIDY TO MEET THIS OBLIGATION TO WHICH ALL OPERATORS CONTRIBUTE IN PROPORTION TO THEIR ABILITY TO PAY**

USO IN DEVELOPING MARKETS

IN LOW TELEDENSITY COUNTRIES WITH DEVELOPING MARKETS, UNIVERSAL SERVICE OBLIGATION:

- **SHOULD NOT BE IMPOSED ON THE INCUMBENT AS IT IS COUNTER PRODUCTIVE**
  - ***LEADS TO INEFFICIENT NETWORK BUILD BECAUSE IN PROVIDING SERVICE TO ANYONE AT AFFORDABLE PRICE IN AN UNSERVED AREA, ECONOMIES OF SCALE THAT CAN BE GAINED FROM HIGH LINE DENSITIES IS LOST***

ADC AND USO MARKET CONSIDERATIONS

BDT

USO & ACD

USO IN DEVELOPING MARKETS (CONT'D)

- *TEMPTS THE INCUMBENT TO DEMAND INAPPROPRIATE FUNDING FOR ITS LONG TERM NETWORK BUILD*

- *ENCOURAGES THE INCUMBENT TO MAKE INEFFICIENT INVESTMENT DECISIONS TO GAIN SUBSIDIES RATHER THAN TO MAXIMIZE LONG TERM PROFITS*

COSTING APPROACH

USO & ACD

IN DEVELOPING COST-BASED CHARGES FOR INTERCONNECTION, ACCESS DEFICIT OR USO, THERE ARE THREE POSSIBLE APPROACHES:

- **TOP DOWN WHICH USES SYSTEMS OF ACCOUNTS OF THE OPERATOR**
- **BOTTOM UP WHICH USES COST ELEMENTS DEVELOPED FROM NETWORK MODEL**
- **BENCHMARKING WHICH IS BASED ON COMPARISON OF REAL-WORLD COSTS AND ESTABLISHING AN INTERNATIONAL BENCHMARK**

TYPES OF COSTS

USO & ACD

THE TYPES OF COSTING ELEMENTS WHICH ARE CONSIDERED IN DEVELOPING COST BASED CHARGES ARE:

- **FULLY ALLOCATED COSTS WHERE FIXED AND COMMON COSTS ARE ALLOCATED TO NETWORK OR SERVICE ELEMENTS BEING COSTED; WHEREAS IN INCREMENTAL COSTS THESE ARE EXCLUDED AND DEALT WITH THROUGH THE USE OF A MARK UP**
- **HISTORICAL COSTS USING THE SYSTEM OF ACCOUNTS; WHEREAS FORWARD LOOKING USE CURRENT COSTS OF GROWTH TECHNOLOGY, EFFICIENT DESIGN AND ECONOMIC LIFE FOR DEPRECIATION**
- **ACTUAL COSTS AS AN EFFICIENT OPERATOR OR ENGINEERING MODEL OF NETWORK ARCHITECTURE, EQUIPMENT AND FACILITIES**
- **MARK UP AND ITS METHOD OF DETERMINATION**
- **RATE OF RETURN ON CAPITAL REFLECTING DEBT/EQUITY RATIO AND RISK FACTOR; ESTABLISHED BY THE REGULATOR**

COSTING-THE CANADIAN EXPERIENCE

USO & ACD

FOR ILLUSTRATING THE CALCULATION OF COSTS FOR UNIVERSAL SERVICE, TWO EXAMPLES BASED ON CANADIAN EXPERIENCE WILL BE DISCUSSED

CONTRIBUTION

- **THE FIRST EXAMPLE ILLUSTRATES THE COSTING APPROACH AND METHODOLOGY USED OT DEVELOP CONTRIBUTION CHARGE WHICH USES:**
  - ***TOP DOWN APPROACH***
  - ***HISTORICAL COSTS USING SYSTEMS OF ACCOUNTS***
  - ***FULLY DISTRIBUTED FIXED AND COMMON COSTS***

HIGH COST SERVING AREA (HCSA) SUBSIDY

- **THIS IS THE SECOND EXAMPLE WHICH ILLUSTRATES THE COSTING APPROACH AND METHODOLOGY USED TO DEVELOP THE SUBSIDY REQUIREMENT TO PROVIDE RESIDENTIAL LOCAL SERVICE TO HIGH COST SERVING AREA:**
  - ***BOTTOM UP APPROACH***
  - ***INCREMENTAL COSTS***
  - ***FORWARD LOOKING GROWTH ROUTE GROWTH TECHNOLOGY***
  - ***NETWORK COST MODEL***
  - ***MARK UP***

CONTRIBUTION COSTING

USO & ACD

CANADIAN CONTEXT

- **CANADA IS HIGH TELEDENSITY (63) COUNTRY WITH A DEVELOPED COMPETITIVE MARKET AND VERY HIGH HOUSEHOLD PENETRATION**
- **HAS UNIVERSAL SERVICE OBLIGATIONS BUT NO SEPARATE OR EXPLICIT USO FUNDING**
- **TRADITIONALLY, IN ORDER TO FOSTER UNIVERSAL AND AFFORDABLE BASIC TELEPHONE SERVICE:**
  - ***LOCAL SERVICE RATES ARE EITHER BELOW OR CLOSE TO COSTS, NOT FULLY BALANCED AND ARE GEOGRAPHICALLY AVERAGED***
  - ***LONG DISTANCE RATES ARE PRICED ABOVE COST***
  - ***LONG DISTANCE SERVICES ARE USED TO SUBSIDIZE LOCAL SERVICE SHORTFALL I.E. THERE IS ACCESS DEFICIT***
- **CONTRIBUTION IS AN EXPLICIT CHARGE TO BE PAID BY COMPETITIVE VOICE LONG DISTANCE SERVICES TO MITIGATE ACCESS DEFICIT AND KEEP LOCAL RATES AFFORDABLE**
- **THE ADC IS THE DIFFERENCE BETWEEN COSTS AND REVENUES OF PROVIDING LOCAL SERVICE WHICH INCLUDE HIGHLY PROFITABLE OPTIONAL LOCAL SERVICES SUCH AS CALL WAITING, VOICE MAIL ETC**

CONTRIBUTION COSTING

USO & ACD

CANADIAN CONTEXT (CONT'D)

- **PROFIT MARGINS OF THESE OPTIONAL LOCAL SERVICES PROVIDE AN IMPLICIT SUBSIDY AND HELP TO REDUCE THE ADC**
- **CONTRIBUTION CHARGE PER SE DOES NOT INCLUDE ANY PROFIT**
- **COSTING METHODOLOGY IS AS PER PROCEDURES APPROVED BY THE REGULATOR, CANADIAN RADIO TELEVISION COMMISSION (CRTC) AND DEALS WITH HISTORICAL EMBEDDED COSTS AND IS REFERRED TO AS PHASE III COSTING**
- **CONTRIBUTION CHARGES ARE UPDATED EVERY YEAR TO BE EFFECTIVE IN APRIL AND ARE BASED ON THE ACCOUNTING INFORMATION OF THE PREVIOUS YEAR**

CONTRIBUTION COSTING PROCEDURE

USO & ACD

CONTRIBUTION REQUIREMENT

STEP 1 DETERMINE EXPENSES FOR ALL LOCAL SERVICES INCLUDING OPTIONAL
LOCAL SERVICES FROM SYSTEM OF ACCOUNTS

STEP 2 DETERMINE REVENUES FOR ALL LOCAL SERVICES INCLUDING OPTIONAL
SERVICES FROM SYSTEM OF ACCOUNTS

STEP 3 MAKE ADJUSTMENTS FOR:

A. WIDE AREA TELEPHONE SERVICE (WATS) REVENUE RECLASSIFICATION
B. COMMON COSTS AND PLANT UNDER CONSTRUCTION (PUC)
C. SETTLEMENT

STEP 4 DETERMINE LEVEL OF CONTRIBUTION REQUIRED AS (1 - 2 - 3A - 3B - 3C)

CONTRIBUTION COSTING PROCEDURE

USO & ACD

LONG DISTANCE MINUTES CALCULATION

STEP 5 DETERMINE THE TOTAL FORECASTED ORIGINATING AND TERMINATING SWITCHED LONG DISTANCE MINUTES OF THE INCUMBENTS

STEP 6 DETERMINE THE TOTAL FORECASTED ORIGINATING AND TERMINATING SWITCHED LONG DISTANCE MINUTES OF THE NEW ENTRANTS, BOTH FACILITIES-BASED AND RESELLERS

STEP 7 FOR NON-SWITCHED ACCESS USING DEDICATED ACCESS LINES (DALS), ESTABLISH THE DAL LOADING FACTOR. THIS FACTOR CONVERTS ENTRANTS SWITCHED MINUTES TO TOTAL SWITCHED AND NON-SWITCHED MINUTES.

STEP 8 ADJUSTED ENTRANTS TOTAL MINUTES IS (6 X 7)

STEP 9 ESTABLISH THE FACTOR USED TO ESTIMATE THE STIMULATED TOLL MINUTES RESULTING FROM THE ENTRANTS EXPECTED PRICE DISCOUNTS

STEP 10 CALCULATE ENTRANTS TOTAL SWITCHED AND NON-SWITCHED STIMULATED MINUTES AS (8 X 9)

STEP 11 DETERMINE TOTAL MARKET (INCUMBENT AND ENTRANTS) SWITCHED AND NON-SWITCHED WITH ENTRANTS STIMULATED MINUTES AS (5 + 8 - 10)

CONTRIBUTION COSTING PROCEDURE

USO & ACD

STEP 12 LEVEL OF CONTRIBUTION PER MINUTE PER ORIGINATING OR TERMINATING END BEFORE MULTIPLICATIVE ADJUSTMENT IS CALCULATED AS (4/11)

MULTIPLICATIVE ADJUSTMENTS

STEP 13 MAKE MULTIPLICATIVE ADJUSTMENTS FOR:

A. GROSS RECEIPT TAX
B. DAL SURCHARGE
C. CONTRIBUTION DISCOUNT
D. STIMULATED MINUTES DISCOUNT

STEP 14 NET CONTRIBUITON PER MINUTE PER ORIGINATING AND TERMINATING END IS (12 X 13A X 13B X 13 C X 13 D)

NET CONTRIBUTION PER MINUTE IN STEP 14 IS CONVERTED TO CONTRIBUT ION PER TRUNK BY USING A FACTOR OF MINUTES/TRUNK

HCSA SUBSIDY COSTING

USO & ACD

THIS SECOND EXAMPLE ILLUSTRATES THE COSTING APPROACH AND METHODOLOGY USED TO DETERMINE THE SUBSIDY REQUIREMENT FOR RESIDENTIAL LOCAL SERVICE TO HIGH COST SERVING AREAS (HCSA) IN THE CANADIAN CONTEXT

CANADIAN CONTEXT

- **IN CANADA WITH RATE REBALANCING AND PRICE CAP REGULATION, ADC REQUIREMENT HAS REDUCED CONSIDERABLY**
- **HOWEVER, THE CONTRIBUTION CHARGE INCLUDED IMPLICIT USO SUBSIDY FOR SERVING RESIDENTIAL CUSTOMERS IN HIGH COST SERVING AREAS BASED ON GEOGRAPHICALLY AVERAGED RATES**
- **HCSA SUBSIDY IS AN EXPLICIT USO SUBSIDY TARGETED TO RESIDENTIAL CUSTOMERS IN HIGH COST SERVING AREAS**
- **THE HIGH COST SERVING AREAS HAVE BEEN IDENTIFIED IN VARIOUS BANDS BASED ON DEMOGRAPHIC DATA FROM CENSUS CANADA INDICATING POPULATION DENSITY**

HCSA SUBSIDY COSTING

USO & ACD

- **THE SUBSIDY REGIME IS TO ENSURE THAT RESIDENTIAL SERVICE CONTINUES TO BE PROVIDED AT RATES BELOW COSTS**
- **SUBSIDY REGIME SHOULD BE SUCH AS TO:**
  - ***CREATE MINIMUM DISTORTION OF MARKET INCENTIVES***
  - ***BE COMPETITIVELY AND TECHNOLOGICALLY NEUTRAL***
- **TO ENSURE THAT MARKET DISTORTIONS AND ECONOMIC INEFFICIENCIES INHERENT IN ANY SUBSIDY SYSTEM ARE MINIMIZED, THE AMOUNT OF THE EXPLICIT HCSA SUBSIDY SHOULD BE KEPT AS LOW AS POSSIBLE**
- **AMOUNT OF EXPLICIT HCSA SUBSIDY IS MADE LOWER BY INCLUDING TARGET IMPLICIT SUBSIDIES GENERATED BY OTHER LOCAL SERVICES, PARTICULARLY BY HIGH MARGIN LOCAL OPTIONAL SERVICES AND BUSINESS SERVICES**
- **BASING THE SUBSIDY ON FORWARD LOOKING INCREMENTAL COSTS RATHER THAN ON HISTORIC COSTS SUPPORTS COMPETITIVE AND TECHNOLOGICAL NEUTRALITY AND FOSTERS ECONOMICALLY EFFICIENT COMPETITIVE ENTRY**

HCSA SUBSIDY COSTING PROCEDURE

USO & ACD

- **STEP 1** DISAGGREGATE RESIDENTIAL SERVING AREAS SEPARATING HIGH COST FROM LOW COST AREAS AND CATEGORIZE THEM INTO SEPARATE BANDS
- **STEP 2** BASED ON DEMAND FORECAST OF RESIDENTIAL LINES, DETERMINE REVENUES OF BASIC RESIDENTIAL SERVICE FOR EACH BAND
- **STEP 3** CALCULATE THE COST PER RESIDENTIAL LINE OF PROVIDING BASIC SERVICE IN EACH BAND USING THE FORWARD LOOKING INCREMENTAL COSTING METHOD
- **STEP 4** ESTABLISH AN APPROPRIATE MARK UP FOR RECOVERY OF FIXED AND COMMON COSTS
- **STEP 5** ESTABLISH A FIXED TARGET AMOUNT FOR IMPLICIT SUBSIDY

HCSA SUBSIDY COSTING PROCEDURE

USO & ACD

STEP 6 CALCULATE THE HCSA SUBSIDY REQUIREMENT FOR A TERRITORY FOR A GIVEN YEAR USING THE FOLLOWING MATHEMATICAL RELATIONSHIP

$$\text{SUBSIDY REQUIREMENT} = ? \max_{i=a}^{n} \{0, s_i * (1.25 * c_i - r_i - t_i)\}$$

WHERE:

- THERE ARE n BANDS, a THROUGH n
- s_i IS THE ESTIMATED AVERAGE NUMBER OF BASIC RESIDENTIAL TELEPHONE LINES IN BAND i
- c_i IS THE ESTIMATED AVERAGE ANNUAL INCREMENTAL COST PER BASIC RESIDENTIAL TELEPHONE LINE IN BAND i
- r_i IS THE ESTIMATED AVERAGE ANNUAL RATE PER BASIC RESIDENTIAL TELEPHONE LINE IN BAND i
- t_i IS THE TARGET ANNUAL AMOUNT OF IMPLICIT SUBSIDY PER BASIC RESIDENTIAL TELEPHONE LINE IN BAND i
- 0 IS THE SUBSIDY REQUIREMENT IN ANY BAND WHERE THE CALCULATION INDICATES THAT EXPLICIT SUBSIDY IS NOT REQUIRED

UNIVERSAL SERVICE FUNDING

USO & ACD

- IN A MONOPOLY ENVIRONMENT, OBLIGATIONS OF UNIVERSAL SERVICE ARE EASY TO DEFINE, ARE UNDERTAKEN BY THE INCUMBENT OPERATOR AND DO NOT REQUIRE EXPLICIT FUNDING

- LIBERALIZATION OF THE TELECOMMUNICATIONS MARKET AND INTRODUCTION OF COMPETITIVE MULTI-OPERATOR ENVIRONMENT, NECESSITATE A TRANSPARENT, NON-DISCRIMINATORY AND NEUTRAL APPROACH TO BOTH DEFINITION OF UNIVERSAL OBLIGATIONS AND THEIR FUNDING

- COMPETITION INVOLVES MARKET ENTRY DECISIONS BASED ON POTENTIAL PROFIT. THUS, UNIVERSAL SERVICE CONSIDERATIONS SHOULD ADDRESS:
  - *EXTENT AND SCOPE OF SERVICES COVERED*
  - *DEFINITION OF AFFORDABILITY IN THE CONTEXT OF THE COUNTRY CONCERNED*
  - *TIME SCALE*
  - *MEANS OF DELIVERY*
  - *FUNDING*

FUNDING APPROACHES

USO & ACD

- **INVARIABLY, OBLIGATIONS ARE DEFINED AND THE OPERATOR(S) TO MEET THESE OBLIGATIONS OF UNIVERSAL SERVICE IDENTIFIED. HOWEVER, THERE IS NOT NECESSARILY A SEPARATE AND EXPLICIT UNIVERSAL SERVICE FUND ESTABLISHED IN ALL CASES. IN FACT, IN MANY CASES, THERE IS IMPLICIT FUNDING MECHANISM**

- **MECHANISM FOR IMPLICIT FUNDING OF UNIVERSAL SERVICE ARE**
  - ***CROSS SUBSIDIZATION***
  - ***ACCESS DEFICIT CONTRIBUTION***
  - ***LICENSING CONDITIONS***

- **SOURCES OF EXPLICIT FUNDING ARE:**
  - ***CARRIER CONTRIBUTIONS***
  - ***GOVERNMENT BUDGET***

FUNDING APPROACHES

USO & ACD

CROSS SUBSIDIZATION

- IN A MONOPOLY SITUATION, THE INCUMBENT OPERATOR IS REQUIRED TO MEET USO BY CROSS SUBSIDIZING THE LOSSES INVOLVED FROM REVENUES ACCRUING FROM MORE PROFITABLE SERVICES, CUSTOMERS AND REGIONS
- IN A COMPETITIVE ENVIRONMENT, CROSS SUBSIDIES ARE INCREASINGLY UNSUSTAINABLE, SINCE NEW MARKET ENTRANTS TYPICALLY TARGET THE PROFITABLE MARKET SEGMENTS TRADITIONALLY USED TO SUBSIDIZE RESIDENTIAL SERVICE
- HOWEVER, THIS APPROACH, WHERE THE INCUMBENT CONTINUES TO BEAR THE FULL COST OF USO,MAY BE SUSTAINED IN THE SHORT TERM AS A TRANSITIONAL MEASURE OR WHERE THE EXTENT AND COST OF THE USO IS MINOR
- WHERE CROSS-SUBSIDIZATION IS USED IN A MULTI-OPERATOR ENVIRONMENT, THE REGULATOR DESIGNATES THE INCUMBENT, THE DOMINANT OPERATOR, AS HAVING USO, ESTABLISHES GUIDELINES FOR BASIC LOCAL SERVICE TARIFFS AND LEAVES IT TO THE OPERATOR TO ESTABLISH INTERNAL SUBSIDIES
- EXAMPLES ARE BT AND TELIA IN UK AND SWEDEN WHERE ADC WAS THE INITIAL FUNDING MECHANISM BUT WAS SUBSEQUENTLY REPLACED BY CROSS-SUBSIDIZATION

FUNDING APPROACHES

USO & ACD

ACCESS DEFICIT CONTRIBUTION

- **TRADITIONALLY, IN ORDER TO FOSTER UNIVERSAL AND AFFORDABLE BASIC LOCAL SERVICE:**
  - ***LOCAL SERVICE RATES ARE EITHER BELOW OR CLOSE TO COSTS***
  - ***LONG DISTANCE RATES ARE PRICED ABOVE COST***
  - ***LONG DISTANCE SERVICES ARE USED TO SUBSIDIZE LOCAL SERVICE SHORTFALL***
- **ACCESS DEFICIT CONTRIBUTION IS AN EXPLICIT CHARGE TO BE PAID BY PROVIDERS OF COMPETITIVE VOICE LONG DISTANCE SERVICE TO MITIGATE LOCAL SERVICE SHORT FALL**
- **TO ENSURE COMPETITIVE EQUITY AND MAXIMIZE ECONOMIC EFFICIENCY, THE CHARGE FOR ADC SHOULD BE SEPARATE AND NOT INCLUDED AS A SURCHARGE ON INTERCONNECTION RATES**
- **ADCS TRADITIONALLY, ARE CHARGED ON A PER MINUTE BASIS; HOWEVER IN SOME JURISDICTIONS CHARGE PER CIRCUIT OR LINE HAS ALSO BEEN USED**
- **WHERE ADCS ARE USED, THEY FORM A SUBSTANTIAL PROPORTION OF THE TOTAL INTERCONNECTION CHARGES, ABOUT 40-60%**
- **AUSTRALIA, NEW ZEALAND, CANADA AND USA HAVE ADC CHARGES**

FUNDING APPROACHES

USO & ACD

LICENSING CONDITIONS

- IN A NUMBER OF LOW TELEDENSITY COUNTRIES IN DEVELOPING MARKETS, FUNDING OF THE INFRASTRUCTURE BEYOND THE MAJOR CITIES AND REGIONAL CENTRES, HAS BEEN SECURED THROUGH SPECIFIC CONDITIONS STIPULATED IN THE GRANTING OF PROFITABLE LICENSES TO THE MARKET ENTRANTS
- IN INDIA, THE LICENSE CONDITIONS FOR PRIVATE OPERATORS REQUIRED THEM TO INSTALL A CERTAIN NUMBER OF VILLAGE PUBLIC TELEPHONES EVERY YEAR AS A CERTAIN PERCENTAGE OF MAIN EXCHANGE LINES ACCORDING TO A SPECIFIED ROLL-OUT PLAN IN DESIGNATED AREAS
- IN THE PHILIPPINES, CARRIERS AS A CONDITION OF RECEIVING AN INTERNATIONAL GATEWAY OR CELLULAR MOBILE SERVICE LICENSE, WERE TO PROVIDE SERVICES TO HIGH COST AREAS AND TO MATCH THESE WITH LOW COST AREAS WITH SPECIFIED INSTALLED LINE TARGETS
- IN INDONESIA, UNDER A BUILD/TRANSFER ARRANGEMENT, TELECOMMUNICATION EQUIPMENT VENDORS WERE AWARDED CONTRACTS AND ALLOWED TO KEEP 70% OF OPERATING PROFITS ON THE CONDITION THAT INSTALLED LINE CAPACITIES MET THEIR TARGETS IN SPECIFIED REGIONS

FUNDING APPROACHES

USO & ACD

EXPLICIT USO FUND

- **EXPLICIT FUND TO MEET UNIVERSAL SERVICE OBLIGATIONS CAN BE ESTABLISHED THROUGH CONTRIBUTIONS BY CARRIERS:**
  - ***IN PROPORTION TO THEIR SHARE OF RELEVANT REVENUES OR SOME OTHER BASIS REFLECTING THEIR SHARE OF UNIVERSAL SERVICE BENEFIT, E.G. NUMBER OF RESIDENTIAL LINES IN A HIGH COST SERVING AREA***
  - ***INVOLVING THE EXCHANGE OF PAYMENTS BETWEEN CARRIERS ON THE SAME BASIS AS ABOVE, I.E. CREATION OF A VIRTUAL FUND***
  - ***IMPOSITION OF A SEPARATE CHARGE COMPONENT TO REFLECT USO COSTS SUCH AS SUBSCRIBER LINE CHARGE***
- **AUSTRALIA AND THE US HAVE EXPLICIT UNIVERSAL SERVICE FUNDS. THESE ARE TWO BIG COUNTRIES WITH THE GREATEST PROBLEMS IN SERVING LOW DENSITY POPULATION**

FUNDING APPROACHES

USO & ACD

EXPLICIT USO FUND (CONT'D)

- **IN AUSTRALIA, THE UNIVERSAL SERVICE FUND SUBSIDIZES THOSE HIGH COST SERVICE AREAS WHERE THE COST AVOIDED IN NOT SERVING THE AREA IS GREATER THAN THE REVENUE FOREGONE IN NOT SERVING THE SERVICE AREAS WHEN THE PRICE IS SET TO THE BENCHMARK OF AFFORDABILITY**
- **CARRIERS CONTRIBUTE TO THE FUND IN PROPORTION TO ELIGIBLE REVENUES WHICH INCLUDE REVENUES FROM CONNECTIONS, LINE RENTALS, CALL CHARGES, LEASED CIRCUITS AND INTERCONNECTION CHARGES**
- **IN USA, PURSUANT TO THE 1996 TELECOMMUNICATIONS ACT, THE EXPLICIT USO SUBSIDY FUND IS TO SERVICE HIGH COST SERVING AREAS. IT IS TO BE DETERMINED USING:**
  - ***FORWARD LOOKING INCREMENTAL COST MODEL***
  - ***BENCHMARK AMOUNT TO REPRESENT AFFORDABLE PRICE FOR BASIC SERVICE BASED ON NATIONWIDE REVENUE PER LINE FOR LOCAL SERVICE***
  - ***THE CRITERION THAT FUNDING ONLY WHEN THE COST EXCEEDS THE BENCHMARK***

FUNDING APPROACHES

USO & ACD

EXPLICIT USO FUNDING (CONT'D)

- **IN ADDITION TO USO FOR HIGH COST SERVING AREA, THERE SHOULD BE UNIVERSAL SERVICE FUNDING FOR:**
  - ***SUPPORT FOR SCHOOL, LIBRARIES AND RURAL HEALTH CARE BASED ON INTERSTATE AND INTRASTATE REVENUES***
  - ***LOW INCOME CONSUMERS (LIFELINE AND LINK-UP PROGRAMS) BASED ON INTERSTATE REVENUES***
- **IN ADDITION TO IX CARRIERS, ALL OTHER CARRIERS PROVIDING INTERSTATE SERVICES CONTRIBUTE TO THE UNIVERSAL FUND**
- **IN CANADA WITH RATE REBALANCING AND PRICE CAP REGIME, PRICE DISTORTION DUE TO UNBALANCED BASIC LOCAL SERVICE RATES HAS BEEN SIGNIFICANTLY REDUCED, IF NOT TOTALLY ELIMINATED. THUS ADC REQUIREMENT HAS REDUCED CONSIDERABLY. HOWEVER, PRICE DISTORTION DUE TO GEOGRAPHIC AVERAGING STILL REMAINS, PARTICULARLY IN HIGH COST SERVICE AREAS**
- **EXPLICIT USO FUND TARGETED TO RESIDENTIAL CUSTOMERS IN HIGH COST SERVING AREAS IS REQUIRED AND PROCEEDING HAS BEEN COMPLETED AND IS PENDING A DECISION BY THE REGULATOR**

FUNDING APPROACHES

USO & ACD

EXPLICIT USO FUND (CONT'D)

- AN ALTERNATIVE TO CARRIERS BEING THE SOURCE OF UNIVERSAL SERVICE FUNDING IS FUNDING PROVIDED BY THE GOVERNMENT
- IN POLAND, WHERE THIRTY FIVE PERCENT OF THE POPULATION IS RURAL, FUNDING FROM THE STATE BUDGET, PROVIDED FOR INSTALLATION OF AT LEAST ONE TELEPHONE LINE PER LOCALITY IN OVER 7885 LOCALITIES BETWEEN 1992 AND 1996
- THE GOVERNMENT IN CHILE SET UP A SPECIAL TELECOMMUNICATIONS DEVELOPMENT FUND FINANCED FROM THE NATIONAL BUDGET TO INCREASE ACCESS TO PUBLIC TELEPHONE IN RURAL AND LOW-INCOME URBAN AREAS
- 1285 LOCALITIES REQUIRING SUBSIDY FUNDING WERE IDENTIFIED FOR COMPETITIVE BIDDING AND AWARDED TO THE BIDDER SEEKING THE LEAST LEVEL OF SUBSIDY WITH A CEILING SET BY THE REGULATOR BASED ON ITS COST-BENEFIT ANALYSIS FOR THE LOCALITY
- LICENSEES HAD ALSO THE DISCRETION TO SET CALL CHARGES UP TO MAXIMUM OF 7¢/MINUTE WHICH WAS 2¢ PER MINUTE ABOVE AN EQUIVALENT CALL RATE IN URBAN LOCATIONS

FUND MANAGEMENT

USO & ACD

- **UNIVERSAL SERVICE FUND MAY BE:**
  - ***ADMINISTERED BY THE REGULATOR***
  - ***MANAGED BY AN INDEPENDENT THIRD PARTY APPOINTED FOR THAT PURPOSE***
- **CRITERION FOR MAKING THE CHOICE IS THE MOST COST-EFFECTIVE METHOD FOR IMPLEMENTING A TRANSPARENT FUNDING MECHANISM WHEREBY THE CONTRIBUTORY PARTIES ARE ASSURED AND HAVE CONFIDENCE THAT THE SYSTEM IS BEING ADMINISTERED IN AN OPEN AND FAIR MANNER**
- **IF THE NUMBER OF OPERATORS IS NOT TOO LARGE, THEN IT MAY BE MORE COST EFFECTIVE FOR THE REGULATOR TO ADMINISTER THE UNIVERSAL SERVICE FUND**
- **THE REASONS ARE THAT:**
  - ***THE REGULATOR IS ALREADY OVERSEEING THE OPERATION OF THE COMPETITIVE ENVIRONMENT AND THE DOMINANT INCUMBENT OPERATOR, WHICH IS NORMALLY THE MAJOR UNIVERSAL SERVICE PROVIDER, IF NOT THE ONLY ONE***
  - ***THE REGULATOR HAS NO BUSINESS INTERESTS***

FUND MANAGEMENT

USO & ACD

- WHEN THE NUMBER OF OPERATORS INVOLVED BECOMES LARGE, IT WOULD BE MORE COST EFFECTIVE FOR THE FUND MANAGEMENT TO BE CARRIED OUT BY AN INDEPENDENT THIRD PARTY
- THE INDEPENDENT ADMINISTRATOR COULD BE SELECTED BY THE CONSENSUS OF THE INDUSTRY PARTICIPANTS AND MANAGE THE UNIVERSAL FUND ACCORDING TO THE GUIDELINES AND DIRECTIVE OF THE REGULATOR
- IN CANADA, THE REGULATOR REQUESTED THE INDUSTRY PARTICIPANTS THROUGH THEIR INDUSTRY FORUM TO MAKE RECOMMENDATIONS REGARDING THE APPROPRIATE PROCEDURES FOR SELECTING THE THIRD PARTY ADMINISTRATOR AND FOR ESTABLISHING AND ADMINISTERING THE FUND
- IN ORDER TO ENSURE THAT THE START OF LOCAL COMPETITION, EFFECTIVE JANUARY 1, 1998, IS NOT DELAYED, THE REGULATOR APPOINTED ON AN INTERIM BASIS, THE ILECS TO ACT AS THE CENTRAL FUNDS ADMINISTRATOR
- AS OF 1999, AN INDEPENDENT THIRD PARTY FUNDS ADMINISTRATOR HAS BEEN APPOINTED AND IS AN OPERATION

SUMMARY

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DEVELOPED AND DEVELOPING MARKETS

- **EVOLUTION OF COMPETITION IN HIGH TELEDENSITY DEVELOPED MARKETS IS DIFFERENT FROM LOW TELEDENSITY DEVELOPING MARKETS; POLICY AND REGULATIONS SHOULD REFLECT CONSIDERATIONS SPECIFIC TO EACH MARKET**
- **TELECOMMUNICATIONS POLICY NEEDS TO SET APPROPRIATE AND DIFFERENT UNIVERSAL SERVICE OBJECTIVES IN THESE TWO MARKETS**
- **IN DEVELOPED MARKETS THE UNIVERSAL SERVICE OBJECTIVE IS BASIC TELEPHONE SERVICE BEING AVAILABLE, ACCESSIBLE AND AFFORDABLE TO ALL**
- **IN CONTRAST IN DEVELOPING MARKETS, WITH LOW NETWORK PENETRATION, LOW GDP PER HEAD AND INADEQUATE NETWORK INFRASTRUCTURE, THE OBJECTIVE SHOULD BE UNIVERSAL ACCESS TO ALL RATHER THAN INDIVIDUAL TELEPHONE SERVICE TO ALL**

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- **UNIVERSAL SERVICE IN DEVELOPED MARKETS IS ESSENTIALLY A MAINTENANCE POLICY ASSOCIATED WITH AFFORDABILITY AND THE NEEDS OF THE ECONOMICALLY AND GEOGRAPHICALLY DISADVANTAGED**
- **IN DEVELOPING MARKETS, UNIVERSAL SERVICE IS A FUNDAMENTAL POLICY CONCERN ASSOCIATED WITH EXTENDING AND INCREASING NETWORK AND SERVICE INFRASTRUCTURE TO OFFER BASIC TELEPHONY SERVICES TO SUBSTANTIAL SECTIONS OF THE POPULATION**
- **THE FOCUS ON ENCHANCING UNIVERSAL ACCESS IN DEVELOPING MARKETS RESULTS IN POLICY PERSPECTIVES ORIENTED TOWARDS:**
  - ***STRATEGIES FOR NETWORK BUILD TO ENCOURAGE PROGRESS TOWARDS HIGHER STAGE OF UNIVERSAL SERVICE***
  - ***SHARED ACCESS INITIATIVES FOR THOSE WITHOUT INDIVIDUAL TELEPHONES***

<u>USO, ACCESS DEFICIT AND USC</u>

- **THE CONCEPTS OF AVAILABILITY, ACCESSIBILITY AND AFFORDABILITY ASSOCIATED WITH UNIVERSAL SERVICE RESULT IN PRICE DISTORTIONS WHEREBY THE PRICE OF TELEPHONE SERVICE FAILS TO REFLECT THE COST OF PROVISION BECAUSE:**
  - ***PRICES ARE GEOGRAPHICALLY AVERAGED***
  - ***PRICES ARE UNBALANCED AND NOT COMPENSATORY IN ALL CASES***

USO & ACD

- **THESE PRICE DISTORTIONS GIVE RISE TO TWO TYPES OF COSTS:**
  - ***USC:***
    - » **UNIVERSAL SERVICE COSTS FOR MEETING UNIVERSAL SERVICE OBLIGATION (USO)**
  - ***ACCESS DEFICIT***
    - » **SHORTFALL DUE TO THE REVENUES FROM BASIC TELEPHONY SERVICES NOT RECOVERING THE COSTS OF PROVIDING THESE SERVICES**
- **THERE IS A STRONG INTERRELATIONSHIP BETWEEN ACCESS DEFICIT AND USC**
- **USC AND ACCESS DEFICIT SHOULD BE TREATED AS A PACKAGE TO AVOID DOUBLE COUNTING**
- **USC SHOULD BE RECOVERED THROUGH A SEPARATE CHARGE AND NOT AS SURCHARGE ON INTERCONNECTION RATES**

- **TWO MAIN REASONS FOR RECOVERY OF USC AS A SEPARATE CHARGE ARE:**
  - ***TO MAXIMIZE ECONOMIC EFFICIENCY. ADDING A SURCHARGE TO INTERCONNECTION RATES WOULD DISTORT PRICE SIGNALS WHEN NEW ENTRANTS MAKE THEIR ENTRY DECISION WHETHER TO BUILD OR RENT FACILITIES***
  - ***FOR COMPETITIVE EQUITY. FUNDING OF USC IS ESSENTIALLY A SOCIAL TAX AND SHOULD RELATE TO AN OPERATOR'S ABILITY TO PAY AND NOT ON HIS RENT/BUILD DECISION***
- **TRADITIONAL APPROACH FOR RECOVERY OF ACCESS DEFICIT IS THROUGH ACCESS DEFICIT CONTRIBUTION (ADC) ON CHARGE PER MINUTE BASIS. IN SOME JURISDICTIONS CHARGE PER CIRCUIT OR LINE HAS ALSO BEEN USED**

USO & ACD

- **IN HIGH TELEDENSITY COUNTRIES WITH DEVELOPED MARKETS AND FULLY BUILT FIXED NETWORKS, ACCESS DEFICIT CONTRIBUTION SHOULD BE AVOIDED, IF POSSIBLE, BECAUSE IT LEADS TO ECONOMIC INEFFICIENCY AS THERE IS NO INCENTIVE FOR THE INCUMBENT TO BALANCE RATES**
- **TO ENSURE THAT RATE REBALANCING TAKES PLACE, HAVE SET TIME LIMITS**
- **IF NECESSARY FOR POLITICAL OR SOCIAL REASONS, HAVE SPECIFIC CRITERIA AND OBJECTIVES ESTABLISHED**
- **ADC SHOULD BE AVAILABLE TO ALL FIXED LOCAL NETWORK OPERATORS**
- **ADC SHOULD BE CALCULATED USING THE SAME COSTING METHODOLOGY AS USED FOR OTHER INTERCONNECTION CHARGES, PREFERABLY CAUSAL INCREMENTAL COSTING WITH MARK UP FOR FIXED COMMON COSTS**

USO & ACD

- **IN DEVELOPING MARKETS WITH PARTIALLY BUILT FIXED NETWORKS, ADC IS JUSTIFIED**
  - ***TO ALLOW FOR SUBSIDIZED LINE RENTALS***
  - ***TO PREVENT "CREAM SKIMMING" BY NEW ENTRANTS IN THE LONG DISTANCE MARKET***
- **USO IN DEVELOPED MARKETS REQUIRES THE INCUMBENT TO PROVIDE SERVICES TO EVERYONE WHEREVER THEY ARE LOCATED, AT AFFORDABLE AND GEOGRAPHICALLY AVERAGED PRICE**
- **USO SHOULD NOT BE IMPOSED ON THE INCUMBENT IN DEVELOPING MARKETS AS IT IS COUNTER PRODUCTIVE**

COSTING APPROACH

- **IN DEVELOPING COST-BASED CHARGES FOR ACCESS DEFICIT OR USO, THERE ARE THREE APPROACHES:**
  - ***TOP DOWN USING SYSTEM OF ACCOUNTS***
  - ***BOTTOM UP USING NETWORK MODEL COST ELEMENTS***
  - ***BENCHMARKING USING REAL WORLD COST COMPARISONS***

USO & ACD

- **COST ELEMENTS IN DEVELOPING COST BASED CHARGES ARE:**
  - ***FULLY ALLOCATED OR INCREMENTAL***
  - ***HISTORICAL OR FORWARD LOOKING***
  - ***ACTUAL COSTS OR NETWORK MODEL COSTS***
  - ***MARK-UP***
  - ***RATE OF RETURN ON CAPITAL***
- **FOR ILLUSTRATING IN DETAIL THE CALCULATION OF COSTS FOR UNIVERSAL SERVICE, TWO EXAMPLES BASED ON CANADIAN EXPERIENCE HAVE BEEN DISCUSSED**
  - ***CONTRIBUTION (ADC), TOP DOWN APPROACH, FULLY ALLOCATED HISTORICAL COSTS***
  - ***HIGH COST SERVING AREA SUBSIDY, BOTTOM UP APPROACH, FORWARD LOOKING NETWORK MODEL COSTS WITH MARK-UP***

FUNDING MECHANISM AND MANAGEMENT

- **FUNDING MECHANISMS FOR UNIVERSAL SERVICE MAY BE**
  - ***IMPLICIT***
  - ***EXPLICIT***

- **MECHANISM FOR <u>IMPLICIT FUNDING</u> ARE:**
  - ***CROSS SUBSIDIZATION***
  - ***ACCESS DEFICIT CONTRIBUTION***
  - ***LICENSING CONDITIONS***

- **SOURCES OF <u>EXPLICIT FUNDING</u> ARE:**
  - ***CARRIER CONTRIBUTIONS***
  - ***GOVERNMENT BUDGET***

- **UNIVERSAL SERVICE FUND MAY BE ADMINISTERED BY:**
  - ***THE REGULATOR***
  - ***INDEPENDENT THIRD PARTY ADMINISTRATOR***