

10. Anexos

10.1 Apendice 1. Listado de los modelos en c++ utilizados en la presente tesis

10.1.1 MODELO DE SEGUNDO NIVEL: CÁLCULO DE LAS EMISIONES NETAS

```

/*****
*
* model.cpp :
*
* Global emissions model using Kaya Identity and Cline's
*
* Created: Maig 08, 2001 by J.J. de Felipe
* Remodified: June 01, 2001 by J.J. de Felipe
* Remodified: June 01, 2002 by J.J. de Felipe (Introduciendo
* absorciones por uso de la tierra).
*
*****/

```

```

#include <stdio.h>
#include <math.h>
#include "modelo8.hh"

```

```

static float sgnp[reg], senint[reg], sve[reg][fen];
static float sareabos[reg][fores], nve[reg], sincal[reg], semkioto[reg];

```

```

int r,f,b,d;

```

```

long model(long firstYear, long year, FILE *fpl)
{

```

```

    /* Compute GNP growth rate */
    for (r=0; r<reg; r++) {
        rgnp[r] = rgnpd[r]*rgnpm[r];
    }

    /* Compute GNP */
    if (year > firstYear){
        for (r=0; r<reg; r++) {
            gnp[r] = (sgnp[r]*(1.+rgnp[r]/100.));
            gnp[world]=gnp[anex1]+gnp[anex2];
        }
    }
}

```

```

/* Compute Energy Intensity rate */
for (r=0; r<reg; r++) {
    renint[r] = renintd[r]*renintm[r];
}

/* Compute Energy intensity */
if (year > firstYear) {
    for (r=0; r<reg; r++) {
        enint[r]=(senint[r]*(1.+renint[r]/100.));
    }
}

/* Compute energy demand */
for (r=0; r<reg; r++) {
    endm[r] = gnp[r]*enint[r];
}

/* Compute energy distribution coefficients rate */
for (r=0; r<reg; r++) {
    for (f=0; f<fen; f++) {
        rve[r][f] = rved[r][f]*rvem[r][f];
    }
}

/* Compute energy distribution coefficients */
if (year > firstYear) {
    for (r=0; r<reg; r++) {
        for (f=0; f<fen; f++) {
            ve[r][f]= (sve[r][f]*(1.+ rve[r][f]/100.));
        }
    }
}

/* Normalize energy distribution coefficients */
for (r=0; r<reg; r++){
    nve[r]=0;
    for (f=0; f<fen; f++){
        nve[r]=nve[r] + ve[r][f];
    }
}

/* Recompute normalized energy distribution coefficients */
for (r=0; r<reg; r++) {
    for (f=0; f<fen; f++) {
        ve[r][f] = ve[r][f]/nve[r];
    }
}

/* Compute energy demand by fuel source */

```

```

for (r=0; r<reg; r++) {
    for (f=0; f<fen; f++) {
        endmve[r][f] = ve[r][f]*endm[r];
    }
    endmff[r] = endmve[r][oil] + endmve[r][coal] + endmve[r][gas];
    endmnoff[r] = endm[r] - endmff[r];
}

/* Compute "cal" intensity rate */
for (r=0; r<reg; r++) {
    rincal[r] = rincald[r]*rincalm[r];
}

/* Compute cal intensity */
if (year > firstYear) {
    for (r=0; r<reg; r++) {
        incal[r]=(sincal[r]*(1.+rincal[r]/100.));
    }
}

/* Compute trees rate */
for (r=0; r<reg; r++) {
    for (b=0; b<fores; b++) {
        rareabos[r][b] = rareabosd[r][b]*rareabosm[r][b];
    }
}

/* Compute area trees */
if (year > firstYear) {
    for (r=0; r<reg; r++) {
        for (b=0; b<fores; b++) {
            areabos[r][b] = (sareabos[r][b]*(1.+ rareabos[r][b]/100.));
            increareabos[r][b] = (areabos[r][b] - sareabos[r][b]);
        }
    }
}

/* Compute indicator increareabos/gnp */
if (year > firstYear) {
    for (r=0; r<reg; r++) {
        increareabos[r]=0.;
        for (b=0; b<fores; b++) {
            increareabos[r] = (increareabos[r][b]/gnp[r])+increareabos[r];
        }
    }
}

/* Compute total annual absorcion trees*/

```

```

    for (r=0; r<reg; r++) {
        abc[r] = 0.;
        for (b=0; b<fores; b++) {
            abc[r] = ((areabos[r][b] * fcbos[b]*(44/12)*denbos1[b])/10000) +
abc[r];
        }
    }

/* Compute total annual emissions or absorcion trees */

    for (r=0; r<reg; r++) {
        emd[r] = 0.;
        abf[r] = 0.;
        for (b=0; b<fores; b++) {
            if (increareabos[r][b] < 0){
                emd[r] = ((increareabos[r][b] *
fcbos1[b]*(44/12)*denbos2[b])/1000) + emd[r];
            }
            else{
                abf[r] = ((increareabos[r][b] *
fcbos2[b]*(44/12)*denbos3[b])/1000) + abf[r];
            }
        }
    }

/* Compute "cal" emissions */
    for (r=0; r<reg; r++) {
        emcal[r] = 0.;
        emcal[r]=fcal*incal[r]*gnp[r];
    }

/* Compute Emissions fuel*/
    for (r=0; r<reg; r++) {
        em[r] = 0.;
        for (f=0; f<fen; f++) {
            em[r] = em[r]+((co2int[f]*endmve[r][f])/1000.);
            em[world]=em[anex1]+em[anex2];
        }
    }

/* Compute emissions totals */
    for (r=0; r<reg; r++) {
        emt[r] = 0;
        emt[r] = (em[r]+emcal[r]-emd[r]-abf[r]);
        emt[world]=emt[anex1]+emt[anex2];
    }

```

```

    }

    /*Emissions Kioto*/
    if (year == firstYear){
        for(r=0; r< reg; r++){
            emkioto[r]=(emt[r]-abf[r]);
        }
    }
    if (year > firstYear){
        for(r=0; r< reg; r++){
            emkioto[r]=semkioto[r];
        }
    }
}

/* Backup Variable */

for (r=0; r<reg; r++) {
    sgnp[r] = gnp[r];
    senint[r] = enint[r];
    sincal[r] = incal[r];
    semkioto[r]=emkioto[r];
    for (f=0; f<fen; f++) {
        sve[r][f] = ve[r][f];
    }
    for (b=0; b<fores; b++){
        sareabos[r][b] = areabos[r][b];
    }
}
return 1;
}

```

10.1.2 MODELO DE PRIMER NIVEL: CÁLCULO DE LAS EMISIONES POLÍTICAS

```

/*****
* model.cpp :
* Global Warming model using Kaya Identity
* Created: Maig 08, 2001 by J.J. de Felipe
* Modified: June 01, 2001 by J.J. de Felipe
* Remodified: Maig 20, 2003 by J.J. de Felipe (Comercio emisiones)
*
*****/

```

```
#include <stdio.h>
#include <math.h>
#include "modelo1a.hh"
int r;

long model(long firstYear, long year, FILE *fpl)
{
    /* Compute reduction emissions */
    if (year > (firstYear+11)){
        for (r=0; r<reg; r++) {
            gnpd[r] = gnp[r]*pgnp[r];
            emredc[r] = (gnpd[r]/costredc);
            emnew[r]=emt[r]-emredc[r];
            emnew[anex2]=emt[anex2];
            emnew[world]=emnew[anex1]+emnew[anex2];
        }
    }

    /* Compute new gnp */
    if (year > (firstYear+11)) {
        for (r=0; r<reg; r++) {
            gnpnew[anex2]=(gnp[anex2]+gnpd[anex1]);
            gnpnew[anex1]=(gnp[anex1]-gnpd[anex1]);
            gnpnew[world]=(gnpnew[anex1]+gnpnew[anex2]);
        }
    }
    /* Backup Variable */

    return 1;
}
```

10.2 Apendice 2. Listado de los países que forman las diferentes regiones de este estudio

10.2.1 PAÍSES QUE SE ANALIZAN BAJO EL NOMBRE DE “PAÍSES DE LA REGIÓN ANEXO 1” (ANEXO B DEL PROTOCOLO DE KYOTO)

Australia
Austria (EU)*
Belgium (EU)
Bulgaria
Canada
Croatia
Czech Republic
Denmark (EU)
Estonia
France (EU)
Finland (EU)
Greece (EU)
Germany (EU)
Hungary
Iceland
Ireland (EU)
Italy (EU)
Japan
Latvia
Liechtenstein
Lithuania
Luxembourg (EU)
Monaco
Netherlands (EU)
New Zealand
Norway
Poland
Portugal (EU)
Romania
Russia
Slovakia
Slovenia
Spain (EU)
Sweden (EU)
Switzerland
United Kingdom (EU)
United States
Ukraine

* Europe Union

10.2.2 PAÍSES QUE SE ANALIZAN BAJO EL NOMBRE DE “PAÍSES DE LA REGIÓN ANEXO 2”

Todos los países que componen el resto del mundo, y no tienen compromisos de reducciones legalmente vinculantes a través del Protocolo de Kyoto.

10.2.3 NORTEAMÉRICA

Bermuda
Canada
Greenland
Mexico
Saint Pierre and Miquelon
United States

10.2.4 ÁMERICA CENTRAL Y SUR AMÉRICA

Antarctica
Antigua and Barbuda
Argentina
Aruba
Bahamas, The
Barbados
Belize
Bolivia
Brazil
Cayman Islands
Chile
Colombia
Costa Rica
Cuba
Dominica
Dominican Republic
Ecuador
El Salvador
Falkland Islands
French Guiana
Grenada
Guadeloupe
Guatemala
Guyana
Haiti
Honduras
Jamaica

Martinique
Montserrat
Netherlands Antilles
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
Saint Kitts and Nevis
Saint Lucia
Saint Vincent/Grenadines
Suriname
Trinidad and Tobago
Turks and Caicos Islands
Uruguay
Venezuela
Virgin Islands, U.S.
Virgin Islands, British

10.2.5 EUROPA OCCIDENTAL

Austria (EU)
Belgium (EU)
Bosnia and Herzegovina
Croatia
Denmark (EU)
Faroe Islands
Finland (EU)
Former Yugoslavia
France (EU)
Germany (EU)
Germany, East
Germany, West
Gibraltar
Greece (EU)
Iceland
Ireland (EU)
Italy (EU)
Luxembourg (EU)
Macedonia (Former Yugoslav Republic)
Malta
Netherlands (EU)
Norway
Portugal (EU)
Slovenia
Spain (EU)
Sweden (EU)
Switzerland

Turkey
United Kingdom (EU)
Yugoslavia

En negrita los países miembros de la Unión Europea en fecha 02.12.2003. El resto de países de esta región forman la región denominada “Other Western Europe”.

10.2.6 EUROPA ORIENTAL

Albania
Armenia
Azerbaijan
Belarus
Bulgaria
Czech Republic
Estonia
Former Czechoslovakia
Former U.S.S.R.
Georgia
Hungary
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Moldova
Poland
Romania
Russia
Slovakia
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

10.2.7 ORIENTE MEDIO

Bahrain
Cyprus
Iran
Iraq
Israel
Jordan
Kuwait
Lebanon
Oman

Qatar
Saudi Arabia
Syria
United Arab Emirates
Yemen

10.2.8 ÁFRICA

Algeria
Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo (Brazzaville)
Congo (Kinshasa)
Cote d'Ivoire(IvoryCoast)
Djibouti
Egypt
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia, The
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Libya
Madagascar
Malawi
Mali
Mauritania
Mauritius
Morocco
Mozambique
Namibia
Niger
Nigeria
Reunion
Rwanda

Saint Helena
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Tanzania
Togo
Tunisia
Uganda
Western Sahara
Zambia
Zimbabwe

10.2.9 ASIA

Afghanistan
Bangladesh
Bhutan
Brunei
Burma
Cambodia
China
Hong Kong
India
Indonesia
Japan
Korea, North
Korea, South
Laos
Macau
Malaysia
Maldives
Mongolia
Nepal
Pakistan
Papua New Guinea
Philippines
Singapore
Sri Lanka
Taiwan
Thailand
Vietnam

10.2.10 OCEANÍA

American Samoa
Australia
Cook Islands
Fiji
French Polynesia
Guam
Hawaiian Trade Zone
Kiribati
Nauru
New Caledonia
New Zealand
Niue
Papua New Guinea
Samoa
Solomon Islands
Tonga
U.S. Pacific Islands
Vanuatu
Wake Island

10.3 Apendice 3. Listado de las tasas y valores introducidos en el globesight (año 1990)

10.3.1 PRODUCTO INTERIOR BRUTO (GNP)

Producto Interior Bruto (10⁹ \$ USA 1995)

	País o región	Valor	Año
gnp	canada	543,3	1990
gnp	mexico	265,7	1990
gnp	usa	6580,5	1990
gnp	Namerica	7389,541	1990
gnp	brazil	605,5	1990
gnp	CSamerica	1174,269	1990
gnp	EU	7374,4	1990
gnp	OWeurope	664,7	1990
gnp	Weurope	8039,09	1990
gnp	Eeurope	1272,744	1990
gnp	Meast	515,4732	1990
gnp	SCafrica	341,6	1990
gnp	Nafrica	187,4	1990
gnp	africa	529,05	1990
gnp	china	397,5	1990
gnp	india	282,4	1990
gnp	japan	4934,8	1990
gnp	asia	6881,3	1990
gnp	oceania	373	1990
gnp	anex1	21082,5	1990
gnp	anex2	4741,2	1990
gnp	world	26174,48	1990

10.3.2 TASA DE CRECIMIENTO DEL PRODUCTO INTERIOR BRUTO (RGNP)

Tasa de crecimiento PIB

	País o región	Valor	Año
rgnp	canada	2,585795	1990
rgnp	mexico	3,177562	1990
rgnp	usa	2,940283	1990
rgnp	Namerica	2,920971	1990
rgnp	brazil	2,246352	1990
rgnp	CSamerica	2,20904	1990
rgnp	EU	3,184015	1990
rgnp	OWeurope	1,311322	1990
rgnp	Weurope	2,99664	1990
rgnp	Eeurope	-3,06486	1990
rgnp	Meast	1,16249	1990
rgnp	SCafrica	1,324	1990
rgnp	Nafrica	2,056	1990
rgnp	africa	1,589	1990

rgnp	china	9,817	1990
rgnp	india	5,438	1990
rgnp	japan	1,24751	1990
rgnp	asia	2,768	1990
rgnp	oceania	3,143	1990
rgnp	anex1	2,291	1990
rgnp	anex2	3,573	1990
rgnp	world	2,413	1990

10.3.3 INTENSIDAD ENERGÉTICA (ENINT)

Intensidad energética (ktep/10⁹ \$ USA 1995)

	País o región	Valor	Año
enint	canada	494,9321	1990
enint	mexico	472,9931	1990
enint	usa	310,7691	1990
enint	Namerica	330,19	1990
enint	brazil	228,6343	1990
enint	CSamerica	302,62	1990
enint	EU	182,16	1990
enint	OWeurope	255,06	1990
enint	Weurope	188,19	1990
enint	Eeurope	1407,25	1990
enint	Meast	520,29	1990
enint	SCafrica	420,8	1990
enint	Nafrica	468,27	1990
enint	africa	437,62	1990
enint	china	1638,876	1990
enint	india	658,7338	1990
enint	japan	92,35	1990
enint	asia	243,52	1990
enint	oceania	318,33	1990
enint	anex1	270,424	1990
enint	anex2	567,826	1990
enint	world	320,672	1990

10.3.4 TASA DE CRECIMIENTO DE LA INTENSIDAD ENERGÉTICA (RENINT)

Tasa de crecimiento de la intensidad energética

	País o región	Valor	Año
renint	canada	-1,15598	1990
renint	mexico	-1,16667	1990
renint	usa	-1,59736	1990
renint	Namerica	-1,53582	1990
renint	brazil	1,2755	1990
renint	CSamerica	1,2095	1990
renint	EU	-1,625	1990

renint	OWeurope	-0,375	1990
renint	Weurope	-1,53	1990
renint	Eeurope	0,4991	1990
renint	Meast	1,8209	1990
renint	SCafrica	1,1823	1990
renint	Nafrica	0,664	1990
renint	africa	0,9974	1990
renint	china	-5,588	1990
renint	india	-0,805	1990
renint	japan	0,355	1990
renint	asia	1,0107	1990
renint	oceania	-0,243	1990
renint	anex1	-1,74277	1990
renint	anex2	-0,72971	1990
renint	world	-1,079	1990

10.3.5 VECTOR ENERGÉTICO, TANTO POR UNO (VE)

Vector energético (tanto por uno)	País o región	Vector	Valor
ve	canada	coal	0,118687
ve	canada	oil	0,31958
ve	canada	gas	0,214968
ve	canada	nuclear	7,09E-02
ve	canada	renewpower	3,40E-03
ve	canada	hidraulic	0,272501
ve	mexico	coal	3,27E-03
ve	mexico	oil	0,723255
ve	mexico	gas	0,200277
ve	mexico	nuclear	5,64E-03
ve	mexico	renewpower	2,01E-02
ve	mexico	hidraulic	4,75E-02
ve	usa	coal	0,23102
ve	usa	oil	0,42168
ve	usa	gas	0,23165
ve	usa	nuclear	0,07157
ve	usa	renewpower	0,00784
ve	usa	hidraulic	0,03624
ve	Namerica	coal	0,208334
ve	Namerica	oil	0,424987
ve	Namerica	gas	0,227863
ve	Namerica	nuclear	6,81E-02
ve	Namerica	renewpower	7,95E-03
ve	Namerica	hidraulic	6,28E-02
ve	brazil	coal	0,05132
ve	brazil	oil	0,54795
ve	brazil	gas	0,01974
ve	brazil	nuclear	0,00344
ve	brazil	renewpower	0,00891
ve	brazil	hidraulic	0,36864
ve	CSamerica	coal	0,034052
ve	CSamerica	oil	0,547955

ve	CSamerica	gas	0,148559
ve	CSamerica	nuclear	0,006942
ve	CSamerica	renewpower	0,006385
ve	CSamerica	hidraulic	0,256108
ve	EU	coal	0,189131
ve	EU	oil	0,463161
ve	EU	gas	0,168402
ve	EU	nuclear	0,127452
ve	EU	renewpower	0,004088
ve	EU	hidraulic	0,047767
ve	OWeurope	coal	0,202089
ve	OWeurope	oil	0,389753
ve	OWeurope	gas	7,67E-02
ve	OWeurope	nuclear	0,040775
ve	OWeurope	renewpower	0,002193
ve	OWeurope	hidraulic	0,28847
ve	Weurope	coal	0,190583
ve	Weurope	oil	0,454935
ve	Weurope	gas	0,158129
ve	Weurope	nuclear	0,117739
ve	Weurope	renewpower	0,003876
ve	Weurope	hidraulic	7,47E-02
ve	Eeurope	coal	0,265466
ve	Eeurope	oil	0,279951
ve	Eeurope	gas	0,380527
ve	Eeurope	nuclear	0,038716
ve	Eeurope	renewpower	3,43E-05
ve	Eeurope	hidraulic	0,035307
ve	Meast	coal	0,004403
ve	Meast	oil	0,647204
ve	Meast	gas	0,336739
ve	Meast	renewpower	1,88E-09
ve	Meast	hidraulic	0,011655
ve	SCafrica	coal	0,506475
ve	SCafrica	oil	0,375175
ve	SCafrica	gas	0,026718
ve	SCafrica	nuclear	0,014526
ve	SCafrica	renewpower	0,00135
ve	SCafrica	hidraulic	0,075756
ve	Nafrica	coal	0,024058
ve	Nafrica	oil	0,573808
ve	Nafrica	gas	0,370202
ve	Nafrica	hidraulic	0,031931
ve	africa	coal	0,323599
ve	africa	oil	0,450473
ve	africa	gas	0,156927
ve	africa	nuclear	0,00902
ve	africa	renewpower	0,000838
ve	africa	hidraulic	0,059143
ve	china	coal	0,748898
ve	china	oil	0,181367
ve	china	gas	2,15E-02
ve	china	nuclear	1,90E-04
ve	china	renewpower	1,25E-04

ve	china	hidraulic	4,79E-02
ve	india	coal	0,522379
ve	india	oil	0,314868
ve	india	gas	5,92E-02
ve	india	nuclear	8,44E-03
ve	india	renewpower	4,02E-05
ve	india	hidraulic	9,51E-02
ve	japan	coal	0,13878
ve	japan	oil	0,582307
ve	japan	gas	0,107224
ve	japan	nuclear	0,103861
ve	japan	renewpower	0,01945
ve	japan	hidraulic	0,048378
ve	asia	coal	0,431502
ve	asia	oil	0,388891
ve	asia	gas	0,074311
ve	asia	nuclear	0,041182
ve	asia	renewpower	0,007226
ve	asia	hidraulic	0,056888
ve	oceania	coal	0,377916
ve	oceania	oil	0,364024
ve	oceania	gas	0,166164
ve	oceania	renewpower	1,11E-02
ve	oceania	hidraulic	8,08E-02
ve	anex1	coal	0,211959
ve	anex1	oil	0,399597
ve	anex1	gas	0,244877
ve	anex1	nuclear	0,07963
ve	anex1	renewpower	0,005881
ve	anex1	hidraulic	0,058056
ve	anex2	coal	0,341695
ve	anex2	oil	0,414501
ve	anex2	gas	0,150203
ve	anex2	nuclear	0,01227
ve	anex2	renewpower	0,002854
ve	anex2	hidraulic	7,85E-02
ve	world	coal	0,253572
ve	world	oil	0,404377
ve	world	gas	0,21451
ve	world	nuclear	0,058024
ve	world	renewpower	0,00491
ve	world	hidraulic	0,064606

10.3.6 TASA DE CRECIMIENTO DEL VECTOR ENERGÉTICO (RVE)

Tasa de crecimiento del vector energético

	País	Vector	Valor
rve	canada	coal	1,02747
rve	canada	oil	-0,26102
rve	canada	gas	0,47503
rve	canada	nuclear	-1,15822

rve	canada	renewpower	4,83285
rve	canada	hidraulic	-0,3771
rve	mexico	coal	1,89698
rve	mexico	oil	-0,5839
rve	mexico	gas	1,32888
rve	mexico	nuclear	8,11254
rve	mexico	renewpower	-0,29797
rve	mexico	hidraulic	-0,1337
rve	usa	coal	-0,20539
rve	usa	oil	0,04647
rve	usa	gas	0,18485
rve	usa	nuclear	1,22177
rve	usa	renewpower	1,068
rve	usa	hidraulic	-3,9387
rve	Namerica	coal	-0,1358
rve	Namerica	oil	-0,01533
rve	Namerica	gas	0,46115
rve	Namerica	nuclear	0,99727
rve	Namerica	renewpower	1,15307
rve	Namerica	hidraulic	-1,8891
rve	brazil	coal	-3,35778
rve	brazil	oil	0,21302
rve	brazil	gas	7,02239
rve	brazil	nuclear	15,9226
rve	brazil	renewpower	6,73011
rve	brazil	hidraulic	-1,0987
rve	CSamerica	coal	-2,91744
rve	CSamerica	oil	-0,39972
rve	CSamerica	gas	1,74345
rve	CSamerica	nuclear	4,22899
rve	CSamerica	renewpower	5,73191
rve	CSamerica	hidraulic	-0,2114
rve	EU	coal	-5,81148
rve	EU	oil	0,13461
rve	EU	gas	2,40256
rve	EU	nuclear	1,01756
rve	EU	renewpower	12,4291
rve	EU	hidraulic	1,47069
rve	OWeurope	coal	-2,16479
rve	OWeurope	oil	-0,09733
rve	OWeurope	gas	3,78943
rve	OWeurope	nuclear	-0,17208
rve	OWeurope	renewpower	11,6385
rve	OWeurope	hidraulic	0,13163
rve	Weurope	coal	-5,29955
rve	Weurope	oil	0,1131
rve	Weurope	gas	2,4844
rve	Weurope	nuclear	0,97617
rve	Weurope	renewpower	12,3823
rve	Weurope	hidraulic	0,90508
rve	Eeurope	coal	-1,33601
rve	Eeurope	oil	-2,58647
rve	Eeurope	gas	1,47414
rve	Eeurope	nuclear	3,88996

rve	Eeurope	renewpower	34,6126
rve	Eeurope	hidraulic	4,00855
rve	Meast	coal	-3,48631
rve	Meast	oil	-1,21945
rve	Meast	gas	2,10119
rve	Meast	renewpower	-100
rve	Meast	hidraulic	-3,0994
rve	SCafrica	coal	-0,13657
rve	SCafrica	oil	-0,50427
rve	SCafrica	gas	6,73664
rve	SCafrica	nuclear	-0,56961
rve	SCafrica	renewpower	-0,57916
rve	SCafrica	hidraulic	-0,0959
rve	Nafrica	coal	-0,5121
rve	Nafrica	oil	-0,67177
rve	Nafrica	gas	0,99492
rve	Nafrica	hidraulic	-0,0759
rve	africa	coal	-0,22005
rve	africa	oil	-0,56439
rve	africa	gas	1,86944
rve	africa	nuclear	-0,64801
rve	africa	renewpower	-0,65756
rve	africa	hidraulic	0,02411
rve	china	coal	-1,69888
rve	china	oil	4,19479
rve	china	gas	3,22502
rve	china	nuclear	36,6568
rve	china	renewpower	13,1333
rve	china	hidraulic	2,42523
rve	india	coal	-0,33312
rve	india	oil	1,17095
rve	india	gas	0,9923
rve	india	nuclear	4,77181
rve	india	renewpower	41,5933
rve	india	hidraulic	-4,3518
rve	japan	coal	0,6144
rve	japan	oil	-0,98272
rve	japan	gas	2,28153
rve	japan	nuclear	2,50729
rve	japan	renewpower	-0,94881
rve	japan	hidraulic	-1,9278
rve	asia	coal	-1,02822
rve	asia	oil	0,72971
rve	asia	gas	1,87477
rve	asia	nuclear	1,21384
rve	asia	renewpower	-0,01993
rve	asia	hidraulic	-1,3823
rve	oceania	coal	1,15565
rve	oceania	oil	-1,01311
rve	oceania	gas	-0,10606
rve	oceania	renewpower	3,03025
rve	oceania	hidraulic	-1,8713
rve	anex1	coal	-1,04364
rve	anex1	oil	-0,15262

rve	anex1	gas	0,3396
rve	anex1	nuclear	1,73607
rve	anex1	renewpower	4,7322
rve	anex1	hidraulic	-0,0065
rve	anex2	coal	-1,45183
rve	anex2	oil	0,43806
rve	anex2	gas	1,34376
rve	anex2	nuclear	1,72457
rve	anex2	renewpower	5,03742
rve	anex2	hidraulic	0,23108
rve	world	coal	-1,11386
rve	world	oil	0,14959
rve	world	gas	0,38606
rve	world	nuclear	0,9276
rve	world	renewpower	4,49643
rve	world	hidraulic	0,60664

10.3.7 ÁREA FORESTAL (AREABOS)

Área forestal (10³ hectareas)	País o región	Tipo	Valor
areabos	canada	boreal	244571
areabos	mexico	Tempother	61661,7
areabos	usa	Tempother	221523,1
areabos	Namerica	Tempother	527755,8
areabos	brazil	Totherforest	566147,9
areabos	CSamerica	Totherforest	948170,8
areabos	EU	Tempother	112664,8
areabos	OWeurope	Tempother	28641,17
areabos	Weurope	Tempother	141306
areabos	Eeurope	boreal	921577,1
areabos	Meast	Tempother	11179,92
areabos	SCafrica	Totherforest	699523,8
areabos	Nafrica	Tempother	5957,341
areabos	africa	Totherforest	704218
areabos	china	Tempother	145384,4
areabos	india	Totherforest	63475,38
areabos	japan	Tempother	24081
areabos	asia	Totherforest	509004
areabos	oceania	Tempother	201619,3
areabos	anex1	Tempother	1673038
areabos	anex2	Totherforest	2291793
areabos	world	Tempother	3964831

10.3.8 TASA DE CRECIMIENTO DEL ÁREA FORESTAL (RAREABOS)

Tasa de crecimiento del área forestal	País o región	Tipo	Valor
rareabos	mexico	Tempother	-1,1
rareabos	usa	Tempother	0,2
rareabos	Namerica	Tempother	-0,0343
rareabos	brazil	Totherforest	-0,4
rareabos	CSamerica	Totherforest	-0,3813
rareabos	EU	Tempother	0,2408
rareabos	OWeurope	Tempother	0,1908
rareabos	Weurope	Tempother	0,2307
rareabos	Eeurope	boreal	0,0652
rareabos	Meast	Tempother	0,0698
rareabos	SCafrica	Totherforest	-0,7546
rareabos	Nafrica	Tempother	0,5
rareabos	africa	Totherforest	-0,8
rareabos	china	Tempother	1,18
rareabos	india	Totherforest	0,1
rareabos	asia	Totherforest	-0,1151
rareabos	oceania	Tempother	-0,2
rareabos	anex1	Tempother	0,03537
rareabos	anex2	Totherforest	-0,41276
rareabos	world	Tempother	-0,2212