

## Annex II Explanatory and Dependent Variables

| Variable Group               | Explanatory Variables                           | Indicators   | Units                               | Notes  | VAR_NAME |
|------------------------------|---|--|-------------------------------------|--|----------|
| <b>Key Identifiers</b>       | Co-management unit ID number                    | Co-management unit ID number                                 | Serial Number                       |  | ID       |
|                              | Co-management unit type                         | Co-management unit type                                      | 0;1;3...n                           | VMA (0); IMA (1); CMA (2); RMA (3); fishery [spp/gear]           | TYPE     |
|                              | Co-management unit name                         | Co-management unit name                                      | Name                                |  | NAME     |
|                              | Area under co-management                        | Fishing area of community                                    | km <sup>2</sup>                     | or km of coastline (specify)                                     | AREA     |
|                              | Numbers of fishing villages                     | Numbers of villages  | Number                              | exploiting fishing area  | VILLAGES |
|                              | Numbers of fishing households                   | Numbers of fishing households                                | Number                              | exploiting fishing area  | HH       |
|                              | Numbers of fishers                              | Numbers of fishers (all types)                               | Number                              | exploiting fishing area  | FISHERS1 |
|                              | Numbers of fishers                              | Numbers of fishers (full-time)                               | Number                              | exploiting fishing area  | FT_FISHM |
|                              | Numbers of fishers                              | Numbers of fishers (part-time)                               | Number                              | exploiting fishing area  | PT_FISHM |
|                              | Numbers of fishers                              | Numbers of fishers (occasional)                              | Number                              | exploiting fishing area  | OC_FISHM |
|                              | Numbers of fishers                              | Numbers of fishers (numbers of fishing households x ave      | Number                              | exploiting fishing area  | FISHERS2 |
|                              | Numbers of boats                                | Numbers of boats   | Number                              | exploiting fishing area  | BOATS    |
|                              | Date co-management unit established             | Date co-management unit established                          | Date (mm/yy)                        | Also see Decision-making arrangements                            | DATE_EST |
|                              | Geographic position                             | Latitude and Longitude                                       | Degrees, Minutes                    |  | LAT_LONG |
|                              | Geographic position                             | Country  | Country name                        |  | COUNTRY  |
|                              | District  | District/Province  | District/Province name              |  | DISTRICT |
|                              | Water body or coastal name                      | Water body or coastal name                                   | Water body or coastal name          |  | WB_NAME  |
|                              | Water body type                                 | Permanence   | 0;1;2                               | Seasonal (0); perrenniel (1); both (2)                           | PERMEN   |
|                              | Ecosystem type                                  | Ecosystem type   | 0;1;2;3...n                         | River (0); fringing floodplain (1); beel (2); lake (3); coa      | ECO_TYPE |
|                              | Position of water body in catchment             | Position of water body in catchment                          | 0;1;2                               | Lower (0); middle (1); upper (2)                                 | POSITION |
|                              | Remoteness of co-management unit                | Remoteness   | 0;1;2                               | Not remote (0); remote (1); very remote (2)                      | REMOTE   |
| <b>Resource (Group I)</b>    | Production potential                            | Biolimiting nutrient concentration eg total phosphate        | ugl-1 or 0;1;2                      | Low (0); medium (1); high(2)                                     | BIOLIM   |
|                              | Production potential                            | Water transparency (Secchi depth)                            | m                                   | May not be valid indicator in rivers                             | SECCHI   |
|                              | Production potential                            | Primary production   | 0;1;2                               | g/C/m <sup>2</sup> /year Low <150 (0); medium 150-300 (1); high  | PRIM_PRO |
|                              | Production potential                            | Weighted average trophic level of species in catch           | Number                              | weighted by % contribution to catch                              | TL       |
|                              | Production potential                            | Upwelling  | 0;1;2                               | None (0); seasonal (1); constant (2)                             | UPWELL   |
|                              | Production potential                            | Allocthonous inputs (eg fruit, seeds, debris etc)            | 0;1;2                               | Low (0); medium (1); high (2)                                    | ALLOC    |
|                              | Abundance/Biomass                               | (Total annual catch)/(Numbers of fishers)                    | Tonnes/fisher                       | All species combined or specify for each target specie           | ABUND    |
|                              | Resilience of resource                          | Weighted mean max longevity of species present (or L ir      | Years                               | weighted by % contribution to catch                              | LONGEV   |
|                              | Resilience of resource                          | Weighted mean age of maturity of species present             | Years                               | weighted by % contribution to catch                              | MAT_AGE  |
|                              | Resilience of resource                          | Weighted mean Lm50/Lmax for species present                  | 0 - 1                               | weighted by % contribution to catch                              | LM50LMAX |
|                              | Resilience of resource                          | Recruitment variability (inter-annual variability in catches | 0;1;2                               | Low (0); medium (1); high(2)                                     | REC_VAR  |
|                              | Rule enforcement potential                      | Clearly defined management boundaries?                       | 0;1                                 | No (0); yes(1)   | DEF_BOUN |
|                              | Rule enforcement potential                      | Area under co-management per fisher or community me          | km <sup>2</sup> /fisher             | or km of coastline/fisher (specify)                              | AREA_FSH |
|                              | Rule enforcement potential                      | Boundary perimeter length per fisher or community mem        | km/fisher                           |  | PERIM_LN |
|                              | Rule enforcement potential                      | Distance or time to fishing grounds                          | km or hours                         |  | DISTANCE |
|                              | Rule enforcement potential                      | Landing sites  | 0;1;2                               | Dispersed (0); some centralization (1); heavily central          | LANDSITE |
|                              | Rule enforcement potential                      | Distance of reserve from village/community dwellings         | km                                  |  | DIST_RES |
|                              | Rule enforcement potential                      | Number of marketing outlets                                  | 0;1;2                               | Few (0); Some (1); Lots (2)                                      | OUTLETS  |
|                              | Rule enforcement potential                      | Are boundaries defensible?                                   | 0;1                                 | No (0); yes (1)  | DEFEND   |
|                              | Rule enforcement potential                      | Type of boundary   | 0;1;2;3...n                         | Physical (0); administrative (1); transboundary (2); oth         | BOUNDTYP |
|                              | Divisibility of resource                        | Migratory behaviour of target species                        | 0;1;2;3                             | Sedentary (0); locally migratory (1); highly migratory (         | MIGR_BHR |
|                              | Target species                                  | Major species harvested/commercially important Specie        | Specify Species names               |  | MAJ_SPP  |
|                              | Discarded by catch                              | Discarded by-catch   | 0;1;2                               | Low 0-10% (0); medium 11-40% (1); high > 40% (2) o               | DISCARDS |
|                              | Multi- or single species fishery                | Multi- or single species fishery                             | 0;1                                 | Multispecies (0); Single species (1)                             | MULTI_SP |
|                              | Connectivity of management area                 | Stream order association                                     | 1-6                                 | see Welcomme (1985) for definition of stream order               | STREAM_O |
|                              | Connectivity of management area                 | Biogeographical barriers present?                            | 0;1                                 | No (0); yes (1)  | BARRIERS |
|                              | Non-use value of resource B100                  | Non-use value of resource (existence, bequest, option v      | 0;1;2                               | Low (0); medium (1); high (2)                                    | USE_VAL  |
| <b>Environment (Group I)</b> | Environmental health of habitat                 | Environmental health of habitat - Spawning areas             | 0;1;2                               | Low (0); medium (1); high (2)                                    | ENV_SPAW |
|                              | Environmental health of habitat                 | Environmental health of habitat - Nursery areas              | 0;1;2                               | Low (0); medium (1); high (2)                                    | ENV_NURS |
|                              | Environmental health of habitat                 | Environmental health of habitat - Fishing Grounds            | 0;1;2                               | Low (0); medium (1); high (2)                                    | ENV_GROU |
|                              | Environmental health of habitat                 | Environmental health of habitat - Overall                    | 0;1;2                               | Low (0); medium (1); high (2)                                    | ENV_ALL  |
|                              | Environmental health of habitat                 | Health of critical habitat                                   | 0;1;2                               | Low (0); medium (1); high (2)                                    | ENV_CRIT |
|                              | Environmental health of habitat                 | Waste materials  | 0;1                                 | Absent (0); Present (1)  | WAST_MAT |
|                              | Environmental health of habitat                 | Fish kills (% of days/nights)                                | %                                   |  | FISH_KIL |
|                              | Environmental health of habitat                 | Degree of siltation  | 0;1;2                               | Low (0); medium (1); high (2)                                    | SILT     |
|                              | Environmental health of habitat                 | Presence of pollution  | 0;1                                 | Absent (0); present (1)  | POLLUTN  |
|                              | Other water quality and environmental health pa | Optimal/thresholds for each species                          | TBA                                 |  | THRESH   |
|                              | Nutrient recycling                              | Depth of reserve, lake, fishing area ...etc                  | m                                   |  | DEPTH    |
|                              | Habitat descriptors                             | % Coral cover  | %                                   |  | CORAL    |
|                              | Habitat descriptors                             | % Live corals  | %                                   |  | CORAL_LI |
|                              | Habitat descriptors                             | Adjacent/ Local land use                                     | 0;1;2;3...n                         | Agriculture (0); forestry (1); natural forest (2); mining (      | LAND_USE |
|                              | Habitat descriptors                             | Predominant substrate  | 0;1;2;3...n                         | Sand (0); mud (1); dead/broken corals (2); pebbles (3); SUBSTRAT |          |
|                              | Habitat descriptors                             | River discharge rates  | m <sup>3</sup> /sec                 |  | DISCHARG |
|                              | Habitat descriptors                             | Mean annual water temperature                                | oC                                  |  | TEMP     |
|                              | Habitat descriptors                             | River gradient   | m/km                                |  | GRADIENT |
|                              | Habitat descriptors                             | Riparian vegetation  | Species names                       |  | RIP_VEG  |
|                              | Habitat descriptors                             | Benthic biota  | Species names                       |  | BEN_BIOT |
|                              | Habitat descriptors                             | Shore gradient   | Degrees or ratio                    |  | SHORE_GR |
|                              | Habitat descriptors                             | Standing (inundated) trees                                   | 0;1                                 | No (0); yes (1)  | TREES    |
|                              | Habitat descriptors                             | Mangrove cover   | % of management/fishing area (unit) |  | MANGROVE |
|                              | Habitat descriptors                             | Extent of flood corresponding to observations                | 0;1;2                               | Below normal (0); normal (1); above normal (2)                   | FLOOD    |
|                              | Habitat descriptors                             | Average duration of flood season                             | Months                              |  | FLD_SEAS |

|                          |   |  |   |  |           |
|--------------------------|---|--|---|--|-----------|
|                          | Habitat descriptors                                 | Average duration of dry season                                       | Months  |  | DRY_SEAS  |
|                          | Habitat descriptors                                 | Remaining area of water at end of dry season                         | Average % of management/fishing area (unit)           |  | DRY_AREA  |
|                          | Habitat descriptors                                 | Lake water levels corresponding to observations                      | m   |  | LAKE_LEV  |
| <b>Technological</b>     | Exploitation intensity                              | Fisher density   | Number of fishers / km2 or km of coastline (specify)  |  | FISH_DEN  |
| <b>(Group I)</b>         | Exploitation intensity                              | Boat density   | Number of boats / km2 or km of coastline (specify)    |  | BOAT_DEN  |
|                          | Exploitation intensity                              | Gear i...n density   | Numbers of gear i per kr or km of coastline (specify) |  | GEAR_DEN  |
|                          | Exploitation intensity                              | Mean size of fish caught (EACH main spp) in Month x, w               | cm  |  | AVG_LEN   |
|                          | Exploitation intensity                              | Number of months fished per year                                     | 1-12  |  | MONTHS    |
|                          | Exploitation intensity                              | Average number of fishing days per fisher per year                   | Number  |  | DAYS      |
|                          | Exploitation intensity                              | Catch before maturity  | 0;1;2   | None (0); some (1); lots (2) caught before maturity          | PRE_MAT   |
|                          | Exploitation intensity                              | Exploitation status of fishery ( based upon trend in annual          | 0;1;2;3;4;5;6   | Developing (0); mature (1); declining (2); recovering (3);   | EXPLOIT   |
|                          | Exploitation intensity                              | Predominant vessel type  | 0;1;2;3....n  | None (0); non-motorised (1); sail (2); motorised (3)         | VESS_TYP  |
|                          | Exploitation methods                                | Types of gears (most important)                                      | 0;1;2;3....n  | Gillnet (0); small traps (1); barrier traps (2); trawls (3); | GEAR_TYP  |
|                          | Exploitation methods                                | Numbers of different gear types employed                             | Number  |  | GEARS     |
|                          | Exploitation methods                                | Gear type (Species selective)  | 0;1;2   | Non-selective (0); selective (1); both (2)                   | SELECTIVE |
|                          | Exploitation methods                                | Gear type  | 0;1;2;3   | Bottom-set (0); pelagic (1); surface-set (2); combinatic     | GR_POSTN  |
|                          | Exploitation methods                                | Destructive fishing practices  | 0;1   | No (0); yes (1)  | HARM_GR   |
|                          | Exploitation methods                                | Gear type (Active/Passive)   | 0;1;2   | Passive (0); active (1); both (2)                            | PASS_GR   |
|                          | Exploitation methods                                | FADs or artificial reefs   | 0;1   | No (0); yes (1)  | FADS      |
|                          | Exploitation methods                                | Power gear or electronic aids  | 0;1   | No (0); yes (1)  | POWER_GR  |
|                          | Preservation technology                             | Predominant preservation technology                                  | 0;1;2;3....n  | Ice (0); Smoking (1); drying (2); freezing (3); salting (4)  | PRES_TEC  |
|                          | Stocking density                                    | Stocking density   | kg/ha   |  | STCK_DEN  |
|                          | Mean stocking size                                  | Mean stocking size   | cm or g of fry (specify)                              |  | STCK_SIZ  |
|                          | Habitat alteration activities                       | Habitat alteration activities  | 0 - 5   | Destructive (0); none (1).....beneficial (5)                 | HAB_ALT   |
|                          | Fishery type  | Fishery type   | 0;1;2   | Artisanal (0); industrial (1); recreational (2)              | FISHTYPE  |
| <b>Market Attributes</b> | Economic value of resource (at landing Site)        | Mean unit value of target species                                    | US\$/kg   |  | VALUE     |
| <b>(Group II)</b>        | Economic value of resource (International Market)   | Mean unit value of target species present                            | US \$ / Parity Price                                  |  | VAL_PAR   |
|                          | Market facilities/infrastructure                    | Transport/infrastructure/landing sites...etc                         | 0;1;2   | Poor (0); medium (1); good (2)                               | INFRASTR  |
|                          | Cost of marketing (market fees)                     | Cost of marketing (market fees)                                      | 0;1;2;3   | None (0); low (1); medium (2); high (3)                      | FEES      |
|                          | Are there restrictions or rules in fish trading     | Are there restrictions or rules in fish trading                      | 0;1   | No (0); yes (1)  | MRKT_RUL  |
|                          | Market type   | Market type  | 0;1;2   | Monopoly (0); oligopoly (1); free market (2)                 | MRKT_TYP  |
|                          | Market (demand) stability                           | Market (demand) stability  | COV in price or 0;1                                   | Stable (0); unstable (1)                                     | MRKT_STB  |
|                          | Price control mechanism                             | Price control mechanism  | 0;1   | No (0); yes (1)  | PRCE_CON  |
|                          | Market orientation                                  | Market orientation   | 0;1;2   | Local (0); domestic (1); international (2)                   | MRKT_ORI  |
| <b>Fisher/Community</b>  | Homogeneity of users                                | Ethnicity  | 0;1   | Same (0); mixed (1)  | ETHNIC    |
| <b>Characteristics</b>   | Homogeneity of users                                | Religion   | 0;1   | Same (0); mixed (1)  | RELIGION  |
| <b>(Group III)</b>       | Homogeneity of users                                | Interests  | 0;1   | Same (0); mixed (1)  | INTEREST  |
|                          | Homogeneity of users                                | Number of tribes   | Number  |  | TRIBES    |
|                          | Homogeneity of users                                | Customs  | 0;1   | Same (0); mixed (1)  | CUSTOMS   |
|                          | Homogeneity of users                                | Migrants   | 0;1;2;3   | None (0); few (1); some (2); lots (3)                        | MIGRANTS  |
|                          | Homogeneity of users                                | Number of different political parties supported                      | Number  |  | POL_PART  |
|                          | Homogeneity of users                                | Gender of fishers  | 0;1;2   | Predominantly male (0); predominantly female (1); mixed (2)  | GENDER    |
|                          | Homogeneity of users                                | Wealth variation among fishers/households                            | 0;1;2   | Low (0); medium (1); high (2)                                | WLTH_VAR  |
|                          | Homogeneity of users                                | Age variation among fishers/households                               | 0;1;2   | Low (0); medium (1); high (2)                                | AGE_VAR   |
|                          | Social cohesion                                     | Social cohesion  | 0;1;2   | Low (0); medium (1); high (2)                                | COHESION  |
|                          | Years resident in village/community                 | Variation in years resident in village/community                     | 0;1;2   | Low (0); medium (1); high (2)                                | YEAR_VAR  |
|                          | Dependence on fishery for livelihood                | Purpose  | 0;1;2   | Predominantly subsistence (0); predominantly commercial (1); | PURPOSE   |
|                          | Dependence on fishery for livelihood                | Alternative sources of income/employment                             | 0;1;2   | None (0); some (1); lots (2)                                 | ALT_LIVL  |
|                          | Dependence on fishery for livelihood                | % of household income derived from fishing                           | %   |  | FISH_INC  |
|                          | Dependence on fishery for livelihood                | Average number of years fishing                                      | Years   |  | FISH_YRS  |
|                          | Dependence on fishery for livelihood                | Willingness of fishers to change occupation                          | 0;1   | No (0); yes (1)  | DIFF_OCC  |
|                          | Level of local (ecological) knowledge               | Level of local (ecological) knowledge of fishers                     | 0;1;2   | Low (0); medium (1); high(2)                                 | KNOWLED   |
|                          | Level of local education                            | Average years of education of fishers/community                      | Years   |  | EDU_YRS   |
|                          | Level of local education                            | Literacy rate in community/among fishers                             | %   |  | LITERATE  |
| <b>Decision-making</b>   | Type of management                                  | Type of management   | 0;1;2   | Government (1); co-management (2); self-managemen            | MANG_TYP  |
| <b>Arrangements</b>      | Local decision-making body                          | Local decision-making body (accessible to users)                     | 0;1   | Absent (0); present (1)                                      | LOC_BODY  |
| <b>(Group IV)</b>        | Origin of co-management initiative                  | Origin of (co-)management initiative                                 | 0;1;2;3;4;5   | Tradition (0); community (recent) (1); NGO (2); govern       | MAN_ORIG  |
|                          | Legitimacy / widely accepted                        | Legitimacy of local decision-making body                             | 0;1;2   | Low (0); medium (1); high (2)                                | LEGIT     |
|                          | Respectability                                      | Respectability for decision-making body                              | 0;1;2   | Low (0); medium (1); high (2)                                | RESPECT   |
|                          | Traditional decision-making body?                   | Traditional decision-making body?                                    | 0;1   | No (0); yes (1)  | TRADBODY  |
|                          | Stability of decision-making body                   | Stability of decision-making body                                    | 0;1   | Stable (0); unstable (1)                                     | STABBODY  |
|                          | Membership to decision-making body                  | Democratically elected?  | 0;1   | No (0); yes (1)  | DEM_ELEC  |
|                          | Clear access (property) rights                      | Clear access (property) rights                                       | 0;1   | No (0); yes (1)  | CLR_ACC   |
|                          | Access (Community)                                  | Open or restricted access  | 0;1   | Open (0); restricted (1)                                     | OA_COMM   |
|                          | Access allocation mechanism (Community members)     | Access (effort) control mechanism                                    | 0;1;2;3....n  | Lottery (0); auction (1);group decision eg majority con      | CTRL_COM  |
|                          | Access (Non-community members)                      | Open, restricted or no access  | 0;1;2   | Open (0); restricted (1); no access granted (2)              | OA_OUT    |
|                          | Access allocation mechanism (Non-community members) | Access (effort) control mechanism                                    | 0;1;2;3....n  | Lottery (0); auction (1);group decision eg majority con      | CTRL_OUT  |
|                          | Resources available to body                         | Resources available to body (financial, tech, manpower)              | 0;1;2   | Low (0); medium (1); high (2)                                | AVLB_RES  |
|                          | Self-financing mechanism                            | Self-financing mechanism   | 0;1   | No (0); yes (1)  | SELF_FIN  |
|                          | Management plan                                     | Present/implemented  | 0;1   | No (0); yes (1)  | MAN_PLAN  |
|                          | Management objectives                               | Clearly-stated management objectives                                 | 0;1   | No (0); yes (1)  | MAN_OBJS  |
|                          | Management measures (operational rules)             | Mesh / gear size restrictions  | 0;1   | No (0); yes (1)  | GR_RESTR  |
|                          | Management measures (operational rules)             | Gear ban(s)  | 0;1   | No (0); yes (1)  | GR_BAN    |
|                          | Management measures (operational rules)             | Gear ban(s) (specify details including gear type, habitat, location) | Specify   | eg barrier trap in streams/channels during June and July     | GR_BAN_N  |
|                          | Management measures (operational rules)             | Ban on fish drives (water banging)                                   | 0;1   | No (0); yes (1)  | BAN_DRIV  |
|                          | Management measures (operational rules)             | Ban on using lights to attract fish/other target species             | 0;1   | No (0); yes (1)  | BAN_LGHT  |

|  |   |  |                           |  |           |
|--|---|--|---------------------------|--|-----------|
|  | Management measures (operational rules)                     | Ban on dewatering certain habitats (specify)                             | 0;1                       | No (0); yes (1) and specify  | BAN_DEWT  |
|  | Management measures (operational rules)                     | Closed seasons   | 0;1                       | No (0); yes (1) if yes specify month(s) closed                     | CLS_SEAS  |
|  | Management measures (operational rules)                     | Quota (specify)  | 0;1                       | No (0); yes (1)  | QUOTAS    |
|  | Management measures (operational rules)                     | Bait ban (specify)   | 0;1                       | No (0); yes (1)  | BAIT_BAN  |
|  | Management measures (operational rules)                     | Species ban  | 0;1                       | No (0); yes (1)  | SPP_BAN   |
|  | Management measures (operational rules)                     | Landing size restrictions (specify)                                      | 0;1                       | No (0); yes (1) and specify  | SIZE_     |
|  | Management measures (operational rules)                     | Reserve area   | km2                       |  | RES_AREA  |
|  | Management measures (operational rules)                     | Reserve area as a % of total management/fishing area                     | %                         |  | RES_PROP  |
|  | Management measures (operational rules)                     | Number of months reserved is closed to fishing                           | Number                    |  | RES_MONS  |
|  | Reserve type  | Reserve type (catchment position)  | 0;1;2;3....n              | Upland (0); floodplain (1); estuary (2)                            | RES_POS   |
|  | Reserve type  | Reserve type (Habitat)   | 0;1;2;3....n              | Lake (0); Riverine (1); river pool (2); reef area (3); estuary (4) | RES_HAB   |
|  | Reserve type  | Reserve type (Technical)   | 0;1;2;3....n              | Gear ban in reserve (0); closed season in reserve (1);             | RES_TECH  |
|  | Reserve depth   | Reserve depth (dry season)   | m                         |  | RES_DEPH  |
|  | Reserve location  | Reserve location   | 0;1                       | In barren, unproductive area (0); in formerly productive area (1)  | RES_LOC   |
|  | Numbers of reserves   | Numbers of reserves  | Number                    |  | NUMB_RES  |
|  | Period of existence of current operational rules            | Period of existence of current operational rules                         | Years                     |  | RULE_YRS  |
|  | Mechanisms for enforcement                                  | Rules monitored by resource users  | 0;1                       | No (0); yes (1)  | CS_USER   |
|  | Mechanisms for enforcement                                  | Government officers  | 0;1                       | No (0); yes (1)  | CS_GOV    |
|  | Overall support for rules                                   | Overall support for rules  | 0;1;2                     | Low (0); medium (1); high (2)                                      | RULE_SUP  |
|  | Representation in rule making (Fishers)                     | Representation in rule making (fishers)                                  | 0;1;2                     | Low (0); medium (1); high (2)                                      | REP_FISH  |
|  | Representation in rule making (Fish traders, creditors etc) | Representation in rule making (fish traders, creditors etc)              | 0;1;2                     | Low (0); medium (1); high (2)                                      | REP_TRAD  |
|  | Representation in rule making (Women)                       | Representation in rule making (women)                                    | 0;1;2                     | Low (0); medium (1); high (2)                                      | REP_WOM   |
|  | Representation in rule making (Other)                       | Representation in rule making (other)                                    | 0;1;2                     | Low (0); medium (1); high (2)                                      | REP_OTH   |
|  | Level of transparency in rule making (General)              | Level of transparency  | 0;1;2                     | Low (0); medium (1); high (2)                                      | TRANSPAR  |
|  | Formal performance monitoring by community?                 | Formal performance monitoring by community?                              | 0;1                       | No (0); yes (1)  | COMM_MON  |
|  | Fora for discussion and dialogue (Communication)            | Fora for discussion and dialogue (communication)                         | 0;1                       | No (0); yes (1)  | FORA      |
|  | Relevance of rules to local conditions                      | Relevance of rules to local conditions (fishers perspective)             | 0;1;2                     | Low (0); medium (1); high (2)                                      | RULE_REL  |
|  | Available scientific information                            | Available scientific research information on fishery/management          | 0;1;2                     | Low (0); medium (1); high (2)                                      | SCIENCE   |
|  | Sanctions for non compliance                                | Sanctions for non-compliance   | 0;1                       | No (0); yes (1)  | SANCTION  |
|  | Graduated sanctions for non-compliance                      | Graduated sanctions for non-compliance                                   | 0;1                       | No (0); yes (1)  | GRADSANC  |
|  | Effective conflict resolution mechanisms                    | Effective conflict resolution mechanisms                                 | 0;1                       | No (0); yes (1)  | CONF_RES  |
|  | Period of existence of current institutional arrangements   | Period of existence of current institutional arrangements                | Years                     |  | INST_YRS  |
|  | Effectiveness of enforcement measures                       | Effectiveness of enforcement measures                                    | 0;1;2                     | Low (0); medium (1); high (2)                                      | EFFCT_CS  |
|  | Effectiveness of enforcement measures                       | Poaching (% of nights)   | %                         |  | POACH1    |
|  | Effectiveness of enforcement measures                       | Incidence of poaching/non-compliance                                     | 0;1;2                     | Low (0); medium (1); high (2)                                      | POACH2    |
|  | Cost of enforcement   | Cost of enforcement  | Expenditure or Numbers    | specify  | MCS_COST  |
|  | Devices installed to prevent illegal fishing                | Devices installed to prevent illegal fishing or activities to be avoided | 0;1                       | No (0); yes (1)  | DEVICES   |
| <b>External Decision-Making Arrangements (Group V)</b> | Enabling legislation for co-management                      | Enabling legislation for co-management                                   | 0;1                       | No (0); yes (1)  | LEGISLA   |
|  | Local political/institutional support                       | Local political/institutional support for co-management arrangements     | 0;1;2;3                   | Anti (0); Weak (1); indifferent (2); strong (3)                    | POL_SUPP  |
|  | Effective coordinating body                                 | Nested structure of co-management arrangements                           | 0;1                       | Absent (0); Present (1)  | NESTED    |
|  | Institutional capacity of fisheries department              | Frequency of visits to unit by government officers                       | 0;1;2                     | Never (0); infrequent (1); frequent (2)                            | VISITS    |
|  | Changes in institutional structure of DoF                   | Changes in institutional structure of DoF to support co-management       | 0;1;2                     | None (0); some (1); significant (2)                                | DOF_CHNG  |
| <b>Exogenous Factors (Group VI)</b>                    | Natural disasters (eg cyclones, extreme floods)             | Frequency  | 0;1;2                     | Low (0); medium (1); high(2)                                       | DISASTER  |
|  | Macroeconomic/political/sociocultural changes               | Macroeconomic/political/sociocultural changes                            | Describe                  |  | MACRO     |
|  | External financial assistance                               | Expenditure on community   | \$/year/fisher            |  | EXPENDIT  |
|  | Capacity building support from NGOs                         | Capacity building support for community from NGOs                        | 0;1;2;3                   | none (0); weak (1); medium (2); strong (3)                         | NGO_SUPP  |
|  | Population growth   | Population growth  | 0;1;2                     | Declining (0); static (1); rising (2) or actual values             | POP_GROW  |
|  | Economic growth   | Economic growth  | 0;1;2                     | Declining (0); static (1); rising (2) or actual values             | ECONOMY   |
|  | Ongoing war or armed conflict                               | Ongoing war or armed conflict  | 0;1                       | No (0); yes (1)  | WAR       |
| <b>Outcomes</b>  | <b>Dependent Variables</b>                                  |  |                           |  |           |
| <b>Production/Yield</b>                                | Annual production per unit area                             | Catch per unit area (CPUA)   | tonnes/km2                | or tonnes / km (specify)   | CPUA      |
|  | Annual production per unit area                             | CPUA - Trend   | 0;1;2                     | Are TOTAL landings: increasing (0); stable (1); declining (2)      | CPUA_CHG  |
|  | Number of species whose abundance is increasing             | Number of species whose abundance is increasing                          | Number                    | As perceived by fishers  | SPP_CHG   |
| <b>Sustainability/Biodiversity</b>                     | Sustainability (Resource)                                   | Resource abundance or biomass/ well being                                | Tonnes/fisher/year        | All species combined or specify for each target species            | CPUE      |
|  | Sustainability (Resource)                                   | Resource abundance or biomass/ well being -Trend                         | 0;1;2                     | Declining (0); static (1); rising (2)                              | CPUE_CHG  |
|  | Sustainability (Resource)                                   | Catch variability  | COV of total annual catch | Low (0); medium (1); high (2)                                      | CATCHVAR  |
|  | Sustainability (Resource)                                   | Catch variability - Trend  | 0;1;2                     | Declining (0); static (1); rising (2)                              | VARTREND  |
|  | Sustainability (Resource)                                   | Stocking financially viable?   | 0;1                       | No (0); yes (1)  | STCK_VIA  |
|  | Sustainability (Resource)                                   | Stewardship  | 0;1;2                     | Low (0); medium (1); high(2)                                       | STEWARD   |
|  | Sustainability (Resource)                                   | Knowledge of fishers - Trend   | 0;1;2                     | Declining (0); static (1); rising (2)                              | KNWTREND  |
|  | Biodiversity  | Species richness   | Number of species         |  | SPP       |
|  | Biodiversity  | Species richness - Trend   | 0;1;2                     | Declining (0); static (1); rising (2)                              | SPPTREND  |
|  | Biodiversity  | Extinct/rare species   | Number                    |  | EXTINCT   |
|  | Biodiversity  | Extinct/rare species - Trend   | 0;1;2                     | Declining (0); static (1); rising (2)                              | EXTTREND  |
|  | Habitat condition   | Trend  | 0;1;2                     | Declining (0); static (1); rising (2)                              | HABTREND  |
| <b>Well-Being (Fishers/Households)</b>                 | Annual fishing revenue per unit area                        | CPUA x mean value of species caught                                      | \$/km2/year               | or km of coastline (specify)                                       | REVENUE   |
|  | Annual fishing revenue per unit area                        | CPUA x mean value of species caught -Trend                               | 0;1;2                     | Declining (0); static (1); rising (2)                              | REVTREND  |
|  | Annual fishing costs per unit area                          | Annual costs per unit area   | \$/km2/year               | or km of coastline (specify)                                       | COSTS     |
|  | Annual fishing costs per unit area                          | Annual costs per unit area - Trend                                       | 0;1;2                     | Declining (0); static (1); rising (2)                              | COSTTREND |
|  | Annual fishing profit (income) per unit area                | Annual profit (income) per unit area                                     | \$/km2/year               | or km of coastline (specify)                                       | INCOME    |
|  | Annual fishing profit (income) per unit area                | Annual profit (income) per unit area - Trend                             | 0;1;2                     | Declining (0); static (1); rising (2)                              | INTREND   |
|  | Household income from fishing                               | Household income from fishing  | \$/year                   |  | HHINCOME  |
|  | Household income from fishing                               | Household income from fishing - Trend                                    | 0;1;2                     | Declining (0); static (1); rising (2)                              | HHITREND  |
|  | Assets eg TV, Bikes, Tin Roofs...etc                        | Assets eg TV, bikes, tin roofs...etc                                     | 0;1;2                     | Low (0); medium (1); high (2)                                      | ASSETS    |

|                                     |   |  |                 |   |           |
|-------------------------------------|---|--|-----------------|---|-----------|
|                                     | Assets eg TV, Bikes, Tin Roofs...etc              | Assets eg TV, bikes, tin roofs...etc - Trend                   | 0;1;2           | Declining (0); static (1); rising (2)               | ASSTREND  |
|                                     | Savings and investments                           | Savings and investments  | 0;1;2           | Low (0); medium (1); high(2) or state mean value(s) | SAVINGS   |
|                                     | Savings and investments                           | Savings and investments - Trend                                | 0;1;2           | Declining (0); static (1); rising (2)               | SAVTREND  |
|                                     | Well-being of households                          | Well-being of household/ standard of living                    | 0-10            | Poor (0); Excellent (10)                            | WELBEING  |
|                                     | Well-being of households                          | Well-being of household/ standard of living - Trend            | 0;1;2           | Declining (0); static (1); rising (2)               | WELTREND  |
|                                     | Well-being of households                          | Access to services (health/water etc)                          | 0;1;2           | Low (0); medium (1); high (2)                       | SERVICES  |
|                                     | Well-being of households                          | Access to services (health/water etc) - Trend                  | 0;1;2           | Declining (0); static (1); rising (2)               | SERTREND  |
|                                     | Food security                                     | Number of fish meals/week                                      | 0;1;2           | Declining (0); static (1); rising (2)               | MEALS     |
|                                     | Food security                                     | Days per month without fish meals                              | 0;1;2           | Declining (2); static (1); rising (0)               | NO_MEALS  |
|                                     | Food security                                     | Food security (General)  | 0;1;2           | Low (0); medium (1); high(2)                        | SECURITY  |
|                                     | Food security                                     | Food security (General) - Trend                                | 0;1;2           | Declining (0); static (1); rising (2)               | SECTREND  |
| <b>Institutional Performance</b>    | Empowerment                                       | Participation in management                                    | 0;1;2           | Low (0); medium (1); high (2)                       | MAN_PART  |
|                                     | Empowerment                                       | Participation in management - Trend                            | 0;1;2           | Declining (0); static (1); rising (2)               | PARTREND  |
|                                     | Empowerment                                       | Influence of fishers/stakeholders in management                | 0;1;2           | Low (0); medium (1); high (2)                       | INFLUENC  |
|                                     | Empowerment                                       | Influence of fishers/stakeholders in management -Trend         | 0;1;2           | Declining (0); static (1); rising (2)               | INFTREND  |
|                                     | Equity  | General  | 0;1;2           | Low (0); medium (1); high (2)                       | EQUITY    |
|                                     | Equity  | General - Trend  | 0;1;2           | Declining (0); static (1); rising (2)               | EQYTREND  |
|                                     | Equity  | Distributional among community members                         | 0;1;2           | Low (0); medium (1); high (2)                       | DISTRIB   |
|                                     | Equity  | Distributional among community members - Trend                 | 0;1;2           | Declining (0); static (1); rising (2)               | DISTREND  |
|                                     | Equity  | Satisfaction with arrangements                                 | 0;1;2           | Low (0); medium (1); high (2)                       | SATISFAC  |
|                                     | Equity  | Satisfaction with arrangements - Trend                         | 0;1;2           | Declining (0); static (1); rising (2)               | SATREND   |
|                                     | Equity  | Equity of allocation of access rights to resources             | 0;1;2           | Low (0); medium (1); high (2)                       | ACCES_EQ  |
|                                     | Equity  | Equity of allocation of access rights to resources - Trend     | 0;1;2           | Declining (0); static (1); rising (2)               | AEQTREND  |
|                                     | Compliance with rules and regulations             | Compliance with rules and regulations                          | 0;1;2           | Low (0); medium (1); high (2)                       | COMPLY1   |
|                                     | Compliance with rules and regulations             | Compliance with rules and regulations                          | % not complying |   | COMPLY2   |
|                                     | Compliance with rules and regulations             | Compliance with rules and regulations - Trend                  | 0;1;2           | Declining (0); static (1); rising (2)               | CMPTREND  |
|                                     | Efficiency  | Benefits of management exceed transaction costs? (info         | 0;1             | No (0); yes (1)                                     | EFFICIENT |
|                                     | Conflicts among fishers within same IMA/VMA       | Frequency of conflicts   | 0;1;2           | Low (0); medium (1); high (2)                       | CONFLCT1  |
|                                     | Conflicts among fishers between different IMAs/   | Frequency of conflicts   | 0;1;2           | Low (0); medium (1); high (2)                       | CONFLCT2  |
|                                     | Conflicts among fishers in IMA/VMA and other fi   | Frequency of conflicts   | 0;1;2           | Low (0); medium (1); high (2)                       | CONFLCT3  |
|                                     | Conflicts among different gear operators within I | Frequency of conflicts   | 0;1;2           | Low (0); medium (1); high (2)                       | CONFLCT4  |
|                                     | Conflicts between fishers and others in commun    | Frequency of conflicts   | 0;1;2           | Low (0); medium (1); high (2)                       | CONFLCT5  |
|                                     | Conflicts(General)                                | Frequency of conflicts (General) - Trend                       | 0;1;2           | Declining (0); static (1); rising (2)               | CONTREND  |
|                                     | Conflict resolution capacity                      | Conflict resolution capacity                                   | 0;1;2           | Low (0); medium (1); high (2)                       | CONRESOL  |
|                                     | Conflict resolution capacity                      | Conflict resolution capacity - Trend                           | 0;1;2           | Declining (0); static (1); rising (2)               | RESTREND  |
|                                     | Social cohesion                                   | Social cohesion  | 0;1;2           | Low (0); medium (1); high (2)                       | COHESION  |
|                                     | Social cohesion                                   | Social cohesion - Trend  | 0;1;2           | Declining (0); static (1); rising (2)               | COHTREND  |
| <b>Institutional Sustainability</b> | Sustainability (Institutions)                     | Self-financing institutional arrangements?                     | 0;1             | No (0); yes (1)                                     | SELFIN    |
|                                     | Sustainability (Institutions)                     | Period of existence of local institutional arrangements? Years |                 |   | IA_YRS    |
|                                     | Sustainability (Institutions)                     | Continuing effective transfer of management responsibil        | 0;1             | No (0); yes (1)                                     | CONTINUE  |