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TABLE FOR COMMENTS

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#	**Para No./ Annex / Figure / Table**	**Line Num ber**	**Type of comment** ge = general te = technical ed = editorial	**Comment** **(including justification for change)**	**Proposed change** **(including proposed text)**	**Assessment of comment** **(*to be completed by UNFCCC secretariat*)**
1	**20**		ge	In the current NAMA pipeline, four NAMAs need a methodology on energy consumption in public water supply systems. In these four NAMAs, part of the energy accounting requires monitoring electricity consumed in water pumping, water treatment, distribution and wastewater pumping. During EB76 a general tool for a water emission factor was considered but no recommendation given. For any particular water supply system, this accounting implies large monitoring costs and water supply is a typical case for a standardized baseline with defaults for all electricity consumption involved in bringing a unit of water to a user. Possibly, a standardized baseline framework can cover all types and sizes of public water supply systems in any country, with defaults for all types of equipment in a water grid, providing an emission factor irrespective of the installed instrumentation. To indicate some accounting issues to be addressed, a 2-by-2 typology of energy-in-water in NAMAs is proposed below. A NAMA is embedded in national policy. Among the four NAMA, the usefulness and impact of a water emission factor in MRV is also unique for each one. In the table below, the upper two NAMA are integral, the lower two adjacent to climate policy. A water supply CO2 emission baseline can be central in MRV, or an add-on to include all emission impacts or an output variable. Existing PoAs can influence a NAMA's mitigation scope. Although a water supply CO2 baseline approach is universal, both the NAMA approach and the national policy background determine the impact a Standardized Baseline application can have. **Mexico – Urban NAMA NS-112** started from an operational PoA with a new methodology, AMS-III.AE incl. targets for kWh/m3 water supplied, with over 1 mio. **Jordan – Water sector NS-25** multidonor PPIAF collected list of 51 candidates, workshop selected a final shortlist and as first priority: Zarqa Ind. Wastewater		

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				green mortgages since 2009. NAMA extends economic and social policies, strong national bodies pursue genuine national policy and major economic sectors, no attention to foreign funds. The PoA is part and parcel of national policy and intrinsic quality of PoA has an enabling impact. MRV is part of policy design because mortgage conditions of loans and subsidies anticipate the cost of insulation, SWH, lights, etc. for house owners, and likewise loans for services providers in water and waste (efficient pumps, wastewater biogas, landfill gas, etc.). This influence evolves and with it housing efficiency levels, mortgage terms are updated regularly. Thus monitoring uses the same data as verification for housing. Water MRV reflects physical grid differences, setting baselines.	Treatment Plant (ZIWWT). Subsidies for water and electricity are partial causes of inefficiencies. This NAMA seeks to overcome policy failures by creating new water-energy-agriculture linkages. National policy is addressed with foreign funds and international climate policy goals are translated to national climate change problems. PoAs have distinct influence, changing national politics with their funding. The MRV operates at installation level, but the performance of ZIWWT must be related to sector parameters. Baselines include approximated volumes and levels of unmet water demand. MRV parameters are useful for national water sector policy but remain incomplete as verification. Although a project NAMA, the emission reduction is a sector outcome. PPIAF members and Ministries have different water models and a sector baseline can provide a neutral metric.		
				Thailand by PC-iGER The country is divided regionally in two water utilities with uncertain buy-in to NESDP and the initiative rests with the large municipalities. Wastewater NAMA might compete with PoAs on AMS-III.H in Thailand, and CDM projects run by SouthPole, Sumitomo, J-Power, Marubeni and Mitsubishi. MRV is separate from NAMA design, can build on AMS-III.H, need to integrate parameters that document the resilience aspects such as flood impact, water re-use potential.	**India** wastewater NAMA to address the cities >100.000 inhabitants not dealt with in the past Ganga Action Plan (97 of 181 cities). Focus is pollution reduction with mitigation as co-benefit. This NAMA puts large foreign funds to new national ends (National Ganga Mission), unconnected to nationally prominent policy instruments. NAMA as instrument is not received or translated into national policy, unlike PoA. Water PoAs can run their course but do not influence water NAMA (example irrigation pump PoA of BEE, AMS-II.P, and BEE's CFL PoA). Monitoring for Ganges wastewater treatment can build on CDM methodologies, reporting is extensive to		

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				demonstrate the use of foreign funding. Among public service utilities, water utilities are often the most embedded in national political history. Institutional factors in the water sector are similarly important as the environmental context. Applying a water supply emission factor by water utilities depends on their planning capacity, to pursue DSM-type water projects and new investments in maintenance. Besides being a precondition for using climate finance in water, a water emission factor can have important impacts in a variety of ways. The four NAMA are an indication and general criteria of national contexts for water MRV are suggested, assuming utilities in each of the contexts have similar capacities. In the following Table water sector parameters important for water utilities are listed in the following order: CIF funds, NAMAs proposed, Non-revenue water (NRW) % losses in the large cities' water grids, water availability when less than 24 h/d, % of HH with sewer connection, annual water used per capita, % agriculture with irrigation. **ℵ MRV impact mainly through OPEX** countries with expensive and deficient water grids, under increasing stress and which have nationally driven and elaborate climate policy. Water grid and policy context both favour using water emission factors to inform investment decisions. The energy intensity clarifies the variable cost of water supply, the OPEX, its reduction potential and adds the value of carbon. Philippines CIF varied, no NAMA NRW 57-17% 78% 874m^3/y 50% Mexico CIF, NAMAs similar diverse NRW 43% 81% 703m^3/y >80% South Africa CIF, NAMAs similar diverse NRW 11-30% 59% 272m^3/y <20% **ℑ MRV impact by better accounting, new incentives** water scarce countries with major inefficiencies from water governance (high losses). Often costs are not known or not transmitted to those who cause them. These countries are also aid dependent, actively seek CIF and NAMA funds and translate international climate goals into national efforts. MRV impact is potentially strong when the emission factor takes various data sources and assembles their accounting. Jordan CIF all CSP, NAMA wastewater NRW 48% 4h/week 85% 150m^3/y >80% Morocco CIF similar to NAMAs diverse NRW 29-21% 72% 270m^3/y 50% **ℜ MRV impact through project type** severe infrastructure deficits, unrelated to **℘ MRV brings policy attention to instruments**		

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				water availability. Deficits in availability h/d, NRW and areas covered reflect low policy priorities. Aid dependency can overrule national climate policies. The water sector has lower aid effectiveness than others. Because of the low priority, many technology upgrades with good returns that even MRV can support with climate finance. Bangladesh CIF only CZM, no NAMA NRW 29% 3h/d 36% 241m^3/y 42% Pakistan no CIF, no NAMA NRW 42% 8h/d 58% 184m^3/y 77% Kenya CIF geothermal, no NAMA NRW 38% 16h/d 30% 72m^3/y 67% countries which strong local water deficiencies sometimes addressed with local funding, including water concessions to the private sector. Strong climate policies are pursued in parallel to foreign activities (Amazon, peatland). Water utilities can pursue water projects with climate finance that highlight the past negligence of water supply quality and supply efficiency (similar to innovative CDM projects) Brazil NRW 40% 77% 306m^3/y <20% Indonesia NRW 34% 52% 517m^3/y 50% Malaysia NRW 32-21% 94% 488m^3/y >60%		
2	**26**		ge	It is indeed important to draw lessons from the usability of AMS-II.J and to identify why some PPs in some countries apply AMS-II.C and others AMS-II.J for lighting projects. The right lessons, adapted to other appliances, can certainly enable similar reductions in power demand as achieved for lighting. During the creation of AM46, the first lighting methodology, one dimension of appliances was not addressed, the behavioural side. AM46 has only the distinction of urban households versus rural households. Many other parameters of households and the respective lighting usage were subsumed in the urban / rural distinction. Some experts assert that AM46 was necessary to establish sampling criteria, but this interpretation is incomplete, the sampling became so difficult because the common denominator of the cases to sample was misleading. Useful statistics need to start with adequate qualitative insights. The absence of the latter also reduces the applicability of AM46. AMS-II.J uniformly imposes 3.5 hours daily lightbulb usage on all households and the uniformity requires high conservativeness. An aspect to explore is whether a variation of this default would yield better results or more numerous CDM projects. Utility companies with sophisticated DSM analysis and extensive DSM experience can provide effective defaults for classes of their customers. Possibly the high conservativeness can be reduced. The 20 PoA (mostly China) and 37 single projects (mostly India) with		

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				AMS-II.J suggest AMS-II.J is attractive for big utilities (in large countries), while only PPs with powerful supporters such as Standard Bank or the World Bank decide to absorb the risks of using AMS-II.C instead. Possibly the requirements for sampling and AMS-II.C have also been a factor that kept the manufacturers from acquiring and offering sampling capacity themselves. The consumer side of appliances can be considered in the definition of defaults. Airconditioners, water heaters, refrigerators, cookers, fans, include specific consumer typologies necessary to achieve successful (practicable) defaults. The consumer profiles used in commerce and marketing for the distribution of appliances can also inform the choice of defaults. Retailers and distributors predict and shape purchase decisions and the influence of Energy Labels for instance. Elements of this knowledge can inform default definitions. Even so the same technology might operate in an appliance, some usage aspect is behaviourally established so that a default parameter is valid for one group of consumers and a different default for another group. Most appliances need several defaults in order to achieve the usability of AMS-II.J. Refrigerators and TVs are closest to lighting, then Airconditioners, washing machines and dryers are more demanding. As an illustration one can compare AMS-III.X and AMS-II.O for household refrigerators as representing opposite ends of a continuum of household classes from low-income to high-income. Effective defaults for low-income households are often different from those for high-income households. AMS-II.O defines the baseline at midpoint European Energy Class "A" (EEI=49.5) and thereby eliminates most data requirements (only the size and efficiency of the new refrigerator is required), even less than in AMS-II.J, and thus has a more extreme level of conservativeness. This is an extreme solution because there are other solutions to assure conservativeness and still provide a reliable baseline. With this baseline, AMS-II.O serves to introduce highest efficiency appliances in a country and thus targets households who can afford them. The high conservatism reduces the volume when high-income households' demand is price sensitive. AMS-III.X works at the opposite end of the household spectrum because the methodology includes monitoring old refrigerators and because it suits utility programmes for subsidized tariff areas where households only buy second hand appliances (well documented for Brazilian Favelas). AMS-III.X implicitly credits some suppressed demand by assuming refrigerators are used every day thus disregarding households switching off refrigerators to limit the		

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				electricity bill (suppressed demand needs an approach for households unable to buy a refrigerator). An AMS-II.O – type approach is feasible for all appliances but it requires PPs seeking to capture market share with highest efficiency models. While AMS-III.X impacts the affordability of high efficiency models for low-income households and suitable default parameters should support these utilities' DSM activities, for example parameters on electricity bills or housing types. Workable parameters are dependent on the socio-economic context (market and country). The relevant parameters at one end of the continuum can be different from those at the other end. Such a continuum is not linear and correlations can change directions. Standardized parameters and defaults should not be limited by "black-boxing" technology and consider simultaneously consumer characteristics and behavioural patterns.		