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محل برگزاری دوره آموزشی:

مرکز تحقیقاتی و آموزشی تری (دهلی نو)
دانشگاه تری (دهلی نو)
مرکز تحقیقاتی ترویجی تری (موتاکشوار)

مکان مورد بازدید:

مرکز تحقیقاتی و سایتهای الگویی تری (موکاتاشوار)
مدلهای فناوری پایدار در مناطق روستایی (موتاکشوار)
ایستگاه رادیویی محلی مرکز تحقیقات تری(موتاکشوار)
موزه و پروژه مدیریت پایدار فضولات و مواد زائد (دهلی نو)

کار گروه همگانی توسعه پایدار در تاریخ ۲۲ ژانویه ۲۰۱۳ و براساس قطعنامه مجمع عمومی سازمان ملل تاسیس گردید. سی کشور عضو این کارگروه می باشند، ضمن آنکه سایر کشورها هم می توانند در جلسات آن حضور یابند. هدف اصلی کارگروه مذکور تهیه گزارشی برای مجمع عمومی سازمان ملل است که مبنای کار هیئت عالی رتبه سیاسی توسعه پایدار و تصمیمات جامعه جهانی برای تهیه برنامه توسعه پس از سال ۲۰۱۵ باشد. این کارگروه گزارش خود را در ۱۹ ژوئیه۲۰۱۴ ارائه نمود و در آن ۱۷ آرمان و ۱۶۹ هدف را برای برنامه پسا ۲۰۱۵ (افق ۲۰۳۰) پیشنهاد نمود. آرمان های هفده گانه عبارتند از:

vision for a new development:

“PEOPLE CENTRED AND PLANET SENSITIVE”.

priorities for the future : Poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

THE SUSTAINABLE DEVELOPMENT GOALS

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

آرمان ۱- پایان دادن به فقر در همه اشکال آن
آرمان ۲ –پایان دادن به گرسنگی ، دستیابی به امنیت غذایی و بهبود تغذیه و ترویج کشاورزی پایدار
آرمان ۳- تامین زندگی های سالم و ترویج و تامین رفاه برای همه در همه سنین
آرمان ۴ –تامین آموزش جامع و برابر و ترویج فرصت های یادگیری مادام العمر برای همه
آرمان ۵- تامین برابری جنسی و توانمند کردن همه زنان و دختران
آرمان ۶- تامین مدیریت پایدار و قابلیت دسترسی به آب و بهداشت برای همه
آرمان ۷- تامین دسترسی به انرژی پایدار، مطمئن، قابل تهیه و پیشرفته و مدرن برای همه
آرمان ۸- ترویج رشد اقتصادی محکم، جامع، و پایدار ؛ و شغل کامل و مداوم و مولد و شایسته برای همه
آرمان ۹- ایجاد زیرساخت های قابل احیا، ترویج صنعتی سازی پایدار و پرورش نوآوری ها
آرمان ۱۰- کاهش نابرابری درون و مابین کشورها
آرمان ۱۱- ساخت شهرها و سکونت گاههای انسانی جامع، ایمن، قابل احیاء و پایدار
آرمان ۱۲- تامین الگوهای پایدار تولید و مصرف
آرمان ۱۳- انجام اقدامی فوری برای نبرد با تغییرات اقلیمی و اثرات آن
آرمان ۱۴- نگهداری و استفاده پایدار از اقیانوس ها، دریاها، و منابع دریایی برای توسعه پایدار
آرمان ۱۵- محافظت، اعاده و ترویج استفاده پایدار از اکوسیستم های زمینی, مدیریت پایدار جنگل، مبارزه با بیابان زایی، و متوقف ساختن تخریب زمین ها و احیاء آنها و متوقف ساختن از دست دادن تنوع زیستی
آرمان ۱۶- ارتقاء جوامع کامل و آرام و صلح طلب برای توسعه پایدار و فراهم نمودن دسترسی به عدالت برای همه و ایجاد نهادهای جامع، قابل اتکاء، و موثر در همه سطوح
آرمان ۱۷- تقویت اهداف اجرا و احیاء مشارکت جهانی برای توسعه پایدار

هدف ۱: پایان دادن به فقر در تمامی اشکال آن و در همه جا
نرخ شدید فقر نسبت به سال ۱۹۹۰، نصف شده است. در حالی که این یک دستاورد قابل توجه است، اما هنوز هم یک نفر از هر پنج نفر در مناطق در حال توسعه با کمتر از ۱.۲۵ دلار در روز زندگی می کند. همچنین هنوز هم میلیون ها نفر با کمی بیشتر از این میزان، زندگی می کنند. علاوه بر این که بسیاری از مردم در معرض خطر لغزش دوباره به فقر شدید قرار دارند. فقر بیشتر ناشی از فقدان درآمد و منابع مورد اطمینان برای معیشت پایدار است. مصادیق آن عبارتند از گرسنگی و سوء تغذیه، دسترسی محدود به آموزش و پرورش و دیگر خدمات اساسی، تبعیض اجتماعی و محرومیت و همچنین عدم مشارکت در تصمیم گیری. رشد اقتصادی برای ایجاد شغل پایدار و ترویج برابری باید فراگیر باشد.

هدف ۲: پایان دادن به گرسنگی، دستیابی به امنیت غذایی و بهبود تغذیه و ترویج کشاورزی پایدار

اگر این هدف درست انجام شود، کشاورزی، جنگلداری و شیلات می تواند مواد غذایی مغذی برای همه را فراهم کند و منجر به تولید درآمد مناسب و معقول باشد. این مورد در حالی است که حمایت از توسعه روستایی مردم محور و حفاظت از محیط زیست رخ دهد.در حال حاضر، خاک، آب شیرین، اقیانوس ها، جنگل ها و تنوع زیستی به سرعت در حال تخریب هستند. تغییر آب و هوا فشار بیشتری را روی منابع ما ایجاد کرده است و همچنین موجب افزایش خطرات مرتبط با بلایای طبیعی مانند خشکسالی ها و سیل شده است. بسیاری از زنان و مردان روستایی دیگر نمی تواند حتی نان شب خود را از زمین هایشان دربیاورند. به این ترتیب آنها برای پیدا کردن فرصت های دیگر مجبور به مهاجرت به شهرها می شوند.

یک تغییر عمیق و عمده در سیستم مواد غذایی و کشاورزی جهانی مورد نیاز است. چرا که اگر ما امروز باید تغذیه ۷۹۵ میلیون گرسنه را فراهم کنیم تا سال ۲۰۵۰ این رقم به ۲ میلیارد مردم می رسد. بخش مواد غذایی و کشاورزی راه حل های کلیدی برای توسعه، از بین بردن گرسنگی و ریشه کن کردن فقر ارائه می دهد.

هدف ۳: اطمینان از زندگی سالم و ترویج رفاه برای همه در تمام سنین

تضمین زندگی سالم و ترویج رفاه برای همه در تمام سنین برای توسعه پایدار ضروری است. البته گام های قابل توجهی در افزایش امید به زندگی و کاهش برخی از مرگ و میر مشترک در ارتباط با کودکان و مرگ و میر مادران ایجاد شده است. همچنین پیشرفت های عمده ای در افزایش دسترسی به آب سالم و بهداشت، کاهش مالاریا، سل، فلج اطفال و گسترش اچ آی وی/ایدز اتفاق افتاده است. اما با این حال، به تلاش بیشتری نیاز است را این مسایل به طور کامل ریشه کن شود.

هدف ۴: اطمینان از آموزش فراگیر و باکیفیت برای همه و ترویج یادگیری مادام العمر

به دست آوردن آموزش و پرورش پایه و اساس برای بهبود زندگی مردم و توسعه پایدار مهم است. البته پیشرفت های عمده ای در جهت افزایش دسترسی به آموزش در تمام سطوح و افزایش نرخ ثبت نام در مدارس به ویژه برای زنان و دختران شده است. همچنین مهارت های اولیه سواد فوق العاده بهبود یافته است. اما همچنان تلاش جسورانه برای ایجاد گام های بیشتری برای دستیابی به اهداف آموزش و پرورش جهانی مورد نیاز است. به عنوان مثال، در بیشتر کشورهای جهان برابری در آموزش ابتدایی بین دختران و پسران را انجام داده اند، اما معدود کشورهایی هستند که این برابری را در تمام سطوح آموزش و پرورش انجام داده اند.

هدف ۵: دستیابی به برابری جنسیتی و توانمندسازی همه زنان و دختران

در حالی که پیشرفت های زیادی در برابری جنسیتی و توانمندسازی زنان در اهداف توسعه هزاره (از جمله دسترسی برابر به آموزش ابتدایی بین دختران و پسران) به دست آمده است، اما هنوز هم زنان و دختران از تبعیض و خشونت در بخش های مختلف جهان رنج می برند. فراهم آوردن شرایطی برای زنان و دختران برای دسترسی برابر به آموزش و پرورش، بهداشت و درمان، کار مناسب و نمایندگی در فرایندهای تصمیم گیری سیاسی و اقتصادی به اقتصاد پایدار منجر می شود.

هدف ۶: اطمینان از دسترسی به آب و بهداشت برای همه

آب تمیز و قابل دسترس برای همه یک بخش اساسی از جهانی است که ما می خواهیم در آن زندگی کنیم. در کره زمین آب شیرین کافی برای رسیدن به این هدف وجود دارد. اما با توجه به اقتصاد بد و یا زیرساخت های ضعیف، هر ساله میلیون ها نفر از مردم که بسیاری از آنها کودکان هستند، از بیماری های مرتبط با آب، فاضلاب و بهداشت می میرند. کمبود آب، کیفیت پایین آب و بهداشت ناکافی تاثیر منفی بر امنیت غذایی، انتخاب معیشت و فرصت های آموزشی برای خانواده های فقیر در سراسر جهان ایجاد می کند. خشکسالی در برخی از فقیرترین کشورهای جهان منجر به بدتر شدن گرسنگی و سوء تغذیه شده است. تا سال ۲۰۵۰، حداقل یک نفر از هر چهار نفر به احتمال زیاد در یک کشوری که با مشکل آب مواجه است، دچار مشکلات مزمن و شدید آب شیرین می شود.

هدف ۷: اطمینان از دسترسی به انرژی ارزان قیمت، قابل اعتماد، پایدار و مدرن برای همه

انرژی مرکز هر چالش عمده و هر فرصتی در جهان امروز است. امکان دسترسی به انرژی برای همه ضروری است چرا که انرژی می تواند برای شغل، امنیت، تغییرات آب و هوایی، تولید مواد غذایی و یا افزایش درآمد مهم باشد. انرژی پایدار فرصت است.انرژی عامل مسلط به تغییر آب و هوا و عامل ایجاد حدود ۶۰ درصد از کل گازهای گلخانه ای است.

هدف ۸: بهبود رشد فراگیر و پایدار اقتصادی، اشتغال و کار مناسب برای همه
تقریبا نیمی از جمعیت جهان هنوز هم با درآمد ۲ دلاری در روز زندگی می کنند. در بسیاری از مکان ها، داشتن شغل، فرار از فقر را تضمین نمی کند. به همین دلیل هم باید تجدیدنظر در سیاست های اجتماعی و اقتصادی با هدف ریشه کن کردن فقر صورت بگیرد. رشد اقتصادی پایدار مستلزم ایجاد شرایطی است که اجازه می دهد مردم مشاغلی با کیفیت داشته باشند که باعث تحریک اقتصاد می شود، البته در حالی که به محیط زیست آسیبی نمی رساند. فرصت های شغلی و شرایط کاری مناسب برای کل جمعیت در سن کار مورد نیاز است.
آمار بیکاری جهانی از ۱۷۰ میلیون نفر در سال ۲۰۰۷ به حدود ۲۰۲ میلیون در سال ۲۰۱۲ افزایش یافته است، که شامل در حدود ۷۵ میلیون زن و مرد جوان می‌شود. نزدیک به ۲.۲ میلیارد نفر زیر خط فقر زندگی می کنند. یعنی هرروز با ۲ دلار زندگی می کنند، اما ریشه کن کردن فقر از طریق شغل پایدار و پرداخت خوب امکان پذیر است ۴۷۰ .یلیون شغل در سطح جهان برای تازه واردان به بازار کار بین سال های ۲۰۱۶ و ۲۰۳۰ مورد نیاز است.

هدف ۹: ساخت زیرساخت های انعطاف پذیر، ترویج صنعتی پایدار و تقویت نوآوری

سرمایه گذاری در زیرساخت – حمل و نقل، آبیاری، انرژی و فناوری اطلاعات و ارتباطات – برای دستیابی به توسعه پایدار و توانمند سازی جوامع در بسیاری از کشورها بسیار مهم است. مدت طولانی است که نیاز به سرمایه گذاری در زیرساخت ها به عنوان راه رشد در بهره وری و درآمد، و بهبود در سلامت و آموزش و پرورش شناخته شده است.

توسعه صنعتی فراگیر و پایدار منبع اصلی درآمد است و اجازه می دهد با افزایش سریع و پایدار و استانداردهای زندگی برای همه مردم، فراهم می کند. پیشرفت های فن آوری پایه و اساس تلاش برای رسیدن به اهداف زیست محیطی، از جمله افزایش منابع و بهره وری انرژی است. بدون فن آوری و نوآوری، رشد صنعتی اتفاق نخواهد افتاد و بدون صنعتی شدن، توسعه هم رخ نمی دهد.

هدف ۱۰: کاهش نابرابری در داخل و در میان کشورها

جامعه بین المللی گام های مهمی در جهت نجات مردم از فقر انجام داده است. آسیب پذیرترین کشورها– کشورهای کمتر توسعه یافته، کشورهای در حال توسعه محصور در خشکی و کشورهای جزیره ای کوچک در حال توسعه – همچنان به کاهش فقر عمل می کنند. اما با این حال، نابرابری هنوز هم ادامه دارد. علاوه بر این، در حالی که نابرابری درآمد بین کشورها ممکن است کاهش یافته است، اما نابرابری درون کشورها افزایش یافته است.

هدف ۱۱: تضمین شهرهای امن، انعطاف پذیر و پایدار

شهرها مکان هایی برای ایده ها، تجارت، فرهنگ، علم، بهره وری، توسعه اجتماعی هستند. در بهترین حالت، شهرها مردم برای پیشبرد اجتماعی و اقتصادی توانا می سازند. با این حال، بسیاری از چالش های برای حفظ شهرها وجود دارد. ایجاد شغل و رفاه لازم است، در حالی که به زمین و منابع فشار وارد می شود. چالش های مشترک شهری شامل کمبود بودجه برای ارائه خدمات پایه، کمبود مسکن کافی و کاهش زیرساخت ها است.

هدف ۱۲: اطمینان از مصرف و تولید الگوهای سازگار با محیط زیست

مصرف و تولید پایدار در مورد ارتقای منابع و بهره وری انرژی، زیرساخت پایدار و فراهم آوردن امکان دسترسی به خدمات اساسی، مشاغل سبز و مناسب و معقول و کیفیت بهتر زندگی برای همه است. اجرای آن برای رسیدن به برنامه توسعه، کاهش هزینه های اقتصادی، زیست محیطی و اجتماعی آینده، تقویت رقابت اقتصادی و کاهش فقر کمک می کند.

هدف ۱۳: گرفتن تصمیماتی برای اقدامات فوری برای مبارزه با تغییرات آب و هوا و اثرات آن

تغییرات آب و هوایی در حال حاضر موثر بر هر کشور در هر قاره ها است. این مساله می تواند منجر به اخلال در اقتصاد ملی، زندگی، هزینه افراد، جوامع و کشورها شود. مردم در حال تجربه اثرات قابل توجهی از تغییرات آب و هوایی که شامل الگوهای تغییر آب و هوا، افزایش سطح آب دریا و تغییرات آب و هوایی شدید تر می شود، هستند.انتشار گازهای گلخانه ای از فعالیت های انسان و تغییر آب و هوایی افزایش یافته است و در حال حاضر به بیشترین میزان خود در کل تاریخ رسیده است. پیش بینی می شود بدون هیچ اقدامی، دمای سطح جهان در طول قرن ۲۱، ۳ درجه افزایش پیدا کند. به این ترتیب برخی نقاط جهان، گرمتر می شود.

هدف ۱۴: حفظ و استفاده پایدار از اقیانوس ها، دریاها و منابع دریایی

اقیانوس های جهان سیستمی دارند که زمین را برای بشر قابل سکونت کرده است. آب باران، آب آشامیدنی، آب و هوا، سواحل، بسیاری از مواد غذایی ما و حتی اکسیژن که در هوا تنفس می کنیم، در نهایت همه ارائه و تنظیم شده توسط دریا هستند. در طول تاریخ، اقیانوس ها و دریاها خط لوله حیاتی برای تجارت و حمل و نقل بوده است. مدیریت دقیق از این منابع حیاتی از ویژگی های کلیدی یک آینده پایدار است.

هدف ۱۵: مدیریت پایدار جنگل ها، مبارزه با بیابان زایی، متوقف و معکوس سازی تخریب زمین، توقف از دست دادن تنوع زیستی

۳۰ درصد از سطح زمین از جنگل پوشیده شده است. علاوه بر این جنگل ها در تامین امنیت غذایی و سرپناه نقش مهمی ایفا می کنند. جنگل کلید مبارزه با تغییرات آب و هوایی، حفاظت از تنوع زیستی و خانه جمعیت بومی است. اما این در حالی است که هرساله ۱۳ میلیون هکتار از جنگل ها از بین می رود و در مناطق خشک باعث ایجاد ۳.۶ میلیارد هکتار بیابان زایی شده است. جنگل زدایی و بیابان زایی – ناشی از فعالیت های انسانی و تغییرات آب و هوایی – چالش های عمده ای به توسعه پایدار، زندگی و معیشت میلیون ها نفر از مردم در مبارزه با فقر هستند. برای مدیریت جنگل ها و مبارزه با بیابان زایی با تلاش هایی صورت بگیرد.

هدف ۱۶: ارتقای جوامع صلح آمیز و فراگیر

هدف شانزدهم از اهداف توسعه پایدار به ارتقاء جوامع صلح آمیز و فراگیر برای توسعه پایدار در تمام سطوح اختصاص داده شده است. در این هدف باید ارائه دسترسی به عدالت برای همه صورت بگیرد، ساخت و ساز موثر، موسسات پاسخگو باشند.

هدف ۱۷: احیای مشارکت جهانی برای توسعه پایدار

یک دستور کار توسعه پایدار موفق نیاز به مشارکت بین دولت ها، بخش خصوصی و جامعه مدنی دارد. این مشارکت فراگیر ساخته شده بر اصول و ارزش ها، چشم انداز مشترک، اهداف مشترک در سطح جهانی، منطقه ای، ملی و محلی باید باشد. اقدام فوری برای بسیج، تغییر مسیر و باز کردن قدرت تحول تریلیون ها دلار از منابع خصوصی به اهداف توسعه پایدار مورد نیاز است. سرمایه گذاری بلند مدت، از جمله سرمایه گذاری مستقیم خارجی، در بخش حیاتی مورد نیاز، به ویژه در کشورهای در حال توسعه می تواند راه کار باشد.

شرایط ضروری و الزامات اساسی برای تحقق توسعه ی پایدار در کشورهای جهان در آینده به شرح زیر آورده شده است:

۱- ۱- وجود یک نظام سیاسی که با تامین امنیت برای شهروندان، آن ها را در تصمیم گیری ها مشارکت دهد.
۲- ۲- وجود یک نظام اقتصادی که بتواند برای تنش های ایجاد شده از ناموزونی های توسعه، چاره اندیشی کند.
۳- ۳- وجود یک نظام تولیدی که ملزم به حمایت از محیط زیست باشد و محیط را اساس توسعه بداند.
۴- ۴- وجود یک نظام دانش فنی مناسب که الگوهای پایداری از تجارت مالی فراهم نماید.
۵- ۵- وجود یک نظام بین المللی که الگوهایی از تجارت و دارایی را ایجاد کند.
۶- ۶-وجود یک نظام مدیریتی قابل انعطاف که ظرفیت خود اصلاحی را داشته باشد.

TARGET1

1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day

1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions

1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions


SUSTAINABLE DEVELOPMENT GOAL 3 AND ITS TARGETS
SDG 3:
ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES
TARGET 3.8: ACHIEVE UNIVERSAL HEALTH COVERAGE, INCLUDING FINANCIAL RISK PROTECTION, ACCESS TO QUALITY ESSENTIAL HEALTH-CARE SERVICES, MEDICINES AND VACCINES FOR ALL
MDG UNFINISHED AND EXPANDED AGENDA
3.1: Reduce maternal mortality
3.2: End preventable newborn and child deaths
3.3: End the epidemics of AIDS, TB, malaria and NTDs
and combat hepatitis, waterborne and other communicable diseases
3.7: Ensure universal access to sexual and reproductive health-care services
NEW SDG 3 TARGETS
3.4: Reduce mortality from NCDs and promote mental health
3.5: Strengthen prevention and treatment of substance abuse
3.6: Halve global deaths and injuries from road traffic accidents
3.9: Reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
SDG 3 MEANS OF IMPLEMENTATION TARGETS
3.a: Strengthen implementation of framework convention on tobacco control
3.b: Provide access to medicines and vaccines for all, support R&D of vaccines and medicines for all
3.c: Increase health financing and health workforce in developing countries
3.d: Strengthen capacity for early warning, risk reduction and management of health risks
INTERACTIONS WITH ECONOMIC, OTHER SOCIAL AND ENVIRONMENTAL SDGs AND SDG 17 ON MEANS OF IMPLEMENTATION

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Atmosphere

The 2030 Agenda for Sustainable Development, through paragraph 31 "calls for the widest possible international cooperation aimed at accelerating the reduction of global greenhouse gas emissions and addressing adaptation to the adverse impacts of climate change".

Both paragraph 31 of Agenda 2030 and paragraph 91 of the Future We Want note "the significant gap between the aggregate effect of Parties' mitigation pledges in terms of global annual emissions of greenhouse gases by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels".

Prior to the 2030 Agenda and the Future We Want, paragraph 38 under Chapter IV- "Protecting and managing the natural resource base of economic and social development" of the Johannesburg Plan of Implementation expresses the concern of Member States for the changes occurred in the Earth's climate and the adverse effects that these changes have on humankind. In this context, Member States also reaffirm the importance of the United Nations Framework Convention on Climate Change and their commitment in the achievement of the "ultimate objective of stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner, in accordance with our common but differentiated responsibilities and respective capabilities".

In this context, actions identified by the Johannesburg Plan of Implementation are the promotion of the "systematic observation of the Earth's atmosphere, land and oceans by improving monitoring stations, increasing the use of satellites and appropriate integration of these observations to produce high -quality data" as well as the "enhancement of the implementation of national, regional and international strategies to monitor the Earth's atmosphere, land and oceans, including, as appropriate, strategies for integrated global observations, inter alia, with the cooperation of relevant international organizations, especially the specialized agencies, in cooperation with the Convention".

The Commission on Sustainable Development (CSD) focused on a cluster of thematic issues, including atmosphere and air pollution.

Agenda 21 notes, however, that activities that may be undertaken in pursuit of the objectives of this chapter should be co-ordinated with social and economic development in an integrated manner with a view to avoiding adverse impacts on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty.

Biodiversity and ecosystems

The Sustainable Development Goal 15 of the 2030 Agenda for Sustainable Development is devoted to *"protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss"*.

At the Rio+20 Conference, Member States reaffirmed, through paragraphs 197- 204 of the outcome document, the Future We Want, that *"intrinsic value of biological diversity, as well as the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its critical role in maintaining ecosystems that provide essential services, which are critical foundations for sustainable development and human well-being"*. Member States also recognized *"the severity of global biodiversity loss and degradation of ecosystems" and stress the negative impact that this situation has on food security, nutrition, access to water, health of the rural poor and people worldwide"*.

Furthermore, the Future We Want reiterated the importance of implementing the Strategic Plan for Biodiversity 2011-2020, and achieving the Aichi Biodiversity Targets adopted at the Tenth Conference of the Parties to the Convention.

Biodiversity was discussed by the Commission on Sustainable Development on several occasions, and was one of the themes of the 2012/2013 two-year cycle.

At the World Summit on Sustainable Development, held in Johannesburg 2002, biological diversity was addressed in Chapter IV, paragraph 44, of the outcome of the Summit, the Johannesburg Plan of Implementation. The Summit also endorsed the target to achieve, by 2010, a significant reduction of the rate of biodiversity loss at global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on earth, which had some months earlier been adopted by the sixth meeting of the CBD Conference of Parties (COP).

Conservation of biological diversity is the subject of Chapter 15 of Agenda 21 which was adopted at the United Nations Conference on Environment and Development, in 1992, in Rio de Janeiro. On the same occasion, the United Nations Convention on Biological Diversity (CBD), was opened for signature and remained open for signature until 4 June 1993. By that time, it had received 168 signatures. The Convention entered into force on 29 December 1993, 90 days after the 30th ratification. The first session of the Conference of the Parties was scheduled for 28 November – 9 December 1994 in the Bahamas.

Capacity-building

Sustainable Development Goal Target 17.9 of the 2030 Agenda for Sustainable Development is the dedicated target to capacity- building and aims to *"Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation". Within the 2030 Agenda for Sustainable Development, capacity-building is also mentioned by target 17.8 in the context of ensuring full operationalization of the "technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017"*.

Furthermore, the 2030 Agenda deals with the means required for implementation of the Goals and targets. As reported in paragraph 41, these will include the mobilization of financial resources as well as capacity-building and the transfer of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.

Member States also commit respectively in paragraph 109 b and 109 c "to strengthen their national institutions to complement capacity-building" and " ensure the inclusion of capacity-building and institution-strengthening, as appropriate, in all cooperation frameworks and partnerships and their integration in the priorities and work programmes of all United Nations agencies providing assistance to small island developing States in concert with other development efforts, within their existing mandates and resources." Among the Means of Implementation listed under Chapter VI of the outcome document of the Rio +20 Conference, the Future We Want, capacity-building is the subject of paragraphs 277 -280. Member States commit to emphasize the need for enhanced capacity-building for sustainable-development and for the strengthening of technical and scientific cooperation, to call for the implementation of the Bali Strategic Plan for Technology Support and Capacity-building, adopted by UNEP and to invite relevant agencies of the UN system and other international organizations to support developing countries, especially least developed countries in capacity-building for developing resource-efficient and inclusive economies. Capacity- building is also recognized as a key issue in the Samoa Pathway for a wide range of areas, such as climate change, sustainable energy, ocean sustainability, management of chemicals and waste as well as financing. Member States strongly support the efforts of small island developing States "to improve existing mechanisms and resources to provide coordinated and coherent United Nations system-wide capacity-building programmes for small island developing States through United Nations country teams, in collaboration with national agencies, regional commissions and intergovernmental organizations, to enhance national capacities and institutions, building on the lessons and successes of the Capacity 2015 initiative" through paragraph 109 a of the Samoa Pathway. Capacity-building is a key means of implementation in the Johannesburg Plan of Implementation (JPOI). The JPOI called for enhancing and accelerating human, institutional and infrastructure capacity building initiatives and for assisting developing countries in building capacity to access a larger share of multilateral and global research and development programmes. Launching international capacity-building initiatives able to assess health and environment linkages is enumerated among the actions to undertake in the framework of strengthening, "the capacity of health-care systems to deliver basic health services to all in an efficient, accessible and affordable manner aimed at preventing, controlling and treating diseases, and to reduce environmental health threats, in conformity with human rights and fundamental freedoms and consistent with national laws and cultural and religious values". The Johannesburg Plan of Implementation also focuses on capacity-building for small island developing States and among the actions to be taken to ensure their development, Para 58(a) of Chapter VIII stress on the importance to "accelerate national and regional implementation of the Programme of Action, with adequate financial resources, including through Global Environment Facility focal areas, transfer of environmentally sound technologies and assistance for capacity -building from the international community". Furthermore, Chap X identifies among the means of implementation the need to "support voluntary WTO-compatible market-based initiatives for the creation and expansion of domestic and international markets for environmentally friendly goods and services, including organic products, which maximize environment al and developmental benefits through, inter alia, capacity -building and technical assistance to developing countries".Earlier decisions relating to capacity-building were taken by the CSD at its fourth (1996), fifth (1997) and sixth (1998) sessions and by the United Nations General Assembly at its Special Session to review the implementation of Agenda 21 (1997). The Earth Summit recognized capacity-building as one of the means of implementation for Agenda 21. Chapter 37 of Agenda 21 gives particular focus to national mechanisms and international cooperation for capacity-building in developing countries. Importance is given to defining country needs and priorities in sustainable development through an ongoing participatory process and, in so doing, to strengthening human resource and institutional capabilities.

Chemicals and waste

Environmentally sound management of "toxic chemicals" is the topic of Chapter 19 of Agenda 21. A substantial use of chemicals is essential to meet the social and economic goals of the world community, and these can be used with a high degree of safety when best practices are followed. However, much remains to be done. Two of the major problems identified in Agenda 21, particularly in developing countries, are

1. lack of sufficient scientific information for the risk assessment, and
2. lack of resources of assessment of chemicals for which data are at hand.

industrial areas, and restoration will require major investment as well as the development of new techniques.

Chapter 19 contains six programme areas, as follows:

expanding and accelerating international assessment of chemical risks;

harmonization of classification and labelling of chemicals;

information exchange on toxic chemicals and chemical risks;

establishment of risk reduction programmes;

strengthening of national capabilities and capacities for management of chemicals; and

prevention of illegal international traffic in toxic and dangerous products.

In paragraph 23 of the Johannesburg Plan of Implementation (JPOI, 2002), Member States renewed the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science-based risk management procedures, taking into account the precautionary approach, as set out in principle 15 of the Rio Declaration on Environment and Development, and support developing countries in strengthening their capacity for the sound management of chemicals and hazardous wastes by providing technical and financial assistance.

The focus provided by Agenda 21 and JPOI on the sound management of chemicals led to a number of developments which culminated in 2006 with the adoption of the Dubai Declaration on International Chemicals Management and the formal establishment of the Strategic Approach to International Chemicals Management (SAICM).

At its second, fifth, eighteenth and nineteenth sessions, held in 1994, 1997, 2010 and 2011 respectively, the Commission on Sustainable Development (CSD) had substantive discussions on sound management of chemicals throughout their life cycle.

In "The Future We Want", the outcome document of Rio+20 (2012), Member States reaffirmed their commitment to achieve, by 2020, the sound management of chemicals throughout their life cycle and of hazardous waste in ways that lead to minimization of significant adverse effects to human health and the environment, as set out in the JPOI. They also called for the effective implementation and strengthening of the SAICM.

In "Transforming our world: the 2030 Agenda for Sustainable Development", Member States re-confirmed to "reduce the negative impacts of urban activities and of chemicals which are hazardous for human health and the environment, including through the environmentally sound management and safe use of chemicals, the reduction and recycling of waste and the more efficient use of water and energy" . In Sustainable Development Goal 3 "Ensure healthy lives and promote well being for all at all ages", in target 3.9, Member States decided to "by 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination". In Goal 6 "Ensure availability and sustainable management of water and sanitation for all", target 6.3, Member States decided to "by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally". In Goal 12 "Ensure sustainable consumption and production patterns", target 12.4, Member States reiterated to "by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment".

Waste (Hazardous)

"Environmentally sound management of hazardous wastes" is the subject of Chapter 20 of Agenda 21. Effective control of the generation, storage, treatment, recycling and reuse, transport, recovery and disposal of hazardous wastes is, according to Agenda 21, "of paramount importance for proper health, environmental protection and natural resource management, and sustainable development." Prevention of the generation of hazardous wastes and the rehabilitation of contaminated sites are the key elements, and both require knowledge, experienced people, facilities, financial resources and technical and scientific capacities.

Among the overall targets of Chapter 20 are the following:

1. preventing or minimizing the generation of hazardous wastes as part of an overall integrated cleaner production approach;
2. eliminating or reducing to a minimum transboundary movements of hazardous waste;
3. ratifying the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;
4. ratifying and full implementation of the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa; and
5. eliminating the export of hazardous wastes to countries that prohibit such imports.

Managing hazardous wastes was discussed by the Commission on Sustainable Development (CSD) at its second, fifth, seventh, eighteenth and nineteenth sessions and by the General Assembly at its nineteenth Special Session.

In paragraph 23 of the Johannesburg Plan of Implementation (JPOI, 2002), Member States renewed the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment.

In 2004, the Ministerial Statement on Partnerships for Meeting the Global Waste Challenge was adopted at the seventh meeting of the Conference of the Parties to the Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal. The Statement recognizes the environmentally sound management of hazardous wastes as part of the wider issues of water protection, improved sanitation, solid waste management and economic and social development. It calls for the reduction of the impacts of hazardous wastes on human health and the environment and promotes a fundamental shift in emphasis from remedial measures to preventive measures such as reduction at source, reuse, recycling and recovery. It recognizes the importance of mobilizing new and additional financial resources to build partnerships to meet the global waste challenge worldwide.

In "The Future We Want", the outcome document of Rio+20 (2012), Member States reaffirmed their commitment to achieve, by 2020, the sound management of chemicals throughout their life cycle and of hazardous waste in ways that lead to minimization of significant adverse effects to human health and the environment, as set out in the JPOI.

Waste (Solid)

Management of solid wastes and sewage are the subject of Chapter 21 of Agenda 21.

Climate change

The international political response to climate change began at the Rio Earth Summit in 1992, where the 'Rio Convention' included the adoption of the UN Framework on Climate Change (UNFCCC). This convention set out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases (GHGs) to avoid "dangerous anthropogenic interference with the climate system." The UNFCCC which entered into force on 21 March 1994, now has a near-universal membership of 195 parties.

In December 2015, the 21st Session of the Conference of the Parties (COP21/CMP1) convened in Paris, France, and adopted the Paris Agreement, a universal agreement whose aim is to keep a global temperature rise for this century well below 2 degrees Celsius and to drive efforts to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels.

In the 2030 Agenda for Sustainable Development, Member States express their commitment to protect the planet from degradation and take urgent action on climate change. The Agenda also identifies, in its paragraph 14, climate change as "one of the greatest challenges of our time" and worries about "its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and Small Island developing States. The survival of many societies, and of the biological support systems of the planet, is at risk".

Sustainable Development Goal 13 aims to "take urgent action to combat climate change and its impact", while acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

More specifically, the associated targets of SDG 13 focus on the integration of climate change measures into national policies, the improvement of education, awareness-raising and institutional capacity on climate change mitigation, adaptation, impact reduction and early warnings. Whereas, its alphabetical targets respectively call for the implementation of the commitment undertaken at the UNFCCC and for the promotion of mechanisms able to raise capacity for effective climate –change related planning and management in least developed countries and SIDS.

The outcome document of the Rio+20 Conference, the Future We Want underscores climate change as "an inevitable and urgent global challenge with long-term implications for the sustainable development of all countries". Through the document, Member States express their concern about the continuous rising of the emissions of greenhouse gases and about the vulnerability of all countries, particularly developing countries, to the adverse impacts of climate change, and called for the widest cooperation and participation of all countries in an effective and appropriate international response to climate change.

The 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report warns of changing weather patterns and rising sea levels due to accelerating GHG emissions from human activities. For many, a warming climatic system is expected to impact the availability of basic necessities like freshwater, food security, and energy, while efforts to redress climate change, both through adaptation and mitigation, will similarly inform and shape the global development agenda. The links between climate change and sustainable development are strong. While climate change will know no boundaries, poor and developing countries, particularly the LDCs, will be among those most adversely affected and least able to cope with the anticipated shocks to their social, economic and natural systems.

The Kyoto Protocol, which entered into force on 16 February 2005, sets binding emission reductions targets for industrialized countries for the first commitment period 2008-2012.

Both the Johannesburg Plan of Implementation (JPOI) and Agenda 21 assert that the United Nations Convention on Climate Change (UNFCCC), entered into force in 1994, is the key instrument for addressing climate change.

Agenda 21, which addresses climate change under its Chapter 9 (Protection of the atmosphere), recognizes, " that activities that may be undertaken in pursuit of the objectives defined therein should be coordinated with social and economic development in an integrated manner, with a view to avoiding adverse impacts on the latter, taking into full account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty."

Desertification, land degradation and drought

Paragraph 33 of the 2030 Agenda for Sustainable Development focuses on the linkage between sustainable management of the planet's natural resources and social and economic development as well as on *"strengthen cooperation on desertification, dust storms, land degradation and drought and promote resilience and disaster risk reduction"*.

Sustainable Development Goal 15 of the 2030 Agenda aims to *"protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss"*.

The economic and social significance of a good land management, including soil and its contribution to economic growth and social progress is recognized in paragraph 205 of the Future We Want. In this context, Member States express their concern on the challenges posed to sustainable development by desertification, land degradation and drought, especially for Africa, LDCs and LLDCs. At the same time, Member States highlight the need to take action at national, regional and international level to reverse land degradation, catalyse financial resources, from both private and public donors and implement both the United Nations Convention to Combat Desertification (UNCCD) and its 10- Year Strategic Plan and Framework (2008-2018).

Furthermore, in paragraphs 207 and 208 of the Future We Want, Member States encourage and recognize the importance of partnerships and initiatives for the safeguarding of land resources, further development and implementation of scientifically based, sound and socially inclusive methods and indicators for monitoring and assessing the extent of desertification, land degradation and drought. The relevance of efforts underway to promote scientific research and strengthen the scientific base of activities to address desertification and drought under the UNCCD is also addressed.

Combating desertification and drought were discussed by the Commission on Sustainable Development in several sessions. In the framework of the Commission's multi-year work programme, CSD 16-17 focused, respectively in 2008 and 2009, on desertification and drought along with the interrelated issues of Land, In accordance with its multi-year programme of work, CSD-8 in 2000 reviewed integrated planning and management of land resources as its sectoral theme. In its decision 8/3 on integrated planning and management of land resources, the Commission on Sustainable Development noted the importance of addressing sustainable development through a holistic approach, such as ecosystem management, in order to meet the priority challenges of desertification and drought, sustainable mountain development, prevention and mitigation of land degradation, coastal zones, deforestation, climate change, rural and urban land use, urban griculture, Rural development and Africa.

growth and conservation of biological diversity. The sectoral cluster of land, desertification, forests and biodiversity, as well as mountains (chapters 10-13 and 15 of Agenda 21) were considered by CSD-3 in 1995 and again at the five-year review in 1997.

The UN Conference on Environment and Development (UNCED) called upon the United Nations General Assembly to establish an Intergovernmental Negotiating Committee (INCD) to prepare, by June 1994, an international convention to combat desertification in those countries experiencing serious drought and/or desertification, particularly in Africa. The Convention was adopted in Paris on 17 June 1994 and opened for signature there on 14-15 October 1994. It entered into force on 26 December 1996.

Deserts are among the "fragile ecosystems" addressed by Agenda 21, and "combating desertification and drought" is the subject of Chapter 12. Desertification includes land degradation in arid, semi-arid and dry sub humid areas resulting from various factors, including climatic variations and human activities. Desertification affects as much as one-sixth of the world's population, seventy percent of all drylands, and one-quarter of the total land area of the world. It results in widespread poverty as well as in the degradation of billion hectares of rangeland and cropland.

Integrated planning and management of land resources is the subject of chapter 10 of Agenda 21, which deals with the cross-sectoral aspects of decision-making for the sustainable use and development of natural resources, including the soils, minerals, water and biota that land comprises. This broad integrative view of land resources, which are essential for life-support systems and the productive capacity of the environment, is the basis of Agenda 21's and the Commission on Sustainable Development's consideration of land issues.

Expanding human requirements and economic activities are placing ever increasing pressures on land resources, creating competition and conflicts and resulting in suboptimal use of resources. By examining all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development. (Agenda 21, para 10.1) The Food and Agriculture Organization of the United Nations (FAO) is the task manager for chapter 10 of Agenda 21.

Disaster risk reduction

Disaster risk reduction (DRR) is an integral part of social and economic development, and is essential if development is to be sustainable for the future. A risk-informed and resilient Post-2015 development agenda can only be achieved through partnering with groups, communities and the private sector. This is recognized by the Sendai Framework for Disaster Risk Reduction, adopted at the Third UN World Conference on Disaster Risk Reduction held in Sendai, Japan from 14 to 18 March 2015.

The Yokohama Strategy and Plan of Action for a Safer World (1994), as the first major international framework for disaster risk reduction, recognized the interrelation between sustainable development and DRR, "*disaster prevention, mitigation, preparedness and relief are four elements which contribute to and gain from the implementation of sustainable development policies. These elements, along with environmental protection and sustainable development, are closely interrelated*"

Throughout the last decade the interrelation between DRR and sustainable development was continuously strengthened. Reducing disaster risk and increasing resilience to natural hazards in different development sectors had multiplier effects and accelerate achievements of the MDGs, established at the Millennium Development Summit in 2000. The declaration emphasized the development of early warning systems, research on El Nino and El Nina, and encouraged Governments to address urban risks and incorporate DRR in their respective national plans.

The Johannesburg Plan of Implementation adopted at the World Summit on Sustainable Development (2002) includes commitments related to disaster and vulnerability reduction under chapter IV: Protecting and managing the natural resource base of economic and social development. Later on, the 11th session of the Commission on Sustainable Development (2003) adopted the themes of disaster management and vulnerability to be reviewed in its fifth cycle (2014-2015) in the CSD's multi-year programme of work. Risk management and vulnerability would also be examined in the context of other thematic clusters of CSD, such as water, sanitation and human settlements (2004-2005) and drought and desertification (2006-2007). On the occasion of World Water Day 2004, Guidelines for Reducing Flood Losses was launched. This inter-agency publication, led by DESA aims at providing decision-makers with a range of options to consider for reducing losses associated with flooding.

The relation between DRR and sustainable development was also recognized in the Hyogo Framework for Action 2005-2015, adopted in 2005. It observes that "*disaster risk reduction is a cross-cutting issue in the context of sustainable development and therefore an important element for the achievement of internationally agreed development goals, including those contained in the Millennium Declaration.*" Its successor, the Sendai Framework for Disaster Risk Reduction 2015-2030, as the first major agreement of the post-2015 development agenda, sets out targets for the post-2015 development agenda including a substantial reduction in mortality, in the numbers of people affected by disasters, economic losses and damage to critical infrastructure. These objectives are re-affirmed under Goal 11 of the Sustainable Development Goals (SDGs).

Education

Education for all has always been an integral part of the sustainable development agenda. The World Summit on Sustainable Development (WSSD) in 2002 adopted the Johannesburg Plan of Implementation (JPOI) which in its Section X, reaffirmed both the Millennium Development Goal 2 in achieving universal primary education by 2015 and the goal of the Dakar Framework for Action on Education for All to eliminate gender disparity in primary and secondary education by 2005 and at all levels of education by 2015. The JPOI addressed the need to integrate sustainable development into formal education at all levels, as well as through informal and non-formal education opportunities.

There is growing international recognition of Education for Sustainable Development (ESD) as an integral element of quality education and a key enabler for sustainable development. Both the Muscat Agreement adopted at the Global Education For All Meeting (GEM) in 2014 and the proposal for Sustainable Development Goals (SDGs) developed by the Open Working Group of the UN General Assembly on SDGs (OWG) include ESD in the proposed targets for the post- 2015 agenda. The proposed Sustainable Development Goal 4 reads "*Ensure inclusive and equitable quality education and promote life-long learning opportunities for all*" and includes a set of associated targets.

ESD is closely tied into the international discussions on sustainable development, which have grown in scale and importance since, Our Common Future appeared in 1987, providing the first widely-used definition of sustainable development as the "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*"

The crucial role of education in achieving sustainable development was also duly noted at the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, through Chapter 36 of its outcome document - Agenda 21.

The importance of promoting education for sustainable development and integrating sustainable development actively into education was also emphasized in paragraph 233 of the Future We Want, the outcome of the United Nations Conference on Sustainable Development, Rio+20, in 2012.

In 2005, UNESCO launched the United Nations Decade of Education for Sustainable Development which reaffirmed the key role of education in shaping values that are supportive of sustainable development, and in consolidating sustainable societies. The final report of the UN Decade of Education for Sustainable Development, Shaping the Future We Want, was launched at the UNESCO World Conference on Education for Sustainable Development, held in November 2014, Nagoya, Japan.

On the same occasion, as a follow-up to the United Nations Decade of ESD (2005-2014), UNESCO launched the Global Action Programme (GAP) on ESD. The overall goal of the GAP is to generate and scale up actions in all levels and areas of education and learning to accelerate progress towards sustainable development.

GAP has identified five priority areas to advance to ESD agenda: policy support, whole-institution approaches, educators, youth, and local communities. UNESCO has established five Partner Networks, each corresponding to the five priority areas, as one of its main implementation mechanisms of GAP. The Partner Networks will create synergies for the activities of their members and catalyse actions by other stakeholders.

In the run-up to the United Nations Conference on Sustainable Development, Rio+20, the Higher Education Sustainability Initiative (HESI) was created as a partnership of several sponsor UN entities (UNESCO, UN-DESA, UNEP, Global Compact, and UNU) aiming at galvanizing commitments from higher education institutions to teach and encourage research on sustainable development, greening campuses and support local sustainability efforts. With a membership of almost 300 universities worldwide, HESI accounts for more than one-third of all the voluntary commitments that came out of the Rio +20 Conference, providing higher education institutions with a unique interface between policy making and academia.

In 2015, the HESI partnership officially became a member of in priority area 2 of the GAP Partner Network: "*Transforming learning and training environments*".

Through its association with GAP, HESI will aim at helping institutions to develop sustainability plans in partnership with the broader community, and assist universities in incorporating sustainability into campus operations, governance, policy and administration.

Employment, decent work for all and social protection

The key role of decent work for all in achieving sustainable development is highlighted by Sustainable Development Goal 8 which aims to *"promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all"*.

Decent work, employment creation, social protection, rights at work and social dialogue represent integral elements of the new 2030 Agenda for Sustainable Development. Furthermore, crucial aspects of decent work are broadly rooted in the targets of many of the other 16 goals.

In its Paragraphs 143-157, the outcome document of the Rio +20 Conference expresses its concerns about labour market conditions and the widespread deficits of available decent work opportunities. At the same time recognizes the existing linkages among poverty eradication, full and productive employment and decent work for all and urges all governments to address the global challenge of youth employment.

The global challenge of youth employment is also recalled by the Plan of Implementation of the World Summit on Sustainable Development adopted in Johannesburg in 2002.

Among the concerted and concrete measuring required for enabling developing countries to achieve their sustainable development goals, JPOI highlights the importance of providing assistance to increase income-generating employment opportunities, taking into account the Declaration on Fundamental Principles and Rights at Work of the International Labour Organization.

JPOI reads "Good governance is essential for sustainable development. Sound economic policies, solid democratic institutions responsive to the needs of the people and improved infrastructure are the basis for sustained economic growth, poverty eradication, and employment creation. Freedom, peace and security, domestic stability, respect for human rights, including the right to development, and the rule of law, gender equality, market-oriented policies, and an overall commitment to just and democratic societies are also essential and mutually reinforcing".

Chapter 3 of Agenda 21 identifies the need to strengthening employment and income- generating programmes as tool to eradicate poverty. The Agenda also invites governments to establish measures able to directly or indirectly generate remunerative employment and productive occupational opportunities compatible with country-specific factor endowments, on a scale sufficient to take care of prospective increases in the labour force and to cover backlogs.

Furthermore, the Agenda reiterates, in different sections, the need of generating employment for vulnerable groups, specifically women, urban poor, unemployed rural labour as well as low-income urban residents.

Energy for Sustainable Development

Energy is an essential factor for sustainable development and poverty eradication. Nevertheless, it is estimated that in 2015 still about 2.8 billion people have no access to modern energy services and over 1.1 billion do not have electricity. Furthermore, around 4.3 million people are dying prematurely every year due to indoor pollution resulting from cooking and heating with unsustainable fuels. The challenge lies in finding ways to reconcile the necessity and demand for modern and sustainable energy services with its impact on the environment and the global natural resource base in order to ensure that sustainable development goals are realised.

The complex challenges of energy and sustainable development were highlighted at the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992. Energy was discussed throughout Agenda 21. Agenda 21 highlighted the fact that current levels of energy consumption and production are not sustainable, especially if demand continued to increase and stressed the importance of using energy resources in a way that is consistent with the aims of protecting human health, the atmosphere, and the natural environment.

Nevertheless, energy was not explicitly considered in the Millennium Development Goals, but at the 9th session of the Commission on Sustainable Development (CSD-9), held in 2001, countries agreed that stronger emphasis should be placed on the development, implementation, and transfer of cleaner, more efficient energy technologies and that urgent action was required to further develop and expand the role of alternative energy sources.

The Johannesburg Plan of Implementation (JPOI), adopted at the World Summit on Sustainable Development in 2002, addresses energy in the context of sustainable development. Among other things, the JPOI calls for action to: (1) improve access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services; (2) recognize that energy services have positive impacts on poverty eradication and the improvement of standards of living; (3) develop and disseminate alternative energy technologies with the aim of giving a greater share of the energy mix to renewable energy and, with a sense of urgency, substantially increase the global share of renewable energy sources; (4) diversify energy supply by developing advanced, cleaner, more efficient and cost-effective energy technologies; (5) combine a range of energy technologies, including advanced and cleaner fossil fuel technologies to meet the growing need for energy services; (6) accelerate the development, dissemination and deployment of affordable and cleaner energy efficiency and energy conservation technologies; (7) take action, where appropriate, to phase out subsidies in this area that inhibit sustainable development

In 2004, UN-Energy was created in response from a call of the 2002 World Summit on Sustainable Development for a more coordinated and coherent programme on energy activities by UN agencies. CSD-14 and CSD-15 in 2006 and 2007 focused on a cluster of thematic issues, which included energy for sustainable development.

In 2011, the Sustainable Energy for All initiative was created by the UN Secretary-General to pursue three major objectives by 2030: ensuring universal energy access to modern energy services, doubling the global rate of improvement in energy efficiency and doubling the share of renewable energy use in global energy.

In 2012, the resolution by the UN General Assembly declaring 2012 as the International Year of Sustainable Energy for All was successfully implemented with many activities and commitments promoting a sustainable energy future. Also, in the outcome of the 2012 Rio+20 Conference on Sustainable Development (The Future We Want), Member States: (1) recognize the critical role that energy play in the development process; (2) emphasize the need to address the challenge of access to sustainable modern energy services for all; and (3) recognize that improving energy efficiency, increasing the share of renewable energy and cleaner and energy-efficient technologies are important for sustainable development.

In 2014, the resolution by the UN General Assembly declaring 2014-2024 the United Nations Decade of Sustainable Energy for All entered into effect with many activities and commitments and with the establishment of several technical hubs around the world to accelerate the objectives of this SG's initiative. Also, in 2014 the UN General Assembly proposed a set of Sustainable Development Goals (SDGs) which included a dedicated and stand-alone goal on energy. SDG #7 calls to "ensure access to affordable, reliable, sustainable and modern energy for all".

In 2015, intergovernmental negotiations continue on the SDGs and targets and on defining a corresponding set of indicators for monitoring progress. As of 2015, energy stands at the centre of global efforts to induce a paradigm shift towards low-carbon energy systems, green economies, poverty eradication and ultimately sustainable development.

Finance

Finance for sustainable development is the subject of Chapter 33 of Agenda 21 and Chapter X of the Johannesburg Plan of Implementation.

Decisions on finance for sustainable development were taken by the Commission at its second, third, fourth, sixth, and eighth sessions, and by the General Assembly at its nineteenth Special Session [Earth Summit + 5] in its Resolution S/19-2 on the Programme for the Future Implementation of Agenda 21. All decisions of the CSD after the World Summit on Sustainable Development in 2002 had a section on finance in connection with the themes considered in those sessions (excluding CSD's 11th session, which defined the programme of work of the Commission).

Financing was addressed in paragraphs 253 to 268 of the outcome of the UN Conference on Sustainable Development (20 - 22 June 2012), "The Future We Want". Member States recognized "the need for significant mobilization of resources from a variety of sources and the effective use of financing, in order to give strong support to developing countries in their efforts to promote sustainable development, including through actions undertaken in accordance with the outcome of the United Nations Conference on Sustainable Development and for achieving sustainable development goals".

The conference established an intergovernmental committee of experts and tasked it to prepare "a report proposing options on an effective sustainable development financing strategy to facilitate the mobilization of resources and their effective use in achieving sustainable development objectives". The committee delivered its report in August 2014. The report informed the negotiations on the third international conference on financing for development, held in July 2015 in Addis Ababa.

Financing is addressed in the 2030 Agenda for sustainable development as part of the means of implementation under each of SDG 1-16 and under SDG 17. Paragraph 40 of the Summit outcome document, "Transforming our world: the 2030 Agenda for Sustainable Development", specifies the relationship between the actions and policies agreed in Addis Ababa and the 2030 Agenda for sustainable development and reads "The means of implementation targets under Goal 17 and under each Sustainable Development Goal are key to realizing our Agenda and are of equal importance with the other Goals and targets. The Agenda, including the Sustainable Development Goals, can be met within the framework of a revitalized Global Partnership for Sustainable Development, supported by the concrete policies and actions as outlined in the outcome document of the Third International Conference on Financing for Development, held in Addis Ababa from 13 to 16 July 2015. We welcome the endorsement by the General Assembly of the Addis Ababa Action Agenda, which is an integral part of the 2030 Agenda for Sustainable Development. We recognize that the full implementation of the Addis Ababa Action Agenda is critical for the realization of the Sustainable Development Goals and targets".

Food security and nutrition and sustainable agriculture

As the world population continues to grow, much more effort and innovation will be urgently needed in order to sustainably increase agricultural production, improve the global supply chain, decrease food losses and waste, and ensure that all who are suffering from hunger and malnutrition have access to nutritious food. Many in the international community believe that it is possible to eradicate hunger within the next generation, and are working together to achieve this goal.

World leaders at the 2012 Conference on Sustainable Development (Rio+20) reaffirmed the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger. The UN Secretary-General's Zero Hunger Challenge launched at Rio+20 called on governments, civil society, faith communities, the private sector, and research institutions to unite to end hunger and eliminate the worst forms of malnutrition.

The Zero Hunger Challenge has since garnered widespread support from many member States and other entities. It calls for:

Zero stunted children under the age of two

100% access to adequate food all year round

All food systems are sustainable

100% increase in smallholder productivity and income

Zero loss or waste of food

The Sustainable Development Goal to "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" (SDG2) recognizes the inter linkages among supporting sustainable agriculture, empowering small farmers, promoting gender equality, ending rural poverty, ensuring healthy lifestyles, tackling climate change, and other issues addressed within the set of 17 Sustainable Development Goals in the Post-2015 Development Agenda.

Beyond adequate calories intake, proper nutrition has other dimensions that deserve attention, including micronutrient availability and healthy diets. Inadequate micronutrient intake of mothers and infants can have long-term developmental impacts. Unhealthy diets and lifestyles are closely linked to the growing incidence of non-communicable diseases in both developed and developing countries.

Adequate nutrition during the critical 1,000 days from beginning of pregnancy through a child's second birthday merits a particular focus. The Scaling-Up Nutrition (SUN) Movement has made great progress since its creation five years ago in incorporating strategies that link nutrition to agriculture, clean water, sanitation, education, employment, social protection, health care and support for resilience.

Extreme poverty and hunger are predominantly rural, with smallholder farmers and their families making up a very significant proportion of the poor and hungry. Thus, eradicating poverty and hunger are integrally linked to boosting food production, agricultural productivity and rural incomes.

Agriculture systems worldwide must become more productive and less wasteful. Sustainable agricultural practices and food systems, including both production and consumption, must be pursued from a holistic and integrated perspective.

Land, healthy soils, water and plant genetic resources are key inputs into food production, and their growing scarcity in many parts of the world makes it imperative to use and manage them sustainably. Boosting yields on existing agricultural lands, including restoration of degraded lands, through sustainable agricultural practices would also relieve pressure to clear forests for agricultural production. Wise management of scarce water through improved irrigation and storage technologies, combined with development of new drought-resistant crop varieties, can contribute to sustaining drylands productivity.

Halting and reversing land degradation will also be critical to meeting future food needs. The Rio+20 outcome document calls for achieving a land-degradation-neutral world in the context of sustainable development. Given the current extent of land degradation globally, the potential benefits from land restoration for food security and for mitigating climate change are enormous. However, there is also recognition that scientific understanding of the drivers of desertification, land degradation and drought is still evolving.

There are many elements of traditional farmer knowledge that, enriched by the latest scientific knowledge, can support productive food systems through sound and sustainable soil, land, water, nutrient and pest management, and the more extensive use of organic fertilizers.

An increase in integrated decision-making processes at national and regional levels are needed to achieve synergies and adequately address trade-offs among agriculture, water, energy, land and climate change.

Given expected changes in temperatures, precipitation and pests associated with climate change, the global community is called upon to increase investment in research, development and demonstration of technologies to improve the sustainability of food systems everywhere. Building resilience of local food systems will be critical to averting large-scale future shortages and to ensuring food security and good nutrition for all.

Forests

Sustainable Development Goal 15 aims to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”.

Forests have a significant role in reducing the risk of natural disasters, including floods, droughts, landslides and other extreme events. At global level, forests mitigate climate change through carbon sequestration, contribute to the balance of oxygen, carbon dioxide and humidity in the air and protect watersheds, which supply 75% of freshwater worldwide.

Investing in forests and forestry represent an investment in people and their livelihoods, especially the rural poor, youth and women. Around 1.6 billion people - including more than 2,000 indigenous cultures - depend on forests for their livelihood.

Forests are the most biologically-diverse ecosystems on land, home to more than 80% of the terrestrial species of animals, plants and insects. They also provide shelter, jobs and security for forest-dependent communities.

Therefore, the future of forests and forestry in sustainable development at all levels was at the core of the XIV World Forestry, hosted in Durban from 7 to 11 September 2015. The Durban Declaration called for new partnerships among forest, agriculture, finance, energy, water and other sectors, as well the engagement with indigenous people and local community.

The importance of investing in world’s forests and of taking “political commitment at the highest levels, smart policies, effective law enforcement, innovative partnerships and funding” was also recalled by the UN Secretary-General Mr Ban Ki-moon in his Message on the occasion of the 2015 International Day of Forests.

Both the International Day of Forests, launched in 2013 and the International Year of Forest proclaimed for 2011 aimed at raising awareness on the importance of all types of forests and of trees outside forests.

Prior to the 2030 Agenda for Sustainable Development, the outcome document of the Rio+20 Conference, the Future We Want, in its paragraphs 193-196 stress the importance of improving the livelihoods of people and communities by creating the conditions required to sustainably manage forests. It also recognizes the role of the UN Forum on Forests in addressing forest-related issues in a holistic and integrated manner, and in promoting international policy coordination and cooperation in order to achieve forest management. Paragraph 196 calls for the mainstreaming of sustainable forest management and practises into economic policy and decision-making.

Chapter 11 of Agenda 21 is entitled ‘Combating Deforestation’ and is devoted to sustain the multiple roles and functions of all types of forests, forest lands and woodlands.

On one side, the Agenda highlights the major weaknesses in the policies, methods and mechanisms adopted to support trees, forests and forest lands and the multiple ecological, economic, social and cultural roles.

Therefore, on the other side, it identifies, among its objectives, the strengthening of forest-related national institutions, the enhancement of the scope and effectiveness of activities related to the management, conservation and sustainable development of forests, and the sustainable utilization and production of forests' goods and services in both the developed and the developing countries.

The Agenda also mentions the importance to improve human, technical and professional skills, as well as expertise and capabilities to effectively formulate and implement policies, plans, programmes, research and projects on management, conservation and sustainable development of all types of forests and forest-based resources, and forest lands inclusive, as well as other areas from which forest benefits can be derived.

Gender equality and women's empowerment

Since its creation 70 years ago, the UN has achieved important results in advancing gender equality, from the establishment of the Commission on the Status of Women - the main global intergovernmental body exclusively dedicated to the promotion of gender equality and the empowerment of women - through the adoption of various landmark agreements such as the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Beijing Declaration and Platform for Action.

On the occasion of the General Debate of the 66th Session of the General Assembly held in September 2011, United Nations Secretary-General BAN KI-MOON highlighted in his Report “We the Peoples”, the crucial role of gender equality as driver of development progress, recognizing that the potential of women had not been fully realized, owing to, inter alia, persistent social, economic and political inequalities.

Gender inequalities are still deep-rooted in every society. Women suffer from lack of access to decent work and face occupational segregation and gender wage gaps. In many situations, they are denied access to basic education and health care and are victims of violence and discrimination. They are under-represented in political and economic decision-making processes.

With the aim of better addressing these challenges and to identify a single recognized driver to lead and coordinate UN activities on gender equality issues, UN Women was established in 2010.

UN Women works for the elimination of discrimination against women and girls, empowerment of women, and achievement of equality between women and men as partners and beneficiaries of development, human rights, humanitarian action and peace and security.

The vital role of women and the need for their full and equal participation and leadership in all areas of sustainable development was reaffirmed in the Future We Want (paragraph 236-244), as well as in the Open Working Group Proposal for Sustainable Development Goals. Open Working Group Proposal for Sustainable Development Goals. The proposed Sustainable Development Goal 5 addresses this and reads "Achieve gender equality and empower all women and girls".

Green economy

Sustainable development has been the overarching goal of the international community since the UN Conference on Environment and Development (UNCED) in 1992. Amongst numerous commitments, the Conference called upon governments to develop national strategies for sustainable development, incorporating policy measures outlined in the Rio Declaration and Agenda 21. Despite the efforts of many governments around the world to implement such strategies as well as international cooperation to support national governments, there are continuing concerns over global economic and environmental developments in many countries. These have been intensified by recent prolonged global energy, food and financial crises, and underscored by continued warnings from global scientists that society is in danger of transgressing a number of planetary boundaries or ecological limits.

With governments today seeking effective ways to lead their nations out of these related crises whilst also taking into account these planetary boundaries, green economy (in its various forms) has been proposed as a means for catalysing renewed national policy development and international cooperation and support for sustainable development. The concept has received significant international attention over the past few years as a tool to address the 2008 financial crisis as well as one of two themes for the 2012 UN Conference on Sustainable Development (Rio+20). This has resulted in a rapidly expanding literature including new publications on green economy from a variety of influential international organisations, national governments, think tanks, experts, non-government organisations and others.

Despite the growing international interest in green economy, negotiations between Member States on the concept in the lead up to Rio+20 were challenging. This was partly due to the lack of an internationally agreed definition or universal principles for green economy, the emergence of interrelated but different terminology and concepts over recent years (such as green growth, low carbon development, sustainable economy, steady-state economy etc.), a lack of clarity around what green economy policy measures encompass and how they integrate with national priorities and objectives relating to economic growth and poverty eradication, as well as a perceived lack of experience in designing, implementing and reviewing the costs and benefits of green economy policies.

Recent publications on green economy or green growth by the United Nations Environment Program (UNEP), the UN Department of Economic and Social Affairs (UNDESA), the United Nations Conference on Trade and Development (UNCTAD), the International Labour Organisation (ILO), the World Bank, the Organisation for Economic Cooperation and Development (OECD), the Global Green Growth Institute (GGGI), the Green Economy Coalition, Stakeholder Forum, the Green Growth Leaders and many others have begun to address these knowledge gaps and demystify these concepts. Importantly, there is also emerging practice in the design and implementation of national green economy strategies by both developed and developing countries across most regions, including Africa, Latin America, the Asia-Pacific and Europe. This emerging practice can help to provide some important insights and much-needed clarity regarding the types of green economy policy measures, their scope with regard to various sectors and national priorities, and their institutional barriers, risks and implementation costs. This international experience may serve to alleviate concerns regarding the effective integration of green economy policies with national economic and social priorities and objectives, including the achievement of internationally agreed development goals.

Health and population

lmost fifteen years ago, the Millennium Development Goals were agreed, and even though significant progress has been made in a number of areas, progress has been uneven, particularly in Africa, least developed countries, landlocked developing countries and small island developing States. Some of the MDGs remain off-track, in particular those related to maternal, newborn and child health and to reproductive health.

Sustainable Development Goal 3 of the 2030 Agenda for Sustainable Development is devoted to *"ensure healthy lives and promoting well-being for all at all ages"*. The associated targets, inter alia, aim to the reduction of global maternal mortality, the end of preventable deaths of new-borns, the end of the epidemics of AIDS, tuberculosis and malaria, as well as the reduction by one third of premature mortality from non-communicable diseases.

The UN Secretary-General Ban Ki-moon launched the Every Woman Every Child initiative at the United Nations Millennium Development Goals Summit in September 2010. Every Woman Every Child is an unprecedented global movement that mobilizes and intensifies international and national action by governments, multilaterals, the private sector and civil society to address the major health challenges facing women and children around the world. The movement puts into action the Global Strategy for Women and Children's Health, which presents a roadmap on how to enhance financing, strengthen policy and improve service on the ground for the most vulnerable women and children.

The Commission on Sustainable Development considered Health and sustainable development as a cross-cutting issue during the two-year cycle of its multi-year programme of work.

Health and Sustainable Development was also an integral part of the World Summit on Sustainable Development, held in Johannesburg in 2002. The outcome document of the Summit, the Johannesburg Plan of Implementation, devotes Chapter 6 to Health and Sustainable Development, recalling that human beings are entitled to a healthy and productive life, in harmony with nature and further recognizes that the goals of sustainable development can only be achieved in the absence of a high prevalence of debilitating diseases, while obtaining health gains for the whole population requires poverty eradication.

The outcome of the United Nations on Environment and Development, Agenda 21, devotes Chapter 6 to "Protecting and Promoting Human Health" . The Agenda recognizes that health and development are intimately interconnected, and call that action items under Agenda 21 must address the primary health needs of the world's population, since they are integral to the achievement of the goals of sustainable development and primary environmental care.

Indicators

Indicators in the Transforming Our World - The 2030 Agenda for Sustainable Development

As stated in paragraph 75 of Transforming our World: The 2030 Agenda for Sustainable Development, “the Goals and targets will be followed-up and reviewed using a set of global indicators. These will be complemented by indicators at the regional and national levels which will be developed by member states, in addition to the outcomes of work undertaken for the development of the baselines for those targets where national and global baseline data does not yet exist”.

In order to identify a global indicator framework for the goals and targets, the United Nations Statistical Commission gathered in March 2015 at its 46th Session and established an Inter-Agency Expert Group (IAEG) on SDG Indicators, whose composition reflects equitable regional representation.

The group aims at ensuring technical expertise and assistance for the implementation of the indicators, once approved and will be in charge of monitoring the use of harmonized and agreed indicators definitions as well as of reviewing methodological process and issues related to the indicators and their metadata.

In this context, UN DESA's Statistics Division is organising the second meeting of the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs), to be held on 26-28 October 2015 at the United Nations Conference Center in Bangkok, Thailand and hosted by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). On this occasion, the list of possible global indicators will be reviewed in detail, whereas the global indicator framework together with the work plan and the next steps to be followed will be further discussed..

The proposal for Global Indicator Framework will be submitted for consideration by the Statistical Commission at its 47th Session in March 2016 and adopted thereafter by the Economic and Social Council and the General Assembly, in line with existing mandates.

Agenda 21

Chapter 40 of Agenda 21 called on countries and the international community to develop indicators of sustainable development. Such indicators were needed to increase focus on sustainable development and assist decision-makers at all levels to adopt sound national sustainable development policies.

Johannesburg Plan of Implementation & CSD-11, CSD-13

The Johannesburg Plan of Implementation in its Chapter X and the Commission on Sustainable Development (CSD) at its 11th and 13th sessions encouraged further work on indicators for sustainable development by countries, in line with their specific conditions and priorities. CSD-13 invited the international community to support efforts of developing countries in this regard.

Guidelines on Indicators & their Detailed Methodology Sheets

The third, revised set of CSD indicators was finalized in 2006 by a group of experts from developing and developed countries and international organizations. The revised edition contained 96 indicators, including a subset of 50 core indicators. The guidelines on indicators and their detailed methodology sheets became available as a reference for all countries to develop national indicators of sustainable development. The CSD indicator set was based on the previous two (1996 and 2001) editions, which had been developed, improved and extensively tested as part of the implementation of the Work Programme on Indicators of Sustainable Development adopted by the CSD at its third session in 1995 and presented to the CSD in 2001.

Industry

nclusive and sustainable industrial development has been incorporated, together with resilient infrastructure and innovation, as Sustainable Development Goal 9 in the 2030 Agenda for Sustainable Development.

Both the 2030 Agenda and the Addis Ababa Action Agenda focus on the relevance of inclusive and sustainable industrial development as the basis for sustainable economic growth.

In its Paragraph 11, the Addis Ababa Action Agenda commits to “identify actions and address critical gaps relevant” to the 2030 Agenda and the Sustainable Development Goals “with an aim to harness their considerable synergies, so that the implementation of one will contribute to the progress of others”. The Agenda has therefore identified a range of cross –cutting areas that build on these synergies.

Among these cross-cutting areas, paragraphs 15 and 16 of the Addis Ababa Action Agenda respectively focus on “promoting inclusive and sustainable industrialization” and on “generating full and productive employment and decent work for all and promoting micro, small and medium-size enterprises.

Prior to the 2030 Agenda for Sustainable Development and the Addis Ababa Action Agenda, the relevance of inclusive and sustainable industrial development as the basis for sustainable economic growth was also addressed by the Lima Declaration: Towards Inclusive and Sustainable Industrial Development, adopted in December 2013.

Paragraph 2 of the Lima Declaration reads: “industrialization is a driver of development. Industry increases productivity, job creation and generates income, thereby contributing to poverty eradication and addressing other development goals, as well as providing opportunities for social inclusion, including gender equality, empowering women and girls and creating decent employment for the youth. As industry develops, it drives an increase of value addition and enhances the application of science, technology and innovation, therefore encouraging greater investment in skills and education, and thus providing the resources to meet broader, inclusive and sustainable development objectives.”

The mutually reinforcing relationship between social and industrial development and the potential of industrialization to promote, directly and indirectly, a variety of social objectives such as employment creation, poverty eradication, gender equality, labour standards, and greater access to education and health care was also identified in Chapter II of the Johannesburg Plan of Implementation.

Agenda 21 and the Rio Declaration on Environment and Development provide the fundamental framework for policy discussion and action on matters related to industry and sustainable development. Although the role of business and industry, as a major group, is specifically addressed in chapter 30, issues related to industry and economic development, consumption and production patterns, social development and environmental protection cut across the entirety of Agenda 21, including its section 4, Means of implementation.

Information for integrated Decision-Making & Participation

The 2030 Agenda for Sustainable Development focuses on decision-making with particular reference to participation of vulnerable groups, such as women (SDG target 5.5), developing countries, including African countries, least developed countries, land-locked developing countries, small-island developing States and middle-income countries (SDG target 10.6) to the decision-making process. Furthermore, SDG target 16.7 aims to *"Ensure responsive, inclusive, participatory and representative decision-making at all levels"*. The 2030 Agenda also highlights, in its paragraph 48, the importance indicators have for decision-making.

In the Rio+20 Conference outcome document, the Future We Want, paragraph 14 recognizes that "opportunities for people to influence their lives and future, participate in decision-making and voice their concerns are fundamental for sustainable development" and reaffirms respectively in paragraph 19, " the continued need for the full and effective participation of all countries, in particular developing countries, in global decision-making" and in Paragraph 31 the "commitments to ensure women's equal rights, access and opportunities for participation and leadership in the economy, society and political decision-making".

An important role is also recognized to major groups and other stakeholders. In the outcome document of the Future We Want, member states "agree to work more closely with major groups and other stakeholders and encourage their active participation, as appropriate, in processes that contribute to decision-making, planning and implementation of policies and programmes for sustainable development at all levels", as per paragraph 43.

Paragraph 276 of the Future We Want acknowledges "the need to facilitate informed policy decision-making on sustainable development issues and, in this regard, to strengthen the science-policy interface", whereas paragraph 279 reiterates "participation and representation of men and women scientists and researchers from developing and developed countries in processes related to global environmental and sustainable development assessment and monitoring, with the purpose of enhancing national capabilities and the quality of research for policy- and decision-making processes".

Both the World Summit on Sustainable Development (WSSD) in 2002 and the Commission on Sustainable Development emphasized the importance of information for sound decision-making.

The Johannesburg Plan of Implementation (JPOI) focuses in paragraph 7d, on women's access and full participation to decision-making. Paragraph 19 takes into consideration the importance of integrating sustainable development into decision-making processes at all levels. Whereas, paragraph 86 describes the importance of consolidating the reform process of existing financial systems in order to "provide for the effective participation of developing countries in the international economic decision-making processes". Furthermore, the need to "improve policy and decision -making at all levels" and in particular through an "improved collaboration" between science and policy-makers is stressed in paragraph 109 e.

Chapter 8 of Agenda calls on countries to improve or restructure the decision-making process so that consideration of socio-economic and environmental issues is fully integrated and a broader range of public participation assured. It also calls on countries to adopt national strategies for sustainable development (NSDS) that "should build upon and harmonize the various sectoral economic, social and environmental policies and plans that are operating in the country".

Furthermore, chapter 40 of Agenda 21 focuses on information for decision-making and emphasizes that, in sustainable development, everyone is a user and provider of information considered in the broad sense. That includes data, information, experience and knowledge. The need for information arises at all levels, from that of senior decision-maker at the national and international levels to the grass-roots and individual levels.

Institutional Frameworks and international cooperation for Sustainable Development

As far as the 2030 Agenda is concerned, Goal 16 is devoted to the promotion of peaceful and inclusive societies for sustainable development, the provision of access to justice for all and to the establishment of effective, accountable and inclusive institutions at all levels. The strengthening of the framework to finance sustainable development and the means of implementation for the 2030 Agenda is ensured by the Addis Ababa Action Agenda.

The Addis Agenda is the outcome document adopted at the Third International Conference on Financing for Development in July 2015 and endorsed by the General Assembly in its resolution 69/313 of 27 July 2015.

With the adoption of "Future We Want", the outcome document of the Rio +20 conference, held from 20 to 22 June 2012, Member States decided "to establish a universal intergovernmental high-level political forum, building on the strengths, experiences, resources and inclusive participation modalities of the Commission on Sustainable Development, and subsequently replacing the Commission. The high-level political forum shall follow up on the implementation of sustainable development and should avoid overlap with existing structures, bodies and entities in a cost-effective manner."

The High-level Political Forum on sustainable development is today the main United Nations platform on sustainable development. It provides political leadership, guidance and recommendations. It follows up and reviews the implementation of sustainable development commitments and, as of 2016, the 2030 Agenda for Sustainable Development. It addresses new and emerging challenges; promotes the science-policy interface and enhances the integration of economic, social and environmental dimensions of sustainable development.

The Commission on Sustainable Development (CSD) was established by Agenda 21 and was tasked with the follow-up to the Rio Conference.

Agenda 21, the Plan of Action of the United Nations Conference on Environment and Development (UNCED), calls on the international community to provide a supportive international climate for achieving environment and development goals.

Three Conventions are closely associated with the Rio Conference, namely the Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) and the Convention to Combat Desertification (CCD). Furthermore, the Statement of Forest Principles was also adopted at UNCED.

In its Chapters 38 and 39, the Agenda addresses the institutional arrangements needed to ensure further integration of environment and development issues and it identifies the International Legal Instruments and Mechanisms to be adopted by Member States to ensure promotion of sustainable development at national and international levels.

The Commission on Sustainable Development reviewed Chapter 39 of the Agenda at its second and fourth sessions. Chapter 39 was also one of the topics discussed by the General Assembly in the Programme for the Further Implementation of Agenda 21 (S/19-2).

The Programme addresses as well International Legal Instruments and Mechanisms and calls for a dynamic and enabling international economic environment supportive of international cooperation, particularly in the fields of finance, technology transfer, debt and trade (Resolution S-19/2, annex, para. 25-26). It also notes that, as a result of globalization, external factors have become critical in determining the success or failure of developing countries in their national sustainable development efforts.

Given such considerations, the General Assembly places international cooperation for an enabling environment for sustainable development on the agenda of the Commission at its ninth session, in 2001, as a cross-sectoral theme. In the context of the CSD, consideration of the enabling environment for sustainable development focuses on the impact on sustainable development of major changes in the world economy due to globalization, as well as on national conditions affecting sustainable development.

In respect to legal developments in the area of sustainable development, new and emerging issues were addressed in Chapter X of the Plan of Implementation (JPOI) of the WSSD in 2002.

In the JPOI, sustainable development is recognized as an overarching goal for institutions at the national, regional and international levels and the Plan also highlights the need to enhance the integration of sustainable development in the activities of all relevant United Nations agencies, programmes and funds, and the international financial institutions, within their mandates.

The importance of strengthening the Institutional Framework for Sustainable Development (IFSD) is addressed in Chapter XI of the JPOI, in particular, its paras 137-170 propose measures to reinforce institutional arrangements on sustainable development, at all levels, within the framework of Agenda 21, build[ing] on developments since the United Nations conference on Environment and Development and lead[ing] to the achievement of a number of objectives.

The CSD at its eleventh session (2003) adopted a new multi-year programme of work based on a two-year cycle to 2017, alternating between review and policy sessions. At its thirteenth session (2005), the Commission reaffirmed both its mandate and its role as the high-level commission responsible for sustainable development within the UN system, and it addressed measures for voluntary monitoring, reporting and assessment at national and regional levels.

Mountains

In its para 33, the 2030 Agenda for Sustainable Development focuses on the impact that sustainable management of natural resources has on social and economic development and therefore, on the importance of conservation and sustainable use of oceans and seas, freshwater resources as well as forests, mountains and drylands and of the protection of biodiversity, ecosystems and wildlife.

Furthermore, the need to “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” is set as Sustainable Development Goal 15 of the 2030 Agenda.

Target n.1 of SDG 15, in particular, explicitly mentions mountains among the ecosystems to be conserved, restored and sustainably used in line with international agreements.

The outcome document of the Rio + 20 Conference, the Future We Want recognizes, through paragraphs 210-212, both the benefits, derived from mountain regions, as essential for sustainable development and the crucial role played by Mountain ecosystems in providing water resources to a large portion of the world's population. It also acknowledges the importance of mountains as home to indigenous people and local communities.

The Future We Want warns about the vulnerability of fragile mountain ecosystems to the adverse impacts of climate change, deforestation and forest degradation, land use change, land degradation and natural disasters, the marginalisation of its communities. Therefore, it invites States to reinforce cooperative action with effective involvement and sharing of experience of all relevant stakeholders and to adopt a long-term vision and holistic approaches, including through incorporating mountain-specific policies into national sustainable development strategies, which could include, inter alia, poverty reduction plans and programmes for mountain areas, particularly in developing countries.

Prior to Rio+20, Sustainable Mountain Development was discussed at the third session of the Commission on Sustainable Development and the nineteenth Special Session of the General Assembly, held in 1997. The following year, the General Assembly also proclaimed 2002 as the International Year of Mountains, by adopting without a vote, a draft resolution recommended by the Economic and Social Council.

Sustainable Mountain Development is also the subject of Chapter 13 of Agenda 21, which notes that mountains are an important source of water, energy, biological diversity, key resources, such as minerals, forest products and agricultural products, and of recreation. Mountain environments represent major ecosystems which are essential to the survival of the global ecosystem, but they are rapidly changing. Many global mountain areas are experiencing environmental degradation. At the same time, about ten percent of the world's population depends directly on mountain resources, and a much larger percentage draws on mountain resources, including and especially water.

Chapter 13 also includes two programme areas to further elaborate the problem of fragile mountain ecosystems. These are:

Generating and strengthening knowledge about the ecology and sustainable development of mountain ecosystems; and

Promoting integrated watershed development and alternative livelihood opportunities.

Multi-stakeholder partnerships

The Rio+20 Conference was an action-oriented conference focusing on implementation of sustainable development. Member States, the United Nations system, and Major Groups and other stakeholders are together leading the way forward to the Future We Want.

Rio +20 as well as earlier sustainable development conferences have all emphasized the importance of action-oriented voluntary initiatives to complement government-led action in realizing sustainable development. Key voluntary initiatives for implementation of sustainable development include Voluntary Commitments, Partnerships for Sustainable Development, and Green economy policies and initiatives. All voluntary initiatives are expected to announce and achieve concrete time-bound deliverables that advance sustainable development.

Rio +20 mandated (para 293, Future We Want) the United Nations Secretariat to establish and maintain a comprehensive registry of voluntary initiatives for sustainable development whose partners have requested registration with the United Nations Secretariat.

Transforming our world: the 2030 Agenda for Sustainable Development

Multi-stakeholder partnerships

17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

More information: Transforming our world: the 2030 Agenda for Sustainable Development

Rio+20 outcome, Future We Want, paragraph 283

E. Registry of commitments

283. We welcome the commitments voluntarily entered into at the United Nations Conference on Sustainable Development and throughout 2012 by all stakeholders and their networks to implement concrete policies, plans, programmes, projects and actions to promote sustainable development and poverty eradication. We invite the Secretary-General to compile these commitments and facilitate access to other registries that have compiled commitments, in an Internet-based registry. The registry should make information about the commitments fully transparent and accessible to the public, and it should be periodically updated.

More information: The Future We Want

Partnerships for SDGs - preparing for the Post-2015 development agenda with 17 Sustainable Development Goals

Partnerships for SDGs is an online platform created to encourage global engagement around multi-stakeholder partnerships and voluntary commitments in support of the implementation of the sustainable development goals (SDGs).

Initially developed in response to the mandate set out by the Rio+20 Conference (paragraph 283, Future We Want), this platform, which is being further enhanced to respond to the 2030 Agenda for Sustainable Development, will function as a tool to inform stakeholders on initiatives carried out by multi-stakeholder partnerships around the world in support of the sustainable development goals, track progress, and share innovative ideas. The platform is free and open to the public.

National Sustainable Development Strategies (NSDS)

The 2030 Agenda for Sustainable Development expresses and reaffirms in multiple instances the commitment of Member States to achieve sustainable development for all, taking into account different levels of national development and capacities, different national realities and levels of development as well as respecting national policy space for sustained, inclusive and sustainable economic growth, especially for developing states.

Paragraph 21 of the 2030 Agenda acknowledges *"the importance of the regional and sub-regional dimensions, regional economic integration and interconnectivity in sustainable development. Regional and sub-regional frameworks can facilitate the effective translation of sustainable development policies into concrete action at national level"*.

In addition, paragraph 45 focuses on national parliaments *"through their enactment of legislation and adoption of budgets and their role in ensuring accountability for the effective implementation"*.

The need to take into consideration national realities, national levels of development as well as national priorities and development strategies, is repeatedly mentioned throughout the Future We Want, outcome document of the Rio+20 Conference.

The Future Want identifies that, as a requirement for sustainable development, *"the meaningful involvement and active participation of regional, national and subnational legislatures and judiciaries, and all major groups: women, children and youth, indigenous peoples, non-governmental organizations, local authorities, workers and trade unions, business and industry, the scientific and technological community, and farmers, as well as other stakeholders"*. Member States agree to work more closely with the major groups and other stakeholders and encourage their active participation, as appropriate, in processes that contribute to decision-making, planning and implementation of policies and programmes for sustainable development at all levels.

In addition, the active engagement of both the public and private sector are recognized as an essential contributor to the achievement of sustainable development, including through the important tool of public-private partnerships. Member States also expressed their support to national regulatory and policy frameworks that enable business and industry to advance sustainable development initiatives, taking into account the importance of corporate social responsibility.

In 2002, the Johannesburg Plan of Implementation (JPOI) though paragraph 162 b urged member States to take immediate steps towards making progress in formulating and elaborating national strategies for sustainable development, and to begin their implementation by 2005.

The integration of principles of sustainable development into country policies and programmes corresponds to Millennium Development Goal Target 7 A of the United Nations Millennium Declaration.

The 1997 Special Session of the General Assembly also noted the importance of NSDS and set a target of 2002 for their formulation and elaboration.

Chapter 8 of Agenda 21 calls on countries to adopt national strategies for sustainable development (NSDS) that should build upon and harmonize the various sectoral economic, social and environmental policies and plans that are operating in the country.

Oceans & Seas

Oceans, seas and coastal areas form an integrated and essential component of the Earth's ecosystem and are critical to sustainable development. They cover more than two-thirds of the earth's surface and contain 97% of the planet's water. Oceans contribute to poverty eradication by creating sustainable livelihoods and decent work. Over three billion people depend on marine and coastal resources for their livelihoods. In addition, oceans are crucial for global food security and human health. They are also the primary regulator of the global climate, an important sink for greenhouse gases and they provide us with water and the oxygen we breathe. Finally, oceans host huge reservoirs of biodiversity.

The importance of oceans for sustainable development is widely recognized by the international community and embodied in Chapter 17 of Agenda 21, the Johannesburg Plan of Implementation and various decisions taken by the Commission on Sustainable Development. The Millennium Ecosystem Assessment emphasizes that all humans depend on the Earth's ecosystems and the services they provide. In the Rio+20 outcome document,Future We Want, Member States called for "holistic and integrated approaches to sustainable development that will guide humanity to live in harmony with nature and lead to efforts to restore the health and integrity of the Earth's ecosystem". In this context, they stressed, among others, the importance of "the conservation and sustainable use of the oceans and seas and of their resources for sustainable development, including through their contributions to poverty eradication, sustained economic growth, food security and creation of sustainable livelihoods and decent work…". Accordingly, the Proposal of the Open Working Group on Sustainable Development Goals submitted to the United Nations General Assembly in August 2014 contains sustainable development goal (SDG) 14 which aims to "Conserve and sustainability use the oceans, seas and marine resources for sustainable development".

In order for oceans, seas and marine resources to successfully contribute to human well-being, ecosystem integrity, with properly functioning biogeochemical and physical processes, is required. This does not require unperturbed systems, but systems that have not suffered serious or irreversible harm. Ecosystem integrity allows for the provision of so-called supporting ecosystem services which, in turn, are the bases of important regulating, provisioning and cultural ecosystem services that are of crucial importance for humans. Whereas the benefits provided by oceans, seas and marine resources are important to all people, the poor, indigenous peoples, and vulnerable groups with a high dependency on natural resources and ecosystem services may have their well-being especially tied to these benefits. The link between oceans, seas and marine resources and human well-being is not one-sided. While an increase in human well-being is frequently generated at the cost of ecosystem integrity, it can also potentially reduce the negative anthropocentric impacts on the marine environment, for example due to a more sustainable use of resources, changes in production and consumption patterns and improved management and control of human activities. In order for this to happen, good governance and an enabling environment are however required.

Oceans, seas and marine resources are increasingly threatened, degraded or destroyed by human activities, reducing their ability to provide crucial ecosystem services. Important classes of threats are, among others, climate change, marine pollution, unsustainable extraction of marine resources and physical alterations and destruction of marine and coastal habitats and landscapes. The deterioration of coastal and marine ecosystems and habitats is negatively affecting human well-being worldwide.

Good governance, an enabling environment, sustainable land- and marine- based human activities, and adequate measures will be required to reduce the negative anthropogenic impacts on the marine environment, for example due to a more sustainable use of resources, changes in production and consumption patterns and improved management and control of human activities. Projects and measures should ideally be designed and implemented in an integrated, cross-sectoral and cross-scale manner, in line with the ecosystem approach and involving all stakeholders.

Human well-being cannot be achieved without the protection and conservation of the Earth's ecosystem. To maintain the quality of life that the oceans have provided to humankind, while sustaining the integrity of their ecosystems, a change will be required in how humans view, manage and use oceans, seas and marine resources.

Poverty eradication

Eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development.

The 2030 Agenda for Sustainable Development resolves to free the human race from the tyranny of poverty and to heal and secure our planet.

The first Sustainable Development Goal aims to “End poverty in all its forms everywhere”. Its seven associated targets aims, among others, to eradicate extreme poverty for all people everywhere, reduce at least by half the proportion of men, women and children of all ages living in poverty, and implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

As recalled by the foreword of the 2015 Millennium Development Goals Report, at the Millennium Summit in September 2000, 189 countries unanimously adopted the Millennium Declaration, pledging to *“spare no effort to free our fellow men, women and children from the abject and dehumanizing conditions of extreme poverty”*. This commitment was translated into an inspiring framework of eight goals and, then, into wide-ranging practical steps that have enabled people across the world to improve their lives and their future prospects. The MDGs helped to lift more than one billion people out of extreme poverty, to make inroads against hunger, to enable more girls to attend school than ever before and to protect our planet.

Nevertheless, in spite of all the remarkable gains, inequalities have persisted and progress has been uneven. Therefore, the 2030 Agenda for Sustainable Development and its set of Sustainable Development Goals have been committed, as stated in the Declaration of the Agenda, “to build upon the achievements of the Millennium Development Goals and seek to address their unfinished business”.

From Agenda 21 to Future We Want

In "The Future We Want", the outcome document of Rio+20, Member States emphasized the need to accord the highest priority to poverty eradication within the United Nations development agenda, addressing the root causes and challenges of poverty through integrated, coordinated and coherent strategies at all level.

In the context of the multi-year programme of work adopted by the Commission on Sustainable Development (CSD) after the 2002 World Summit on Sustainable Development (WSSD), poverty eradication appears as an "overriding issue" on the agenda of the CSD each year.

Poverty eradication is addressed in Chapter II of the Johannesburg Plan of Implementation (2002), which stressed that eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development, particularly for developing countries.

Priority actions on poverty eradication include: improving access to sustainable livelihoods, entrepreneurial opportunities and productive resources;

providing universal access to basic social services;

progressively developing social protection systems to support those who cannot support themselves;

empowering people living in poverty and their organizations;

addressing the disproportionate impact of poverty on women;

working with interested donors and recipients to allocate increased shares of ODA to poverty eradication; and

intensifying international cooperation for poverty eradication.

The General Assembly, in its 1997 Programme for the Further Implementation of Agenda 21 (paragraph 27) decided that poverty eradication should be an overriding theme of sustainable development for the coming years. It is one of the fundamental goals of the international community and of the entire United Nations system.

"Combating poverty" is the topic of Chapter 3 of Agenda 21. It is also in commitment 2 of the Copenhagen Declaration on Social Development.

Rural Development

As the United Nations Secretary-General, Mr Ban Ki – Moon noted in the Millennium Development Goals Report 2015, "*disparities between rural and urban areas remain pronounced*" and big gaps persist in different sectors:

It is estimated that in 2015 still roughly 2.8 billion people worldwide lack access to modern energy services and more than 1 billion do not have access to electricity. For the most part this grave development burden falls on rural areas, where a lack of access to modern energy services negatively affects productivity, educational attainment and even health and ultimately exacerbates the poverty trap.

In rural areas, only 56 per cent of births are attended by skilled health personnel, compared with 87 per cent in urban areas.

About 16 per cent of the rural population do not use improved drinking water sources, compared to 4 per cent of the urban population.

About 50 per cent of people living in rural areas lack improved sanitation facilities, compared to only 18 per cent of people in urban areas.

Sustainable Development Goal (SDG) 2 of the Post-2015 Development Agenda calls to "*end hunger, achieve food security and improved nutrition and promote sustainable agriculture*". In particular, target 2.a devotes a specific attention to "*Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries*".

Background information

Promoting sustainable agriculture and rural development (SARD) is the subject of chapter 14 of Agenda 21.

The major objective of SARD is to increase food production in a sustainable way and enhance food security. This will involve education initiatives, utilization of economic incentives and the development of appropriate and new technologies, thus ensuring stable supplies of nutritionally adequate food, access to those supplies by vulnerable groups, and production for markets; employment and income generation to alleviate poverty; and natural resource management and environmental protection.

The Commission on Sustainable Development (CSD) first reviewed Rural Development at its third session in 1995, when it noted with concern that, even though some progress had been reported, disappointment is widely expressed at the slow progress in moving towards sustainable agriculture and rural development in many countries.

Sustainable agriculture was also considered at the five-year review of implementation of Agenda 21 in 1997, at which time Governments were urged to attach high priority to implementing the commitments agreed at the World Food Summit, especially the call for at least halving the number of undernourished people in the world by the year 2015. This goal was reinforced by the Millennium Declaration adopted by Heads of State and Government in September 2000, which resolved to halve by 2015 the proportion of the world's people who suffer from hunger.

In accordance with its multi-year programme of work, agriculture with a rural development perspective was a major focus of CSD-8 in 2000, along with integrated planning and management of land resources as the sectoral theme. The supporting documentation and the discussions highlighted the linkages between the economic, social and environmental objectives of sustainable agriculture. The Commission adopted decision 8/4 which identified 12 priorities for action. It reaffirmed that the major objectives of SARD are to increase food production and enhance food security in an environmentally sound way so as to contribute to sustainable natural resource management. It noted that food security-although a policy priority for all countries-remains an unfulfilled goal. It also noted that agriculture has a special and important place in society and helps to sustain rural life and land.

Rural Development was included as one of the thematic areas along with Agriculture, Land, Drought, Desertification and Africa in the third implementation cycle CSD-16/CSD-17.

A growing emphasis is being placed on the Nexus approach to sustainable rural development, seeking to realize synergies from the links between development factors such as energy, health, education, water, food, gender, and economic growth.

In this regard and as part of the follow up to the 2012 Conference on Sustainable Development or Rio+20, the United Nations Department of Economic and Social Affairs (UN-DESA), in collaboration with SE4All, UN-Energy and the Economic Commission for Africa (ECA), organized Global Conference on Rural Energy Access: A Nexus Approach to Sustainable Development and Poverty Eradication, in Addis Ababa, Ethiopia, Dec 4 – 6, 2013.

Science

The 2030 Agenda for Sustainable Development describes in paragraph 70 the composition and task of the Technology Facilitation Mechanism, established by the Addis Ababa Action Agenda and aimed at supporting the Sustainable Development Goals. More specifically, paragraph 70 of the 2030 Agenda reads: *"the Technology Facilitation Mechanism will be based on a multi-stakeholder collaboration between Member States, civil society, private sector, scientific community, United Nations entities and other stakeholders and will be composed of: a United Nations Interagency Task Team on Science, Technology and Innovation for the SDGs, a collaborative Multistakeholder Forum on Science, Technology and Innovation for the SDGs and an on-line platform."*

Sustainable Development Goals Targets 17.6 and 17.8 respectively aim to *"Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism" and to "fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology"*.

Prior to the 2030 Agenda, the Rio+20 outcome document The Future We Want called for a Global Sustainable Development Report to bring together dispersed information and existing assessments, and to strengthen the science–policy interface at the High-level Political Forum on sustainable development (HLPF), through Paragraph 85.k.

As recalled by the Prototype Global Sustainable Report, published in 2014, the United Nations Secretary-General tasked, following Rio+20, the Division for Sustainable Development of the Department of Economic and Social Affairs to undertake "in-depth analysis and evaluation of trends and scientific analysis in the implementation of sustainable development, including lessons learned, best practices and new challenges, and cross-sectoral analysis of sustainable development issues".

On that occasion, it was decided to produce a "prototype" report to facilitate dialogue between scientists and decision-makers and to establish for this purpose a United Nations system task team.

Decisions related to science were also taken by the World Summit on Sustainable Development held in 2002, by the Commission on Sustainable Development at its third (1995), fifth (1997) and sixth (1998) sessions and by the United Nations General Assembly at its Special Session to review the implementation of Agenda 21 (1997).

The Plan of Implementation adopted by WSSD underlined the importance of science-based decision-making, inter alia, by: integrating scientists' advice into decision-making bodies; partnerships between scientific, public and private institutions; improved collaboration between natural and social scientists, and establishing regular channels for requesting and receiving advice between scientists and policy makers; making greater use of integrated scientific assessments, risk assessments and interdisciplinary and intersectoral approaches; increasing the beneficial use of local and indigenous knowledge. Strengthening and creating centres for sustainable development in developing countries were encouraged, as well as networking with and between centres of scientific excellence and between science and education for sustainable development. Tools for science-based decision-making and sharing of knowledge and experiences to be promoted include: information and communication technologies, ground-based observations, satellite technologies, and national statistical services capable of providing sound data, assessment models, accurate databases and integrated information systems. The Plan also urged support for publicly funded research and development entities to engage in strategic alliances for the purpose of enhancing research and development.

The special session of the General Assembly held in June 1997 to review progress five years after UNCED stressed the need for authoritative scientific evidence for assessing environmental conditions and changes, which would facilitate international consensus-building. Scientific cooperation was to be promoted across disciplines for that purpose, and building scientific and technological capacity in developing countries was extremely important in that regard.

Science for sustainable development is the focus of Chapter 35 of Agenda 21. It calls for:

strengthening the scientific basis for sustainable management;

enhancing scientific understanding;

improving long-term scientific assessment; and

building up scientific capacity and capability.

Sustainable cities and human settlements

Human settlements

Cities are hubs for ideas, commerce, culture, science, productivity, social, human and economic development. Urban planning, transport systems, water, sanitation, waste management, disaster risk reduction, access to information, education and capacity-building are all relevant issues to sustainable urban development. According to the UN-HABITAT Global Activity Report 2015, in the last century, the world has been rapidly urbanizing. In 2008, for the first time in history, urban population outnumbered rural population. This milestone marked the advent of a new 'urban millennium' and, by 2050, it is expected that two-thirds of the world population will be living in urban areas. With more than half of humankind living in cities and the number of urban residents growing by nearly 73 million every year it is estimated that urban areas account for 70 per cent of the world's gross domestic product and has therefore generated economic growth and prosperity for many.

The 2030 Agenda for Sustainable Development tackles this challenge through its Sustainable Development Goal 11, which aims to "make cities and human settlements inclusive, safe, resilient and sustainable".

Both the Johannesburg Plan of Implementation (Chapter II - Poverty Eradication, paragraph 11) and MDG 7, in its target 11, call for efforts to achieve "a significant improvement in the lives of at least 100 million slum dwellers", by 2020.

Sustainable human settlements development was also discussed by CSD at its second and third sessions. "Promoting sustainable human settlements development" is the subject of Chapter 7 of Agenda 21, which calls for 1) providing adequate shelter for all; 2) improving human settlements management; 3) promoting sustainable land-use planning and management; 4) promoting the integrated provision of environmental infrastructure: water, sanitation, drainage and solid waste management; 5) promoting sustainable energy and transport systems in human settlements; 6) promoting human settlements planning and management in disaster-prone areas; 7) promoting sustainable construction industry activities; and 8) promoting human resource development and capacity-building for human settlements development.

Sustainable consumption and production

goal n.12 of the 2030 Agenda for Sustainable Development aims to ensure sustainable consumption and production patterns.

Paragraph 28 of the 2030 Agenda reads: *“We (Countries) commit to making fundamental changes in the way that our societies produce and consume goods and services. Governments, international organizations, the business sector and other non-state actors and individuals must contribute to changing unsustainable consumption and production patterns, including through the mobilization, from all sources, of financial and technical assistance to strengthen developing countries’ scientific, technological and innovative capacities to move towards more sustainable patterns of consumption and production. We encourage the implementation of the 10-Year Framework of Programmes on Sustainable Consumption and Production. All countries take action, with developed countries taking the lead, taking into account the development and capabilities of developing countries”*.

As defined by the Oslo Symposium in 1994, sustainable consumption and production (SCP) is about *"the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations”*.

The concept of sustainable consumption and production was later recognized in the Johannesburg Plan of Implementation, adopted in 2002 at the World Summit on Sustainable Development (WSSD). On that occasion, sustainable consumption and production was identified as one of the three overarching objectives of, and essential requirements for, sustainable development, together with poverty eradication and the management of natural resources in order to foster economic and social development. It was acknowledged that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development.

The Johannesburg Plan of Implementation also called for all countries to promote sustainable consumption and production patterns, with the developed countries taking the lead and with all countries benefiting from the process, taking into account the Rio principles, including, inter alia, the principle of common but differentiated responsibilities as set out in Principle 7 of the Rio Declaration on Environment and Development.

Furthermore, the Plan called in its Chapter 3 “Changing unsustainable patterns of consumption and production” for governments, relevant international organizations, the private sector and all major groups to play an active role in changing unsustainable consumption and production patterns and more specifically,through its Paragraph 15, to *"Encourage and promote the development of a 10-year framework of programmes (10YFP) in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems"*.

The 10- year framework of programme (10YFP) on sustainable consumption and production patterns was adopted at the Rio+20 Conference, through Paragraph 226.

UNEP has been requested to serve as the 10YFP Secretariat and to establish and administer a Trust Fund to support SCP implementation in developing countries and countries with economies in transition. (A/C.2/67/L.45).

The Inter-Agency Coordination Group (IACG) of the 10YFP was established in May 2013, with the participation of 19 United Nations bodies. It is permanently chaired by UNEP and co-chaired for the period 2013-2015 by the Department of Economic and Social Affairs. The Coordination Group has been providing inputs for the development of the 10-year framework programmes and prepared a document on “SCP in the SDG [Sustainable Development Goals] Focus Areas”, which was issued in June 2014. The main areas of actions of the Inter-Agency Coordination Group include enhancing visibility within the UN and the raising awareness outside the UN, enhancing coherent inter-agency support for the implementation of the programmes, conducting joint research as well as promoting information exchange and responding to the 10YFP Board.

Sustainable tourism

Tourism is one of the world's fastest growing industries and an important source of foreign exchange and employment for many developing countries.

The 2030 Agenda for Sustainable Development commits Member States, through Sustainable Development Goal Target 8.9 to *"devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products"*. The importance of sustainable tourism, as a driver for jobs creation and the promotion of local culture and products, is also highlighted in Sustainable Development Goal target 12.b.

Tourism is also identified as one of the tools to *"increase [by 2030] the economic benefits to Small Island developing States and least developed countries"*, through Sustainable Development Goals Target 14.7.

Sustainable tourism is defined by paragraph 130 of The Future We Want as a significant contributor *"to the three dimensions of sustainable development"* thanks to its close linkages to other sectors and its ability to create decent jobs and generate trade opportunities. Therefore, Member States recognize *"the need to support sustainable tourism activities and relevant capacity-building that promote environmental awareness, conserve and protect the environment, respect wildlife, flora, biodiversity, ecosystems and cultural diversity, and improve the welfare and livelihoods of local communities"*.

Paragraph 130 of the Future We Want also focuses on the role of sustainable tourism as a key contributor for sustainable development in developing countries.

More specifically, Member States, through paragraph 131, *"encourage the promotion of investment in sustainable tourism, including eco-tourism and cultural tourism, which may include creating small and medium sized enterprises and facilitating access to finance, including through microcredit initiatives for the poor, indigenous peoples and local communities in areas with high eco-tourism potential"*. In this regard, Member States also stress the importance of establishing, guidelines and regulations, in accordance with national priorities and legislation for promoting and supporting sustainable tourism.

In 2002, the World Summit on Sustainable Development in Johannesburg addressed sustainable tourism in Chapter IV, paragraph 43 of the Johannesburg Plan of Implementation.

At the Johannesburg Summit the launch of the Sustainable Tourism – Eliminating Poverty (ST-EP) was announced. The initiative was inaugurated by the World Tourism Organization, in collaboration with UNCTAD in order to develop sustainable tourism as a force for poverty alleviation.

The UN Commission on Sustainable Development (CSD) last reviewed the issue of sustainable tourism in 2001, when it was acting as the Preparatory Committee for the Johannesburg Summit.

The General Assembly in 1998 proclaimed 2002 as the International Year of Ecotourism (A/RES/53/200), reaffirming Economic and Social Council resolution 1998/40, of 30 July 1998.

In reviewing the first five years' implementation of Agenda 21 in 1997 at its nineteenth Special Session, the General Assembly indicated the need to give further consideration to the importance of tourism in the context of Agenda 21.

Under Chapter 7 of Agenda 21 devoted to the promotion of sustainable human settlement development, the promotion of the formulation of sound and culturally sensitive tourism programmes are seen as a strategy for sustainable development of urban and rural settlements and as a way of decentralizing urban development and reducing discrepancies among regions. The important role of ecotourism as a tool to promote economic growth in respect of environment sustainability is a recurring theme within Agenda 21, in particular with reference to the protection of forests (paragraph 11.20-11.21), mountain ecosystems (paragraph 13.6), improvement of farm production and farming systems (paragraph 14.25), sustainable conservation and use of marine living resources.

Sustainable transport

The climate debate and action often focuses on energy and industrial activity as the key sectors contributing to greenhouse gas emissions. However, the transport sector, which is responsible for one quarter of energy-related greenhouse gas (GHG) emissions worldwide, with its emissions increasing at a faster rate than any other sectors, must be included in any effective policy response to climate change and in order to keep the global temperature increase below the two-degree Celsius. Furthermore, sustainable transport must be viewed and integrated as an essential ingredient in sustainable development strategies. Transport infrastructure lasts for decades, which means that the decisions that the local and national governments make today will have long-lasting impacts on urban development and form, as well as climate.

The role of transport in sustainable development was first recognized at the 1992 United Nation's Earth Summit and reinforced in its outcome document – the Agenda 21. Several chapters, as for example Chapter 9 on Atmosphere and Chapter 7 on Human Settlements recognize Transport as a key development issue.

In undertaking the five-year review of the implementation of Agenda 21 during its nineteenth Special Session in 1997, the General Assembly noted that, over the next twenty years, transportation is expected to be the major driving force behind a growing world demand for energy. It is the largest end-use of energy in developed countries and the fastest growing one in most developing countries.

Further, in 2002, the role of transport was captured in the Johannesburg Plan of Implementation. The outcome document of the 10th Anniversary of the World Summit on Sustainable Development provided different anchor points for a mobility policy from which environmental and health could benefit, in the context of consumption and production, natural resources as a support of the Kyoto and Montreal Protocol as well as in the context of health, recognizing the importance of preventative, promotive and curative programs on traffic pollution related diseases.

World leaders recognized at the 2012 United Nations Conference on Sustainable Development (Rio +20) outcome document: "The Future We Want" that transportation and mobility are central to sustainable development and emphasized the important role of municipal governments in setting a vision for sustainable cities.

Moreover, as part of his five Year Action Agenda, pronounced in January 2012, the UN Secretary General identified transport as a major component of sustainable development. This was a significant step forward in promoting sustainable transport worldwide. In this light, the Secretary General established and launched in August 2014 a High Level Advisory Group on Sustainable Transport (HLAG-ST), representing all modes of transport including road, rail, aviation, marine, ferry, and urban public transport providers, along with Governments and investors, to develop concrete recommendations for more sustainable transport systems that can address rising congestion and pollution worldwide, particularly in urban areas, and are actionable at global, national, local and sector levels. The policy recommendations, to be developed by the HLAG-ST, are expected to be reflected in a *global sustainable transport outlook report* that will be released in a first *international conference on sustainable transport* in November 2016.

Sustainable transport is essential to achieving most, if not all, of the proposed Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development. Although sustainable transport is not represented by a standalone SDG, it is mainstreamed across several SDGs and targets, especially those related to food security, health, energy, infrastructure and cities and human settlements.

Technology

Technology, science and capacity building are major pillars of the Means of Implementation of the Post-2015 Agenda and of the Rio+20 follow-up processes. The research, development, deployment, and widespread diffusion of environmentally sound technologies in the context of a Green Economy is also closely linked to other core elements and means of implementation, including innovation, business opportunities and development, trade of environmental goods and services, finance and investment, and institutional capabilities.

In order to eradicate poverty and reorient current unsustainable development trajectories over the period 2015 to 2030, affordable technological solutions have to be developed and disseminated widely in the next fifteen years. The Means of Implementation of the Post-2015 Development Agenda and the Addis Ababa Action Agenda could nevertheless provide an opportunity to address some of the gaps hindering the facilitation and transfer of these technologies.

In 2012, the UN Conference on Sustainable Development ("Rio+20") called for identifying technology facilitation mechanism. The Addis Ababa Action Agenda, in its paragraph 123, decided to establish a technology facilitation mechanism. The mechanism will be launched at the United Nations summit for the adoption of the post-2015 development agenda in order to support the sustainable development goals.

Trade

Trade and Sustainable Development is addressed in Chapter 2 of Agenda 21, and in Chapter V and Chapter X of the Johannesburg Plan of Implementation.

Trade liberalisation and globalisation can have both positive and negative effects on sustainable development. There is a continued need to support efforts by developing countries to integrate themselves into and derive benefits from the multilateral trading system. At the same time, attention also must be given to enhancing the contribution of the multilateral trading system to sustainable development.

A supportive international economic environment is crucial. Agenda 21 calls for "a supportive international climate for achieving environment and development goals by:

promoting sustainable development through trade liberalisation;

making trade and environment mutually supportive;

providing adequate financial resources to developing countries dealing with international debt; and

encouraging macroeconomic policies conducive to environment and development."

Trade and and sustainable development were discussed at the first, second, third, fourth and fifth session of the Commission. Within the framework of the Commission's multi-year programme of work, this issue was again discussed at the eighth session, together with economic growth and investment, as one of the major cross-sectoral themes.

An enduring concern for both developed and developing countries is the balance between environmental policy and the international competitiveness of both nations and individual firms. The trade and competitiveness research committee of the green growth knowledge platform examines the effects of green growth policies on the patterns and volume of trade, on national and firm competitiveness, and on employment. The green economy offers an opportunity to improve both global trade governance and the domestic trade environment to ensure that trade contributes positively to a green economy in the context of sustainable development and poverty eradication.

Water and sanitation

Today it is widely recognized that an integrated approach to freshwater management offers the best means of reconciling competing demands with supply and a framework where effective operational actions can be taken. It is thus valuable for all countries at all stages of development.

This is the focus of chapter 18 of Agenda 21. Further recommendations to support implementation of chapter 18 were taken by the Commission on Sustainable Development at its second (1994) and sixth (1998) sessions; by the United Nations General Assembly at its nineteenth Special Session to review the implementation of Agenda 21 (1997) and by the World Summit on Sustainable Development (2002) through its Plan of Implementation. The Commission on Sustainable Development, at its twelfth session (2004) reviewed and assessed implementation of three thematic issues, including water and sanitation. Most recently, in 2005, at its thirteenth session, the Commission explored policy options for furthering implementation on the issues of water and sanitation as well as on human settlements as reflected in its decision.

It was also decided to monitor and follow up the implementation of CSD-13 decisions on water and sanitation, and their interlinkages in 2008 (CSD-16) and 2012 (CSD-20). A questionnaire on Integrated Water Resources Management (IWRM) and Water Efficiency Plans (word) | (pdf) was developed in partnership with the IWRM taskforce of UN-Water to facilitate national reporting for the review during CSD-16.

Water for Life Decade:

The "Water for Life" Decade (www.un.org/waterforlifedecade) was launched on 22 March 2005, on World Water Day. The Decade aims to promote efforts to fulfill international commitments made on water and water-related issues by 2015, placing special emphasis on the involvement and participation of women in these efforts. The year 2003 was earlier chosen by the General Assembly as the International Year of Freshwater. Secretary-General's Advisory Board on Water and Sanitation: United Nations Secretary-General Kofi Annan established an Advisory Board on Water and Sanitation in 2004 to galvanize global action on these issues. Former Prime Minister Ryutaro Hashimoto of Japan agreed to serve as Chair of the Board.

Millennium Development Goals

Millennium Development Declaration (2000) called for the world to halve, by 2015, the proportion of people without access to safe drinking water as well as the proportion of people who do not have access to basic sanitation. It called upon the international community to combat desertification and mitigate the effects of drought and floods; to develop integrated water resources management and water efficiency plans by 2005; and to support developing countries and countries with economies in transition in their efforts to monitor and assess the quantity and quality of water resources.

Other Initiatives: The emphasis on action-oriented policies and implementation has led to two further initiatives that complement the WSSD Plan of Implementation: these are Partnership initiatives and the WEHAB Initiative. Project execution and policy advisory services: The Division for Sustainable Development, through its Water, Natural Resources and SIDS Branch, provides project execution and policy advisory services at the request of interested countries to promote and support integrated water resources management at the international, national, regional, local and basin levels. These services are based on a contemporary technical cooperation model that links current political discussions with the realities in the field.

International Year of Sanitation (2008)

The General Assembly of the United Nations through its Resolution A/C.2/61/L.16/Rev.1 declared 2008 as an International Year of Sanitation (IYS) and requested UN DESA to serve as the focal point for the year to develop, in a timely manner, relevant proposals on possible activities on all levels, including possible sources of funding. Sanitation as a theme was discussed at the twelfth session of the Commission on Sustainable Development for the first time. In the Johannesburg Plan of Implementation (JPOI) adopted at the World Summit on Sustainable Development (WSSD) in 2002, sanitation-related goals are addressed under the section on Poverty Eradication. The JPOI target to halve the number of people without access to basic sanitation by 2015 is closely related to the Millennium Development Goal of reducing, by 2015, by half the proportion of people who are unable to reach, or to afford, safe drinking water.

The other goals and targets related to sanitation reflected in JPOI include:

Ensure, by the year 2025, that sanitation coverage is achieved in all rural areas; Improve sanitation in public institutions, especially schools; Promote safe hygiene practices; Promote affordable and socially and culturally acceptable technologies and practices; Integrate sanitation into water resources management strategies; Develop innovative financing and partnership mechanisms and Strengthen existing information networks. In the pre-WSSD work of the Commission for Sustainable Development, sanitation issues were mainly addressed in relation to waste. Sanitation involves the adequate management and disposal of different types of wastes with a view to minimizing harmful effects to human health and the environment.

integrated approaches for sustainable development planning and implementation

The mandate agreed at Rio+20 for the creation of the goals stipulated among other requirements that the goals should achieve an appropriate balance between the economic, social and environmental dimensions of sustainable development.

achieving sustainable development in its three dimensions—economic, social and environmental—in a balanced and integrated manner

Integration of the economic, social and environmental dimensions is key to achieving sustainable development.

“how” this integration is to be achieved.

Foundational concepts, such as systems thinking, are introduced to underline the interconnectedness between the three dimensions, the need for holistic thinking and the potential for “leverage points” for policy intervention.

The concept of multiple capitals is also introduced to highlight that integration of the three dimensions of sustainable development requires balanced investment in and across different forms of capital. Limiting the focus on only one or a few forms of capital, by assuming and accepting that there will be trade-offs, often leads to a decline and erosion in other forms of capital. Integration for sustainable development requires synergies between investments in the different forms of capital.

Two tools for integration are featured: Qualitative scenario building is a method and process that can support stakeholder learning, dialogue and social innovation by visualizing uncertain but possible futures. Scenarios provide narratives to describe what life in a particular region in the world might look like in 2030 if all the SDGs were to be achieved. This method is suitable for integrating the different dimensions of sustainable development because scenario storylines can explore interactions between them. It can also be used to describe pathways of action towards desired futures and ways of achieving such desired futures.

Input-output analysis is introduced as a quantitative and analytical framework suitable for linking the economic, social and environmental dimensions of investment, trade and related economic activity. It establishes links between resources and impacts associated with the use of resources from particular sectors or locations of production throughout the supply chain to the consumer of the final goods. In the context of global trade, it can expose the carbon, biodiversity and material footprints.

The concepts and tools introduced here are not exhaustive. This publication is only a first step towards meeting the needs of policymakers for frameworks and tools to integrate the three dimensions of sustainable development.

موضوعات کلاس های آموزشی:

مقدمه ای بر توسعه پایدار
چالش های توسعه پایدار در سطح کلان و جهان
رهیافتهای سیستمی برای توسعه پایدار
هزینه و فایده و نحوه اندازه گیری فعالیتهای مرتبط با توسعه پایدار
ارزیابی معیشت پایدار
توسعه پایدار از دیدگاه رشته های مختلف
ابزارها، شاخص ها و چارچوبهای اندازه گیری پایداری
خدمات شهری پایدار: حمل و نقل پایدار در کشورهای در حال توسعه
تنوع زیستی، تغییرات جهانی و پایداری
رهیافتهای پایداری و معیشت
ریسک فرصتهای تجاری و تغییرات آب و هوایی
کاربرد GIS در موضوعات محیطی
سناریوسازی برای پایداری با استفاده از مدل های ریاضی
مدیریت پایدار منابع آب
راهبردهای تجاری برای توسعه پایدار
پایداری مالی
انرژی های نو و توسعه پایدار
راهبردهای رشد سبز و توسعه پایدار
جنبه های قانونی توسعه پایدار
مطالعه موردی دیدگاه ذی نفعان در خصوص توسعه پایدار
امنیت غذایی و کشاورزی
آموزش جوانان برای توسعه پایدار
پروژه های تری در خصوص توسعه پایدار
نشست آموزشی و مطالعات موردی در خصوص توسعه پایدار در کشورهای مختلف

Sustainable Development

What does that really mean, anyway?

Sustainable Development Definitions

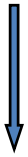
- Normative definition
  - Development that meets the needs and aspirations of the current generation without compromising the ability to meet those of future generations.
- Our definition
  - Development which enables individuals and communities in underdeveloped regions of the world to raise living standards through profitable products, consistent with minimizing adverse environmental effects

Concept of sustainable development (SD)

- Industrial Revolution in the 18th century (1760-1870) witnessed a transition from hand production methods to machine manufacturing processes, pushing the participating countries (Great Britain, Western Europe and United States) into an era of industrialization.
- Economic development and growth of most of the nations so far has been at the cost of environment. Many of the resources harnessed now run the risk of critical scarcity in the near future.
- It was only during 1970s that we began realizing that our classical path of development (increase in per capita income) is not 'sustainable' in the long run.

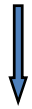
Evolution of the concept of SD

- Natural resources are depleting rapidly and may soon endanger our natural-resource-intensive-production activities.



We need to reduce resource use per unit of output produced, i.e., dissociating output growth from growth in resource utilization (Resource Decoupling)

- Unwarranted use of resources are polluting the very environment in which we live in.



We have to mitigate the deleterious impact of economic growth on the environment (Impact Decoupling)

Sustainable Development

	Material growth	Low/no material growth
Increase in well-being	UNSUSTAINABLE DEVELOPMENT	SUSTAINABLE DEVELOPMENT
No increase in well-being		ZERO GROWTH

Germany

- Germany acknowledged the problem of resource depletion in late 1970s & adopted the National Strategy for Sustainable Development (NSSD) in 2002, that aimed at improving soil, water & air during 1970s and 1980s and doubling resource productivity by 2010.
- With the IECP (Integrated Energy & Climate Program) 2007/8, it aims to double resource and energy productivity by year 2020 and reduce carbon-dioxide emission by 30% by 2030.

- Between 1994 and 2007, sufficient resource decoupling has occurred. While resource productivity has increased by 35.4%, GDP rose by 22.3% and raw material input requirement decreased by 9.7%.
- Although only ½ of the resource efficiency targets has been met so far, other macroeconomic effects, such as, increase in GDP, creation of new businesses and growth in employment levels have been very significant.
- The Wuppertal Institute has proposed an Innovation Program for Resource Efficiency to form a part of German efforts to mitigate economic and environmental crises.

Japan

- Japan is heavily dependent on imports of natural resources, such as, food, energy and other raw materials. So, its GDP is naturally decoupled from natural resources.
- Japan faces a major problem associated with increasing quantities of solid waste.
- Oil dependency has reduced to < 50%, still higher than other industrialized nations.
- In 2007, the Japanese government committed to build a sustainable society comprising of, a low carbon society, a sound material cycle society & a society in harmony with nature.
- The SMC is rooted to its 3R (reduce, reuse, recycle) approach.

- Although Japan's national target of SMC is not mandatory, voluntary efforts are made to incorporate in to the business sector (Hitachi, Sanyo, Toshiba, Sharp, Panasonic, Mitsubishi).
- In many countries, energy efficiency of appliances is monitored by the Minimum Efficiency Performance Standards (MEPS). In Japan, it is the other way round. The best model on the market becomes a standard to be followed by all companies in the next few years. It applies to machinery and equipment in the residential, commercial and transportation sectors.

China

- In 2007, China adopted a scientific outlook of development & committed to building a ecological civilization with mandatory energy conservation, pollution abatement & a circular economy.
- China is world's largest carbon dioxide, sulphur dioxide emitter. Its chemical oxygen discharge is 80% beyond the environmental bearing capacity.
- Resource intensity per unit of GDP is about 90% higher than the world average and energy efficiency is 10% below that of the developed world.
- China's 11th five year plan (2006-2010) targets to reduce energy intensity of GDP by 20%, 10% drop in sulphur dioxide emissions and reduction of chemical oxygen discharge by 2010.
- Since 2006, China has made energy saving & pollution abatement programs mandatory.
- Law of circular economy promotion, Law on cleaner production promotion, management and taxation policies for comprehensive utilization of wastes & used resources.
- The National Action Plan (2007) on climate change has set a target in 2009 to reduce carbon dioxide emissions per unit of GDP by 40-45% (against 2005 levels) by 2020.

- Primary energy consumption has become more efficient indicating substantial resource decoupling.
- China's steel consumption jumped from 53 million tons (1990) to 520 million tons (2007) & steel consumption per unit of GDP increased at a rate higher than GDP growth.
- Emission/discharge of many pollutants began to decouple from economic growth in the early 1990s, which can be attributed to recycling and proper disposal of industrial solid wastes.
- By the end of 2009, the GDP energy intensity had reduced by 15.6%, and SO2 emissions and COD discharge dropped by 13.14% and 9.66% respectively against 2005 levels

South Africa

- In 2008, S.A. government adopted 2 key policies:
  - the National Framework for Sustainable Development which calls specifically for 'resource and impact decoupling'
  - the Long-Term Mitigation Scenario (LTMS) which envisages GHG emissions cuts of 30–40% by 2050.
- Since 1994, S.A. has been a resource-rich resource-exporting developing economy heavily dependent on its vast supply of cheap coal. Only since 2007 has the government begun to realize that due to abundant cheap coal, the carbon intensity has been the highest in the world (0.99) and its emissions per capita double the world average.
- In the 2008 National Framework for Sustainable Development (NFSD), proposed five strategies:
  - enhancing systems for integrated planning and implementation
  - sustaining ecosystems and using resources sustainably;
  - Investing in sustainable economic development and infrastructure
  - creating sustainable human settlements
  - responding appropriately to emerging human development, economic and environmental challenges

- The growth rate of domestic extraction used within the domestic economy has decoupled from the economic growth rate, but this ignores the increased dependence on exported primary products.
- Various sectoral responses to biodiversity degradation, depletion of fisheries, pollution of water resources, air pollution and excessive solid waste disposal are evident. However, S. A. has no set of indicators for measuring future progress.
- S. A. is a water-scarce country and the scientific community and policymakers agree that no more water is available to be allocated for future development, leaving water efficiency and reuse as the only solution.

Sustainability

- Major components:
  - Environmental
  - Economic
  - Social
  - Political

Environmental Sustainability

- Reduce, Reuse, Recycle of resources

- Eco-efficiency

Environmental Sustainability

- Cradle-to-Cradle Manufacturing
  - Manufacturer is responsible for the product through entire life-cycle
  - Create products that are designed for “upcycling”
  - Technical and biological “nutrient cycles”
  - No waste, not less waste

Economic Sustainability

- Who is paying for your product?
  - User
  - NGO
  - Government
- Will they keep paying?
- Why?
- What is the value your product brings?

Social Sustainability

- Does your product fit into its social context?
- Are there people with the level of skill needed to repair/maintain your product?
- Does your product make people's lives better?
- Does any part of making/using/disposing of your product harm people?

Appropriate Technology

- Simple, Low-cost, Local (but effective)
- Labor-intensive methods
- Low capital costs
- Use, Maintenance are simple

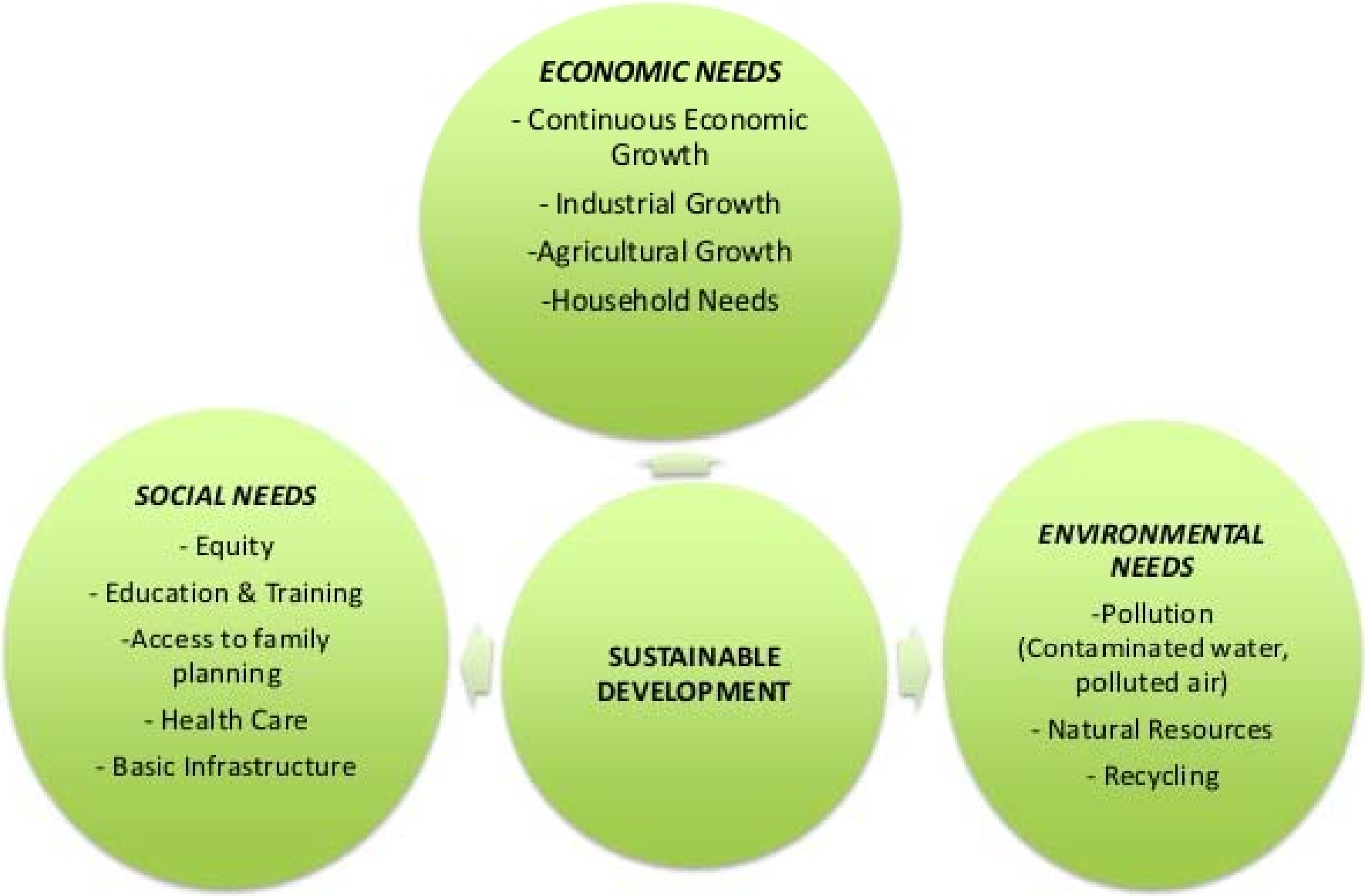
Why Appropriate Technology?

- Socially sustainable
  - semi-skilled labor jobs
  - employs available skills, teaches new ones
  - fits into social context
  - familiar

Why Appropriate Technology?

- Economically sustainable
  - uses readily available labor
  - avoids using scarce capital
  - avoids work stoppages associated with importing spare parts, foreign experts
  - Large factories in developing countries often run below capacity
  - Scalable on village level and village to village (consider issues of poor transportation and communication)

Aspects of Sustainable Development



Renewable Energy in India
An Overview & Status

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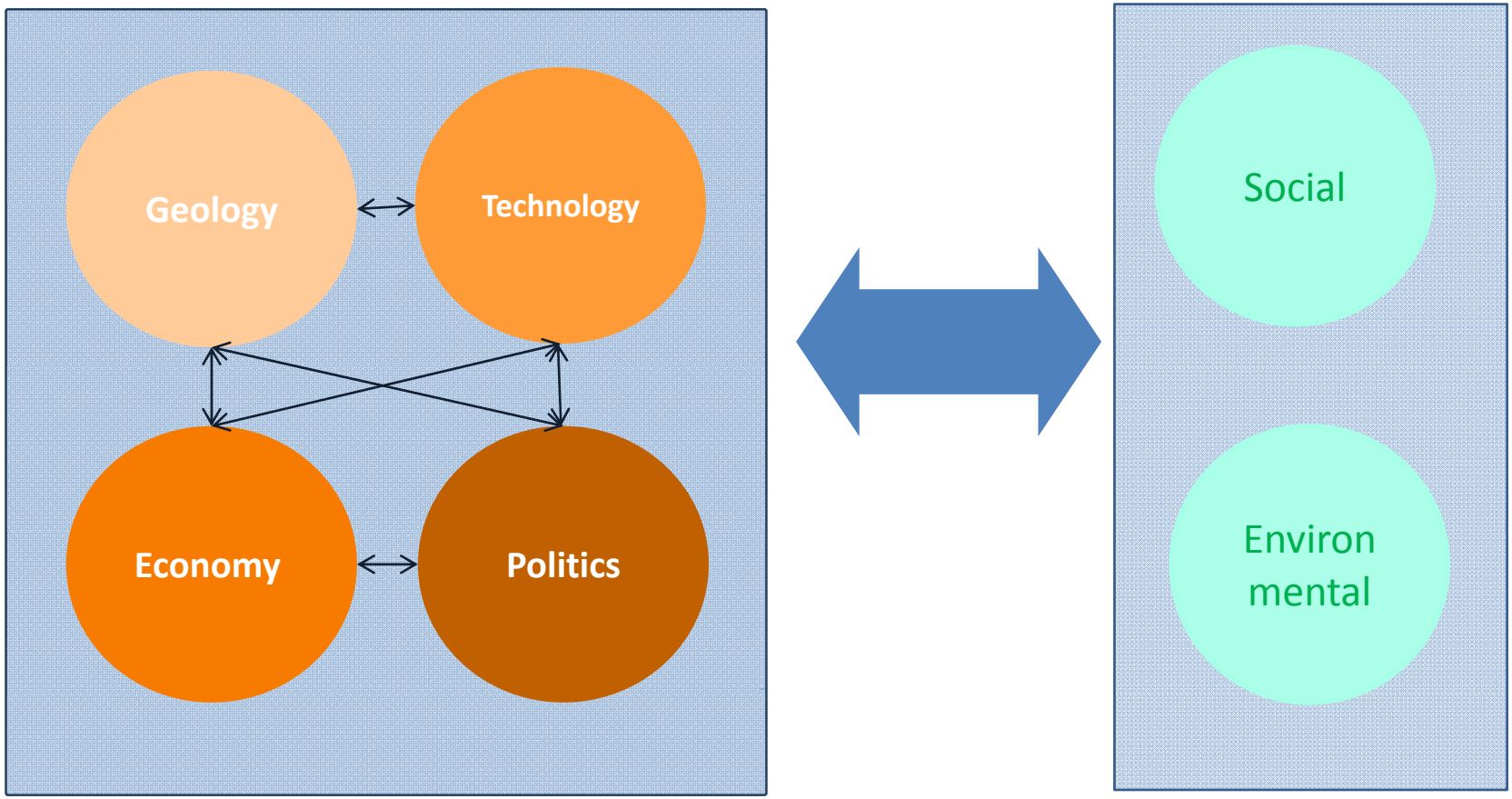
Government of India

Conventional



WHY RENEWABLES ?

- Increasing energy demand - supply villages in far-flung and remote areas
- High availability of solar, wind, biomass and hydel resources in India
- Small size, modularity and gap
- Need to reduce dependence on fossil fuels
- Increasing cost of electrification to cover low gestation periods which favour quick capacity additions
- Successful demonstration of renewable energy technologies and their viability with declining costs
- Increasing environmental concerns which favour renewables as they are environmentally benign

SUPPORT TO RENEWABLES IN INDIA

- 1976 - R&D Activities initiated by department of science & technology in government of India
- 1981 - Commission for Additional Sources of Energy (CASE) set up as apex national policy making body
- 1982 - Separate department of non-conventional energy sources set up to provide thrust to this sector
- 1992 - Full fledged Ministry of Non- Conventional Energy Sources (MNES) set up
- 2006 - Name of Ministry changed to Ministry of New and Renewable Energy

India is the only country which has a separate Ministry for renewables

MINISTRY OF NEW AND RENEWABLE ENERGY
MAJOR ACTIVITIES

- Policy Formulation
- Research and Development
- Technology & Industrial Development
- Field Demonstration Programme
- Extension Programme
- Commercialization
- Awareness, Training and other Promotional Efforts
- International Cooperation
- Promotion of solar, wind, biomass, biogas, small hydro, mini/micro hydel, energy excess, tidal energy, geothermal energy, bio-fuels, hydrogen energy etc.

POLICY AND SUPPORT MECHANISMS

- Implementation through State Nodal Agencies and concerned state departments, private sector, Channel Partners etc..

  (All states/UTs have nodal agencies on RE)

- Technology development and channelization
- Financing mechanisms
- Fiscal incentives
- Policy on power generation
- Policy for capacity building

MAJOR PROGRAMMES

- **RURAL ENERGY**

- National biogas and manure management programme
- Rural village electrification programme
- Village energy security projects

- **SOLAR ENERGY**

- Jawaharlal Nehru National Solar Mission
- Programme on off-grid and decentralized solar applications (both SPV and solar thermal)
- All SPV systems and devices i.e. SPV lightings, lantern, water pumping, advt hoardings, generators, blinkers, traffic lights, road studs, roof top and small solar plants connected to LT/11 KV grid etc.
- All solar thermal systems and devices i.e. Solar water heaters (evacuated tube and flat plate collectors), air heating system, cooking system, air condition, devices with solar concentrators etc.
- Programme on grid connected solar power plants (both SPV and solar thermal)
- Solar and aero generator hybrid systems
- Scheme on development of SPV technologies in India
- Research and development on solar energy

MAJOR PROGRAMMES

- **GRID QUALITY POWER GENERATION**

- **WIND POWER**
- Scheme for implementation of generation based incentives (GBI) for GRID interactive wind power projects
- Wind power projects – self certification regarding
- Wind measurement by private sector and subsequent development

- **SMALL HYDRO POWER**
- Small hydro power programme (upto 25MW capacity)
- Scheme for watermills and micro hydel projects (upto 100 kW)

- **BIOMASS POWER**
- Scheme on grid interactive biomass power and bagasse co-generation projects
- Scheme on biomass co-generation (non-bagasse) in industry

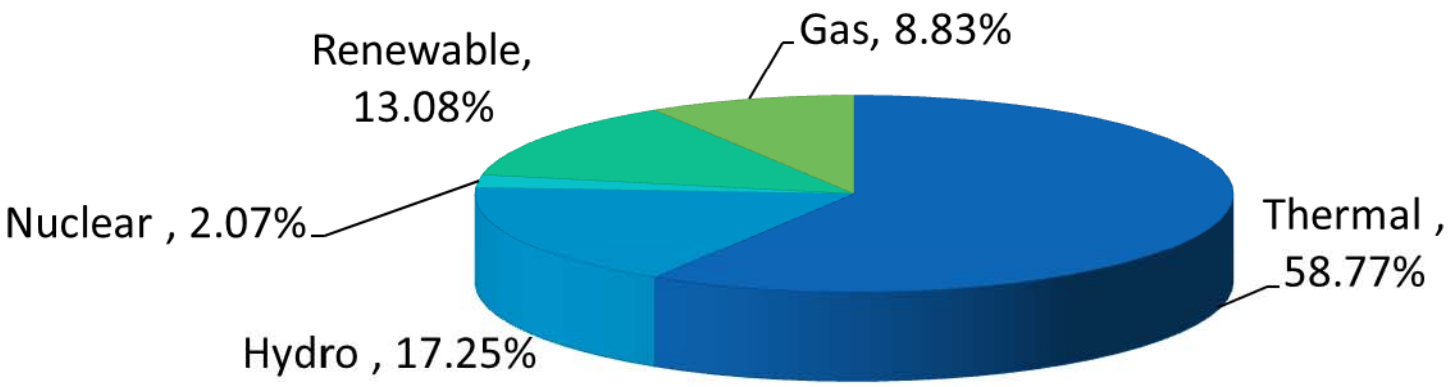
- **URBAN, MUNICIPAL AND INDUSTRIAL WASTES**
- Programme on energy recovery from urban wastes
- Programme on energy recovery from municipal solid waste
- Programme on energy recovery from industrial wastes

- New technologies promotional programmes
- Promotion of hydrogen energy, geo thermal energy, fuel cells
- Programme of alternate fuels for surface transportation
- Other promotional programmes
- Scheme on development of solar cities
- Scheme of energy efficient solar/green buildings
- Biomass gasifier programme for rural areas
- Programme on biomass gasifiers for industries
- Small wind energy and hybrid systems
- Biogas based distributed/grid power generation programme
- Training and Human Resource Development
- Research and Development
- International Co-operation
- Information and public awareness

MAJOR PROGRAMMES

Indian Power Sector at a Glance

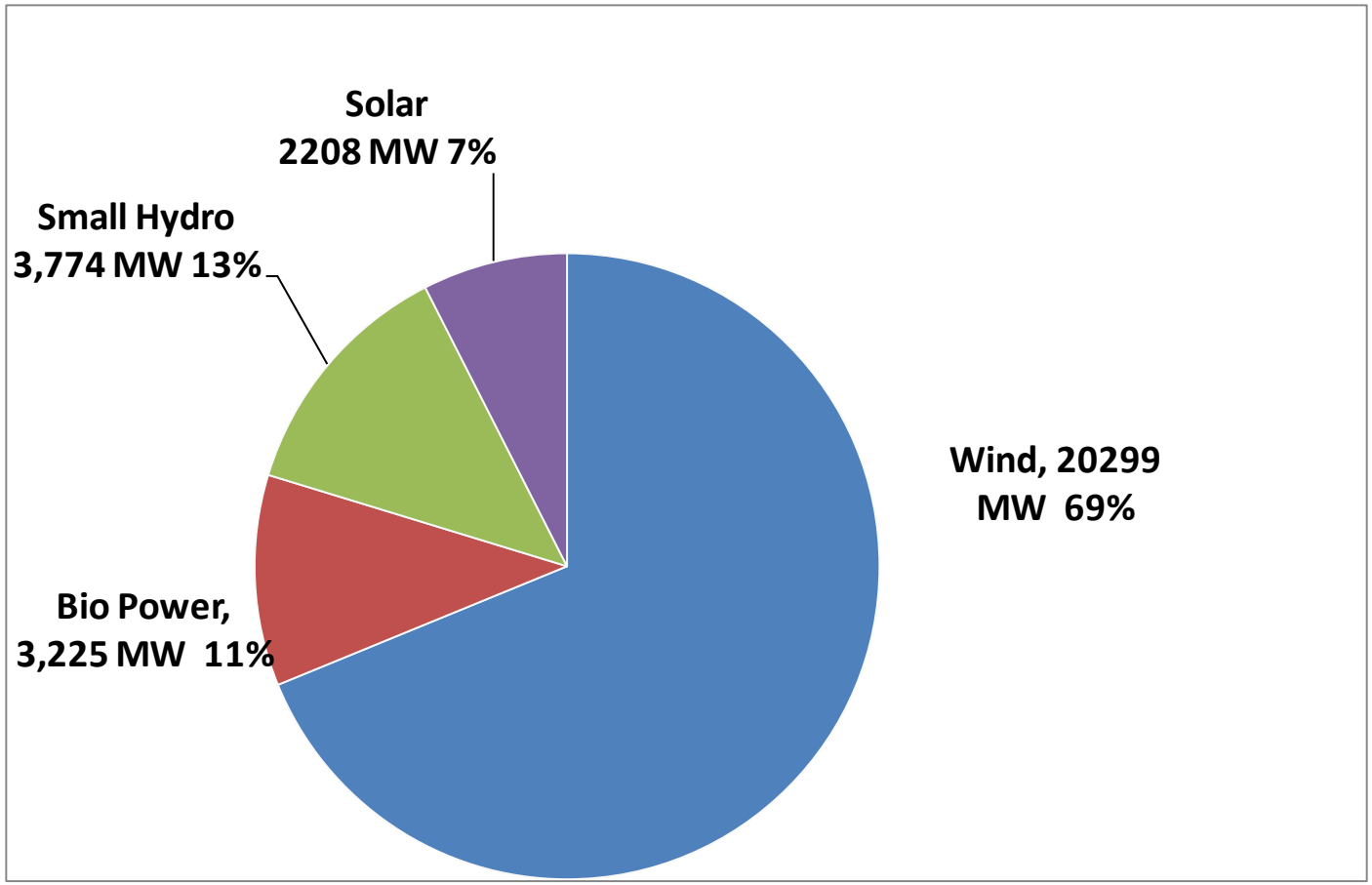
Total installed capacity : 2,28,722 MW



Thermal	Hydro	Gas	Renewable	Nuclear
135588.14 (Coal + Oil)	39,788.40	20,380.85	30,178	4780

- **Renewable contributes 30178 MW – 13.08 %**
- **If we take large hydro under RE – 30.33 %**

Indian Renewable Energy at a Glance
Total Installed capacity 30178 MW



Renewables are about 13.08 % of the total power generation installed capacity in the country

Wind Power

Potential : 100,000 MW
(as per C-WET estimates at 80 m hub height)

Achievement : 20,298.83MW

11th Plan Target/ Achievement: 9,000 MW/ 10,260 MW
(2007-12)
Deployment target 12th Plan : 15,000 MW.
(2012-17)

Strategy:

- **GBI scheme reviewed and proposed to be continued during 12th Plan**
- **Wind Resource activities to be substantially increased.**
- **Evacuation infrastructure to be developed.**
- **Separate RPO for wind. Enforce RPO. Make REC work.**
- **Work towards competitive bidding.**

Small Hydro Power

Potential : 20,000 MW

Achievement : 3774.15 MW

11th Plan Target/ Achievement: 1400 MW / 1419 MW
(2007-12)

Deployment target 12th Plan : 2100 MW.
(2012-17)

Strategy:

- **Private sector participation**
- **Performance based incentivisation for State sector / NE**
- **Small plants to get higher support.**

Biomass Power (Combustion)

Potential : 17000 MW

Achievement : 1285.60 MW

11th Plan Target/ Achievement: (2007-12) 500 MW/ 626 MW

Deployment target 12th Plan : (2012-17) 500 MW.

Strategy:

- **Promotion of small capacity biomass projects with biomass linkage and captive plantations.**

Bagasse Cogeneration

Potential	**:**	**5000 MW**
Achievement	**:**	**2512.88 MW**
11th Plan Target/ Achievement: (2007-12)		**1200 MW/ 1369 MW**
Deployment target 12th Plan : (2012-17)		**1400 MW.**

Strategy:

- **Promotion of BOOT/BOLT model in cooperative sector sugar mills.**
- **Promotion of optimum cogeneration potential in small size sugar mills (<2500 TCD).**

Solar Energy and Solar Mission

Potential : 30-50 MW/ sq. km

Achievement : 2208.36 MW

Over 1.8 million SPV Systems installed / distributed

2010-13 Target : 1100 MW

Target for 12th Plan (2013-17) : 4000 MW.

Target for 13th Plan (2017-22) : 15000 MW.

Solar Mission

Targets

- **20000 MW grid by 2022**
- **2000 MW off-grid by 2022**
- **20 million households covered by solar lighting**
- **20 m sq meter of solar thermal**

Objectives

- **Achieve grid parity by 2022**
- **Increase domestic manufacturing capacity**
- **Develop eco system for solar industry**
- **Develop manpower**
- **Support R & D**

Green Growth Strategies and Sustainable Development

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Associate Fellow, The Energy and Resources Institute (TERI)

14th April 2015

The Energy and Resources Institute

What is 'Inclusive Green Growth'?

- ❑ Inclusive green growth pathway to sustainable development
- ❑ Helps strengthen 3 pillars of sustainable development
- ❑ Key elements
  - ✓ Cognizance of human capital, social capital, and natural capital
  - ✓ Efficiently and sustainably use various goods and our ecosystems
  - ✓ Eliminate poverty and improve social indicators, like health, education, gender

❑ No single/unique model of inclusive green growth; May significantly vary across country depending on local context and preferences.

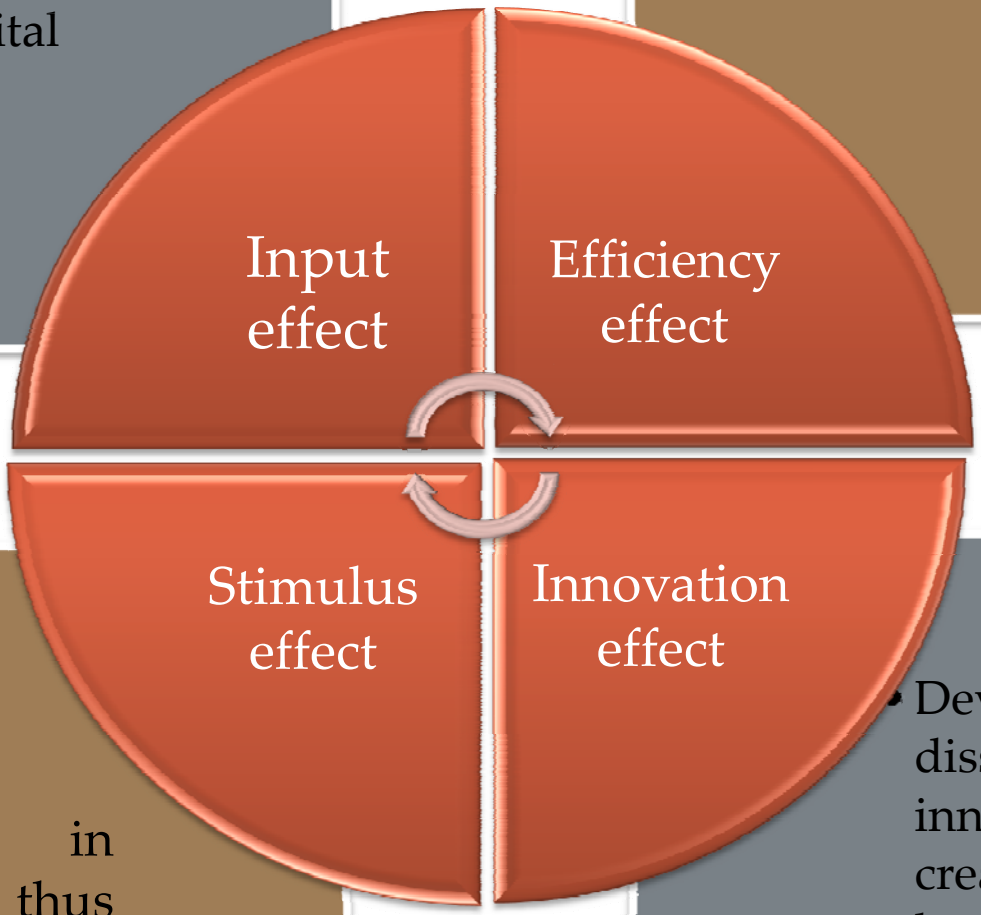
UNEP definition of 'Green Economy

UNEP defines **Green Economy (GE)** as one that results in increased **human well-being** and **social equity**, while significantly **reducing environmental risks** and **ecological scarcities.**

Impact

- ∧ quantity of natural, human & physical capital

- ∧ productivity through influencing behaviors, & by enhancing efficiency



- Create necessary stimulus in short term thus helping people

- Development & dissemination of innovation and creating knowledge spillovers

Outline

1. Green Growth Concepts
2. Sharing Perspectives from India: National
3. Sub-national case study: Green budget
4. Classroom exercise and discussion

QUESTION

What do you understand by sustainable development?

Sustainable Development: Global Genesis

DEFINITION

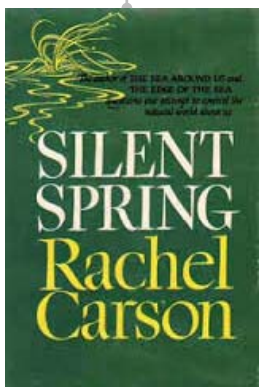
Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- *the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.*

(Chapter 2, Our Common Future: Report of the World Commission on Environment and Development, 1987)

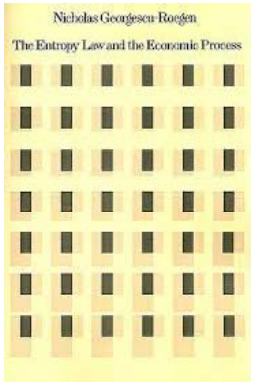
Treatises around Economic Growth and Environmental Sustainability

1962



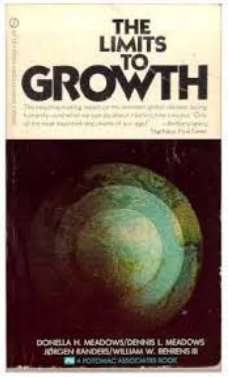
Silent Spring
Rachel Carson

1971



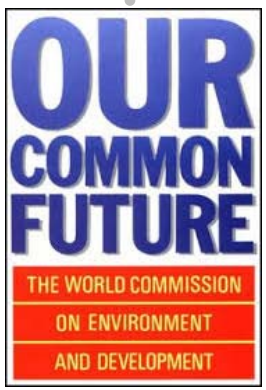
The Entropy Law and the Economic Process
Nicholas Georgescu-Roegen

1972



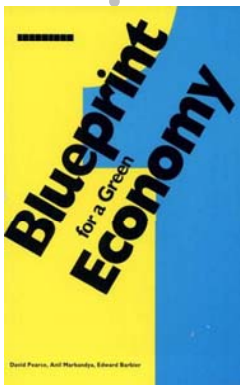
The Limits to Growth
Meadows et al

1987



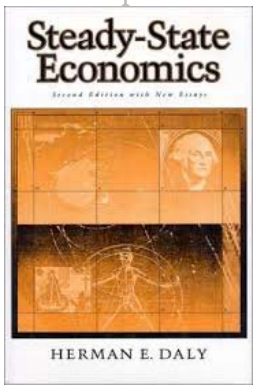
Our Common Future
UNWCED

1989



Blueprint for a Green Economy
Pierce et al

1991



Steady State Economics
Herman Daly

Green Growth: Genesis (1/2)

- The concept of “green growth” has its origins in the Asia and Pacific Region where it was adopted by 52 governments and other stakeholders at the 2005 Ministerial Conference on Environment and Development in Asia and the Pacific (MCED) in Seoul.
- The Conference agreed, “…that long-term, effective poverty reduction that ensured improved quality of life would require that the natural environment be protected. Environmentally sustainable economic growth or Green Growth approaches were therefore necessary. Only through such approaches, which balanced the three pillars of sustainable development, could the region address priorities and commitments relating to poverty reduction, and to environmental sustainability, as expressed by the **Millennium Development Goals**”.

Green Growth: Genesis (2/2)

- In global policy discourse – United Nations Conference on Sustainable Development (also known as Rio+20) – green economy has been discussed in the context of **poverty eradication** and **sustainable development**

Green Growth: The Concept

- OECD defines green growth as about maximizing economic growth and development while avoiding unsustainable pressure on the quality and quantity of natural assets. It is also about harnessing the growth potential that arises from transiting towards a green economy.
- World Bank defines it as growth that is efficient in its use of natural resources, clean in that it minimizes pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters.
- The UN Economic and Social Commission for Asia and the Pacific defines “green growth” as “economic progress that fosters environmentally sustainable, low-carbon and socially inclusive development”.
- As defined in Korea’s Framework Act on Low Carbon, Green Growth, the term “green growth” means growth achieved by saving and using energy and resources efficiently to reduce climate change and damage to the environment, securing new growth engines through research and development of green technology, creating new job opportunities, and achieving harmony between the economy and environment.

“Green” concepts in global policy (1/2)

- Green growth is closely related to the concept of a green economy, which United Nations Environment Programme (UNEP) defines as one in which “growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.”
- “The Future We Want” Outcome Document of the Rio+20 process mentions that each country can choose an appropriate approach with respect to a green economy which is in accordance with respective national sustainable development plans, strategies and priorities.

“Green” concepts in global policy (2/2)

- Renewed emergence in the international development sphere eg; Rio+20 – Green Economy has been discussed in context of sustainable development and poverty eradication
- UNEP (2011) recognizes that the concept of a “green economy” does not replace sustainable development and that there is a growing understanding that achieving sustainability rests almost entirely on getting the economy right.
- **Question:** Does such an assumption consider the complexity of economy and society in developing countries where a large fraction of the population are still not integrated with economic development – for example small and marginal farmers in India – India still largely rural (Kedia 2012).

Green Economy

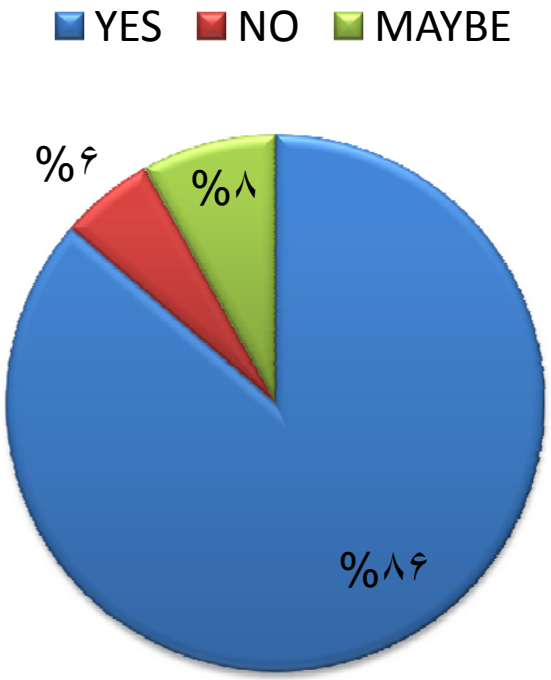
- A green economy recognises that the goal of sustainable development is improving the quality of human life within the constraints of the environment, which include combating global climate change, energy insecurity, and ecological scarcity (UNEP 2011).

Perspectives

- “environmental sustainability” and “resources available to poor and vulnerable”
- Growth mediated development (Amartya Sen)
- “Green growth” mediated “sustainable development” – possible?
- **Green economies** and not **a green economy** (Prodipto Ghosh; also see Georgescu-Roegen [1960])

TERI Poll: green and inclusiveness

- Do you think green growth has the potential to promote inclusiveness?

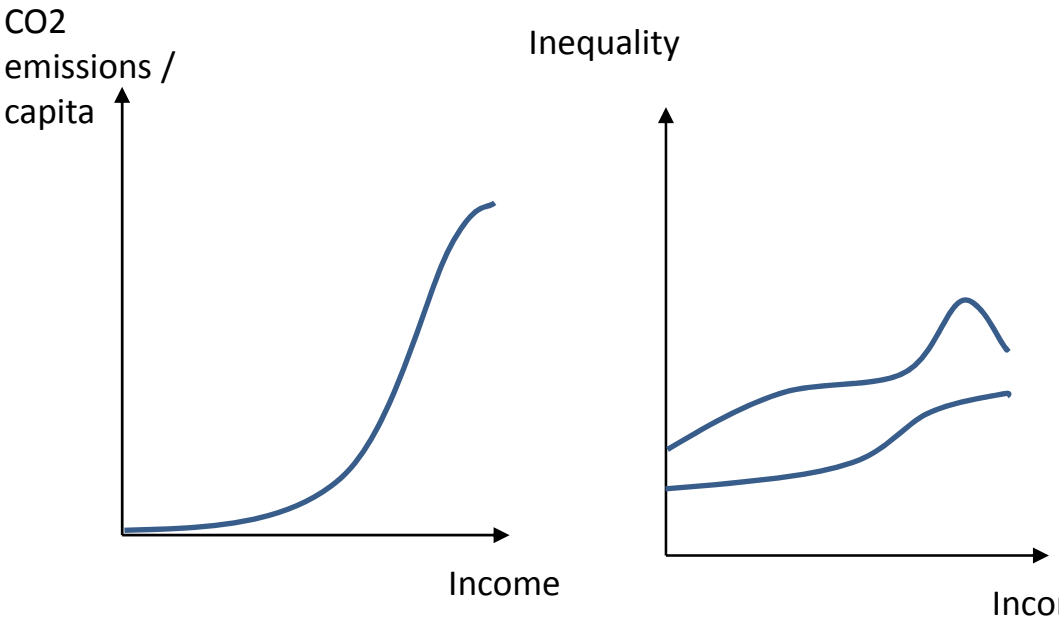


Source: TERI 2013

86% of respondents felt that green growth has a potential to promote inclusiveness

<u>NOTE:</u> Targeted respondents during the Delhi Sustainable Development Summit 2013 mainly from government, civil society and research & academia

Growth, greenness and inclusivity



Source: Lay (2012)

- Recognizing complexity related to economic growth and environment sustainability
- Income growth leads to inequality initially; environmental benefits may take a certain period of time
- Tradeoffs – competition for public funds – eg; subsidies for renewables or social protection? (Lay 2012)
- Can greenness promote inclusivity?

WHAT ARE THE DRIVERS OF GREEN GROWTH?

Drivers of Green Growth (1/2)

- Rising oil prices
- The financial crisis of 2008
- Policy discourse around global ecological crises including climate change

Drivers of Green Growth (1/2)

Countries around the world announced stimulus packages.

- China had a third of its stimulus going into green sectors
- clearly shows the strategic intent of China to enhance competitiveness in green sectors.

Economic Stimulus Package and Green Investment by 2009 (USD billion)

Countries	Stimulus Package	Low Carbon	Other	Total
Australia	43.8	9.3		9.3
Canada	31.8	2.5	0.3	2.8
China	647.5	175.1	41.3	216.4
France	33.7	7.1		7.1
Germany	104.8	13.8		13.8
India	13.7			
Japan	639.9	36		36
Mexico	7.7	0.8		0.8
South Africa	7.5	0.7	0.1	0.8
Korea	38.1	14.7	21.6	36.3
Britain	34.9	3.7	0.1	3.7
USA	787	78.5	15.6	94.1
EU	38.8	22.8		22.8

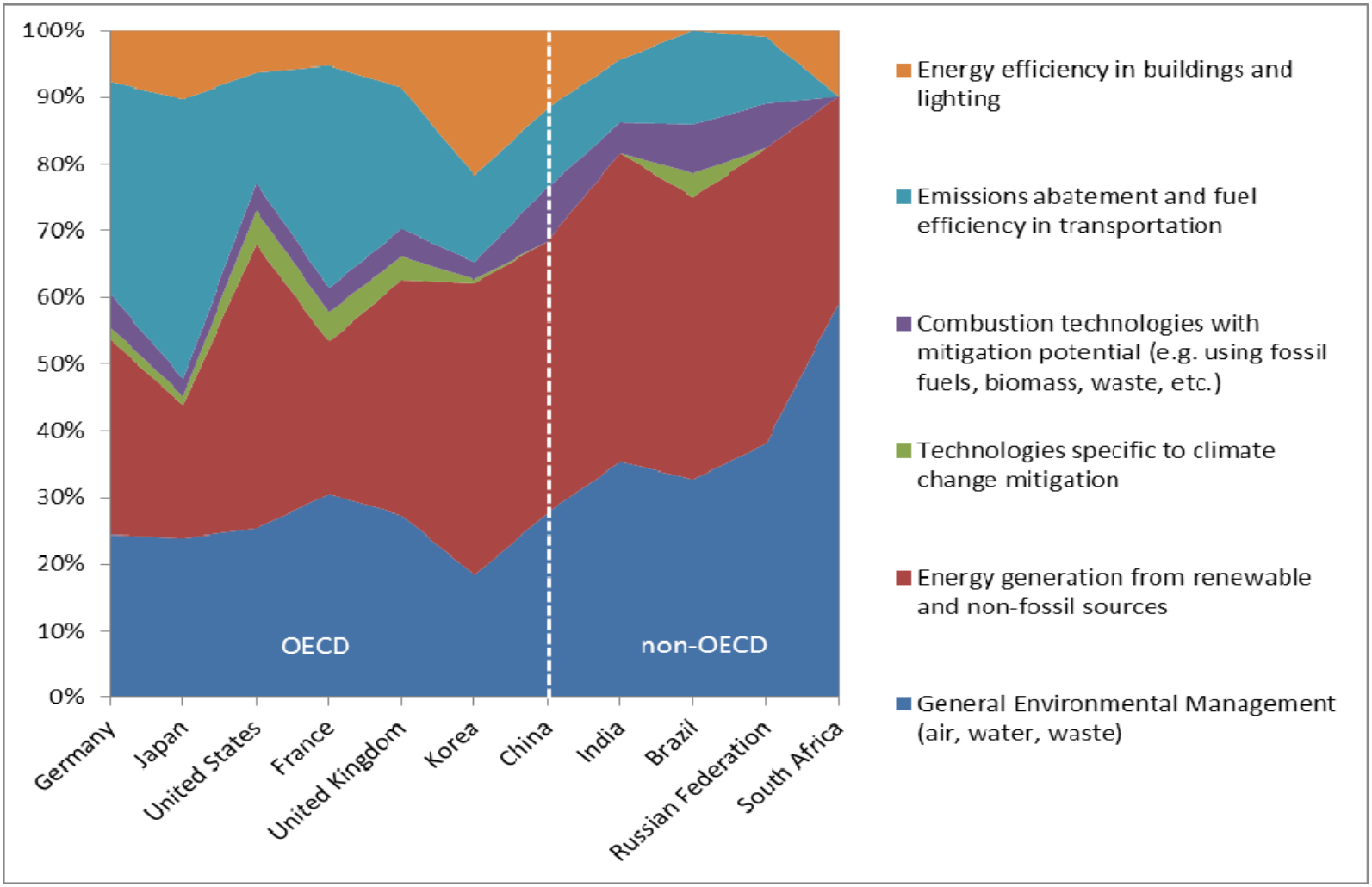
Source: Barbier, Edward B. (2009); Khatiwada, S. (2009); Robins, N. et al (2009a; 2009b; 2009c; 2009d)

Understanding Technological Priorities (1/4)

Hypothesis - 1: Technology development and innovations for green growth in developed countries will be directed in sectors having competitive advantage

Hypothesis - 2: Technology development and innovations for green growth in developing countries would be directed more towards sectors that would contribute to human development

Understanding Technological Priorities (2/4)



Patent applications to the EPO in environment related technologies
TERI - IGGI 2012 study

Understanding Technological Priorities (3/4)

Hypothesis - 1: Technology development and innovations for green growth in developed countries will be directed in sectors having competitive advantage

- **Theoretical basis:** Krugman (1979) argued that countries, rather than strictly aiming for least-cost solutions would prefer to adopt strategic behaviour, aiming for competitive advantage.
- **Findings:** It can be observed for OECD countries for instance, that for Germany and Japan percentage share of innovation in the automotive sector is greater as compared to other patents in environment related technologies. However in case of non-OECD countries, no such conclusions can be drawn. Thus for OECD countries competitive play an important role.

Source: TERI IGGI study 2012

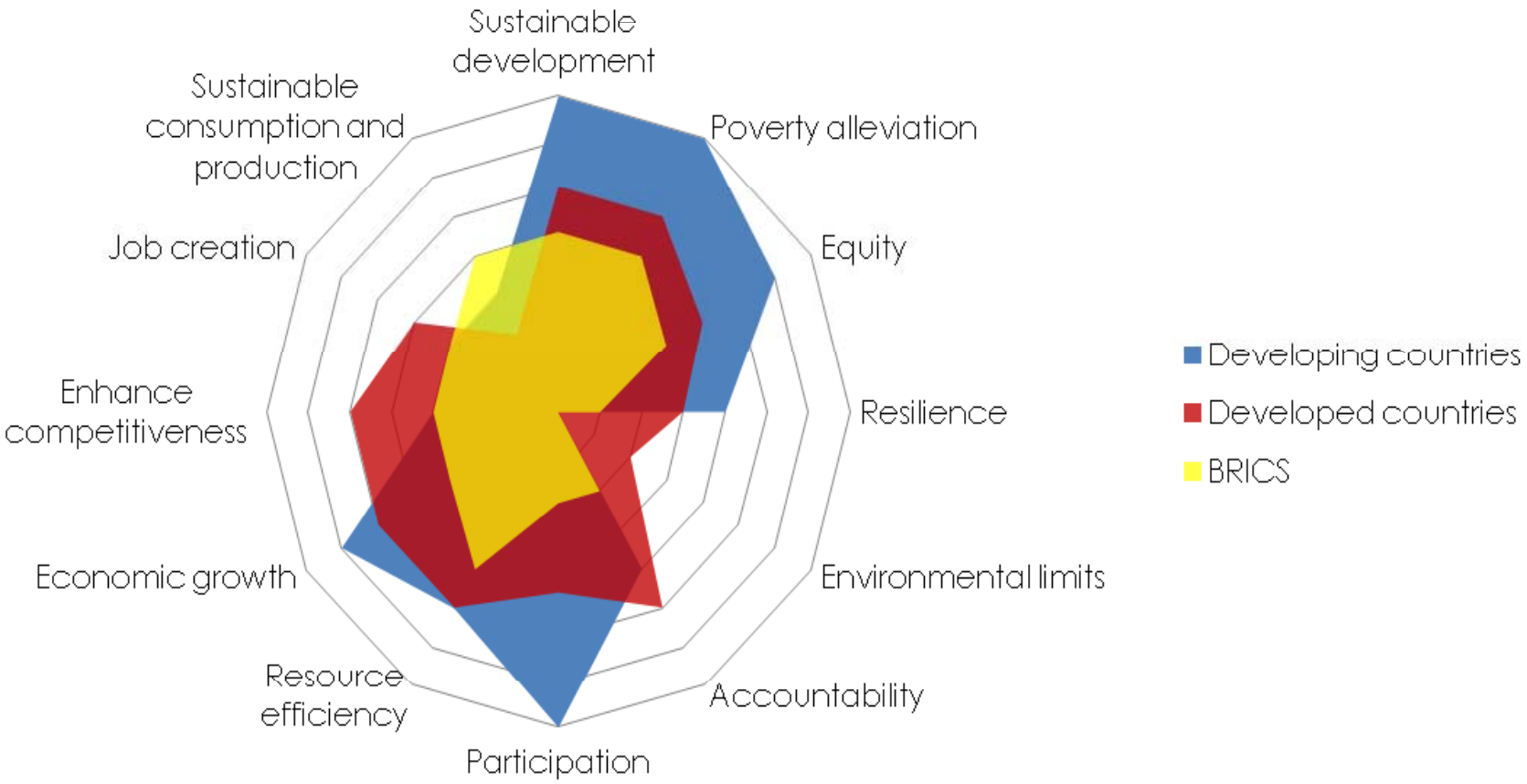
Understanding Technological Priorities (4/4)

Hypothesis - 2: Technology development and innovations for green growth in developing countries would be directed more towards sectors that would contribute to human development

- **Theoretical basis:** The connection between natural environment and quality of life has been a treatise of recent schools of thought such as ecological economics and sustainability sciences (Shafik, 1994; Dasgupta, 2004). The relationship between energy and human well-being is depicted in the relationship between per capita energy use and the Human Development Index (HDI) (UNDP, 2001; Najam and Cleveland, 2008).
- **Findings:** It can be observed, very clearly that for developing countries including India and China percentage share of patents of the country in categories of general environmental management (air, water, waste) and energy generation from renewable and non-fossil sources is more. This could also be attributed to other factors such as existing policies and institutions for local environment in non-OECD countries.

Source: TERI IGGI study 2012

Benchmarking green economy based on governments framing



Green economy coalition

SHARING PERSPECTIVES FROM INDIA

Green growth as articulated in Indian policy

"Green growth involves rethinking growth strategies with regard to their impact(s) on environmental sustainability and the environmental resources available to poor and vulnerable groups." (para 3.15, Thirteenth Finance Commission Report)

Green Growth and policy discourse in India

The environment ministry has recognized poverty eradication and green growth in its vision

MoEFCC (2015)

Policies and Plans relevant to green growth in India

- National Action Plan on Climate Change, 2008
- National Mission for a Green India, 2011
- Integrated Energy Policy of 2008
- The National Innovation Act, 2008
- National Environmental Policy, 2006
- Biological Diversity Act, 2002
- Energy Conservation Act, 2001
- Environmental Protection Act, 1986

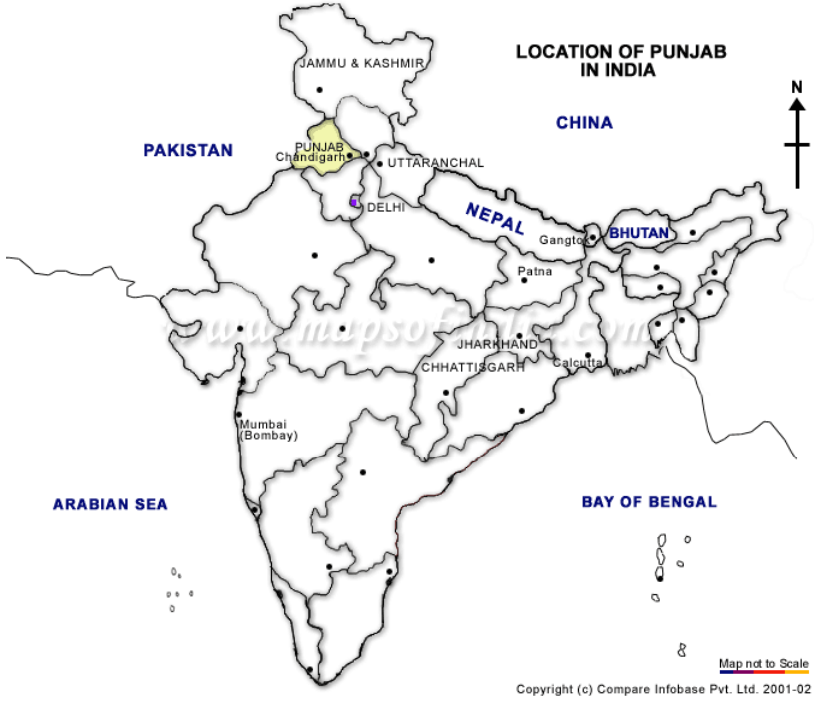
Green growth relevant initiatives in India

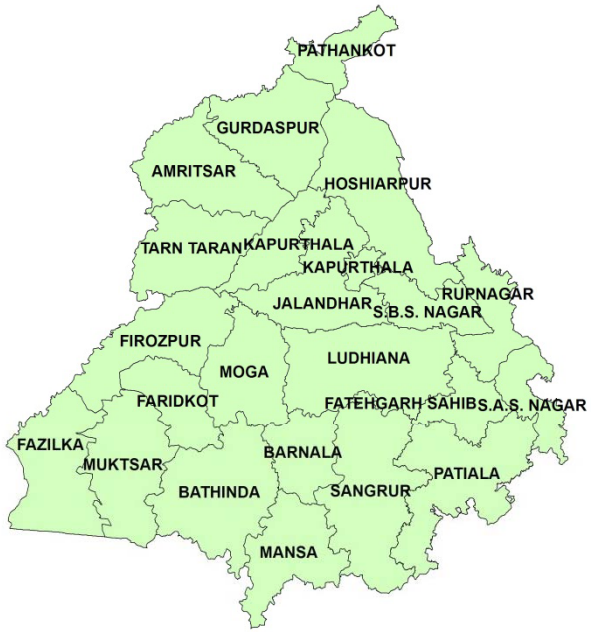
- Jawaharlal Nehru National Solar Mission (JNNSM)
- Restructured Accelerated Power Development and Reforms Programme (R-APDRP) to reduce T&D losses in the power sector
- Perform, Achieve, and Trade (PAT) scheme to improve the energy efficiency in the energy intensive industries
- Improving energy efficiency in buildings and domestic appliances
- Mahatma Gandhi National Rural Employment Guarantee Scheme (MG-NREGS)

SUB-NATIONAL CASE STUDY: GREEN BUDGETING

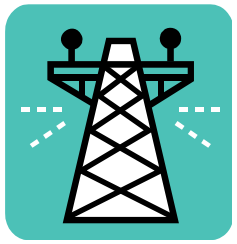
The state of Punjab

A state in north-west of India





Sector issues



Power

The installed capacity mix in Punjab shows a major share of thermal (51%) and hydro (42%). In Punjab only 6.6% of the installed capacity is new and renewable energy based in comparison to 12% All-India numbers.

Transport

There has been a dramatic growth of passenger vehicles in Punjab between 1980-81 and 2009-2010 leading to increase in GHG emissions and local pollution from this sector and hence has development implications

Buildings

Increase in energy consumption in the commercial building sector in Punjab. Commercial sector accounted for 14% of the total power consumption in Punjab.

Agriculture

Almost 85% of Punjab's geographical area is under cultivation of which 97% area is under irrigation. Agriculture in Punjab is highly input intensive in terms of land, capital, energy, nutrients, and water.

Industry

High energy intensity in industry. The annual electricity sales to the industry sector including low & medium voltage consumers (SME) and high voltage consumers (large industries) is 17.38 BU and works out to 37 % of the total electricity sold.

Resource issues

Water	80% of the total blocks of state are now under over exploited category. Water logging in three districts. Nitrate, floride and salinity issues in terms of water quality.

Forests	Only about 6.3% of Punjab's geographical area is under tree cultivation.

Land	About 39% of the soil in the state is degraded. About 50% of the state's soil is low in nitrogen, 25% is low in phosphorus content but potassium content is generally sufficient.

Air	Annual averages of SPM/RSPM at residential-cum-commercial monitoring locations generally exceed the permissible limits for residential areas. However, the annual average of SO2 and NOx concentrations at all locations remain within permissible limits.

Waste management	Most of the solid waste is presently disposed of on land and remains uncovered resulting in environmental pollution of surrounding area.

Climate Change

- The projections for (2021-2050) indicate an increase in annual average precipitation by about 13.3%-21.5% with respect to base line 1961-1990. Winter precipitation, however, is projected to decrease. The annual mean maximum temperature is projected to increase by 1.0-1.8^{o}C in all parts of Punjab by 2021-2050. The annual mean minimum temperature is also projected to rise by 1.9-2.1^{o}C by 2021-2050 (Draft Punjab SAPCC).
- Punjab is enlisted under frequent drought prone areas as per India Meteorological Department (IMD) classification of drought incidences from 1875-2004 period.

Green Budget initiative in Punjab: A Government and Punjab and TERI initiative

Study budgetary allocations towards key sectors in Punjab for environmental protection and understand key trends with respect to green budget indicators

Provide inputs to improve financial planning and budgeting practices which would lead to better chances for it to obtain adequate financing for environmental protection activities.

Why green budgeting?

Mind-set: Conscious thinking about interventions related to environmental sustainability

Implementation: Support for implementing programmes for positive environmental impact

Impact: Positive environmental outcomes in terms of clean air, water, forest cover and resilience

Question

Are there other public spending models that follow a conscious thinking towards a specific issue?

Question & answer

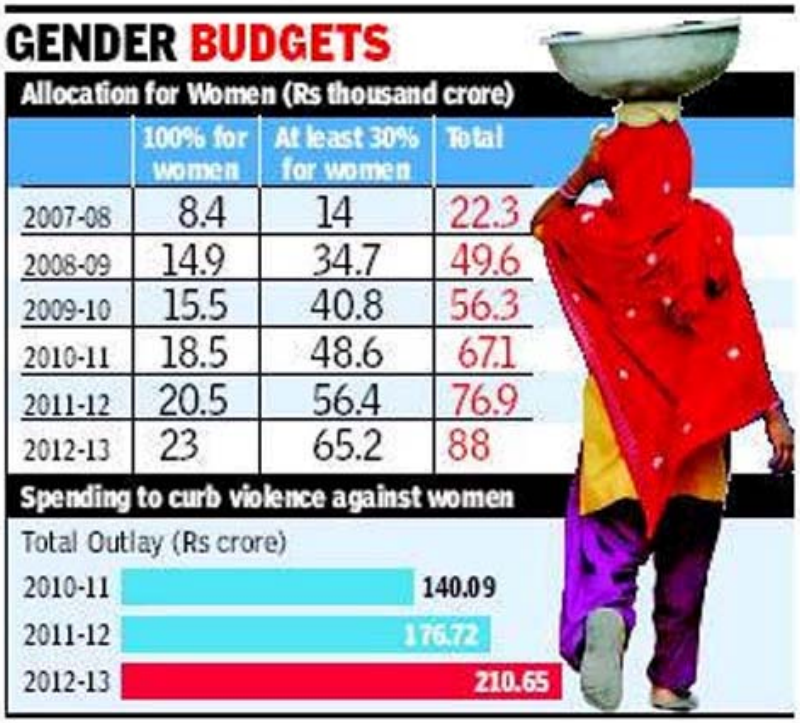
Are there other public spending models that follow a conscious thinking towards a specific issue?

YES

Gender empowerment as an issue is considered in Union Budget processes in India

Case study: Gender budgeting

Gender Budget Statement was first introduced in Budget 2005-06. In order to make further refinement to the Statement, every year the Ministries/Departments are requested through the Annual Budget Circular to highlight the quantum of public expenditure earmarked in budget for women.



http://csrindia.org/blog/wp-content/uploads/2013/05/gender-budgeting.jpg

Heads under gender budgeting

On the basis of the information thus furnished by the Ministries/Departments, the Gender Budget Statement is prepared.

This Statement indicates, in two parts, the budget provisions for schemes that are substantially meant for the benefit of women.

- Part A details schemes in which 100% provision is for women
- Part B reflects schemes where the allocations for women constitute at least 30% of the provision

Department of Agricultural Research & Education	2012-13 Budget			2012-2013 Revised			2013-2014 Budget		
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
Directorate of Women in Agriculture	1.5	3.67	5.17	1.5	3.5	5	4.9	3.78	8.68
All India Co-ordinated Research Project on Home Science	11.5	...	11.5	11.5	...	11.5	20.51	3.78	24.29

http://www.wcd.nic.in/gb/material/Instructions/GB%20Stat20(2013-14).pdf

Impact of gender budgeting

- Mindset in actively considering gender issues
  - 30 Ministries/Departments and 5 Union territories Governments have made allocations for gender budget statement
- Increased public spending on gender interventions
  - The statement shows 18.6% increase for 100% women specific programmes, having gone up from Rs. 22,969 crore in BE 2012-13 to Rs. 27,248 crore in BE 2013-14. Overall, taking parts A and B together, there is an increase of 10.2% from Rs. 88,143 crore in BE 2012-13 to Rs. 97,134 crore in BE 2013-14

Budget heads/ items with direct positive effect on environment

(1) Sewerage and Sanitation

(2) Soil and Water Conservation

(3) Fisheries

(4) Forestry and Wildlife

- Forest Conservation, Development and Regeneration
- Environmental Forestry and Wildlife
- Afforestation and Ecology Development

(5) Agricultural Research and Education

- Soil and Water Conservation
- Fisheries
- Forestry

(6) Special Areas Development Programme

- Drought Prone Areas
- Desert Development Programme
- Wasteland Development Programme

(7) Flood Control and Drainage

- Flood Control
- Anti-Sea Erosion

(8) Non-Conventional Sources of Energy

(9) Ecology and Environment

Prevention and Control of Pollution

Source: D.K. Srivastava, Rita Pandey and C. Bhujanga Rao 2012

Budget heads with adverse or mixed effect on environment

(1) Major and Medium Irrigation

(2) Minor Irrigation

(3) Command Area Development Programme

(4) Fertilizer

(5) Pesticide and Chemicals

(6) Mining in Iron and Steel Industries

(7) Cement and Non-metallic Industries

(8) Non-ferrous Mining and Metallurgical Industries

- Mineral Exploration in Geological Survey of India
- Mineral Exploration in Regulation and Development of Mines

Source: D.K. Srivastava, Rita Pandey and C. Bhujanga Rao 2012

Arriving at a working definition of Green Budgeting

- The working definition for green budgets is

"Every year the government agencies (Departments/ Directorates/ Boards/ Councils/ Commissions) through the Annual Budget Circular will highlight the quantum of public expenditure earmarked in the state budget for environmental sustainability initiatives."

Ways forward for Punjab

- Have in place a green budgeting process to increase public spending on environmental sustainability for activities like R&D, pollution control and conservation.
- Build capacity for state government officials through sharing of experience of similar processes such as gender budgeting.
- Adopt an ex-ante planning and then ex-post monitoring and evaluation of environmental expenditures and resulting outcomes.
- Restructuring of environmentally perverse subsidies and phasing out environmentally perverse subsidies.
- Considering a direct cash transfer system.

Discussion

- Green can be inclusive – priority areas in developing countries need to be identified eg; decentralized energy solutions, transport and infrastructure
- Challenges: up-scaling interventions
- International cooperation: a way ahead