

**United Nations Sustainable Development Goals (UN SDGs)**  
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**Analyzing SDG connections, grouped into People, Ecological, and Spiritual categories**  
**Part 1**

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**UN SDGs**  
: 17 goals to transform our world

**Module 26**  
• Interrelationships and Connections between Seventeen SDGs  
• SDG Structure and Order at Levels of  
– People (SDG 1 - 10),  
– Ecological (SDG 11 - 15) and  
– Spiritual (SDG 16 - 17)

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NPTEL

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Hello everyone, I welcome you to the module 26th of the NPTEL course of UN SDGs. So, in this module we are going to cover interrelationships and connections between these 17 SDGs and SDG structure and order at levels of people ecological and spiritual SDG1 to 10, SDG11 to 15 and 16 to 17.

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**\*Interrelationships and Connections between Seventeen SDGs**

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## ■ Introduction



This presentation will cover the 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015. We will explore the interrelationships and connections between these goals, which are aimed at ending poverty, protecting the planet, and ensuring prosperity for all. We will examine how each goal has specific targets and indicators and how they are interconnected and interdependent to each other. We will also explore some examples of how these goals can be achieved, and why it is important to work towards them in a holistic and integrated manner.

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So, the first topic. So this lecture is going to cover all 17 SDGs which were adopted by United Nations in year 2015. And we will explore this interrelationships among them and connections between their goals. Well ultimately they are all aiming at ending poverty, protecting the planet, ensuring prosperity for everyone in all respects including all other living and non-living beings, other species of this world.

So, we will examine how each goal has specific targets and indicators and how they are interconnected and interdependent to each other. We will also explore some examples of how these goals can be achieved and why it is important to work towards them in an holistic and integrated manner.

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## ■ Background



- The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.
- They address various aspects of sustainable development and are grouped into three main categories: People (SDG 1 - 10); Ecological (SDG 11 - 15) and Spiritual (SDG 16 - 17).

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So, as we all know SDGs were adopted by United Nations in year 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. They address various aspects of sustainable development and are grouped into 3 main categories. First one for the people, second one for the ecology and third one at spiritual level.

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### ■ Seven types of interactions between SDG targets



Interaction label	Meaning
+3 Indivisible	Progress on one target automatically delivers progress on another
+2 Reinforcing	Progress on one target makes it easier to make progress on another
+1 Enabling	Progress on one target creates conditions that enable progress on another
±0 Consistent	There is no significant link between two targets' progress
-1 Constraining	Progress on one target constrains the options for how to deliver on another
-2 Counteracting	Progress on one target makes it more difficult to make progress on another
-3 Cancelling	Progress on one target automatically leads to a negative impact on another

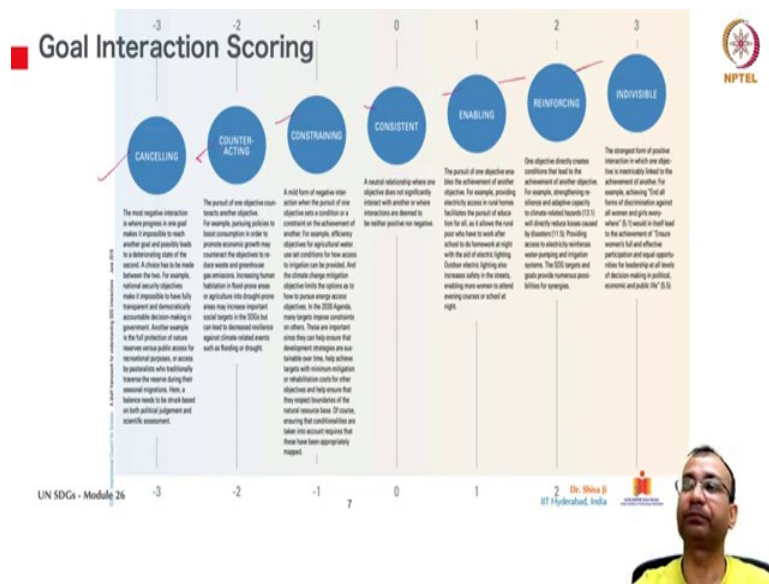


So, for assessing interactions you will typically see these 7 labels of interrelationship. So, these are divided here as plus 3 indivisible, plus 2 reinforcing, plus 1 enabling, plus minus 0 consistent as it is maintaining the same status. And from here it goes starts going down in negative minus 1 constraining, minus 2 contracting and minus 3 cancelling.

So, if you see their meaning, inherent meaning they mean progress on one target automatically delivers progress on another. So, that is the plus 3 one that is indivisible. Plus 2 reinforcing means progress on 1 target makes it easier to make progress on another. Third one enabling plus 1 progress on one target creates conditions that enable progress on another.

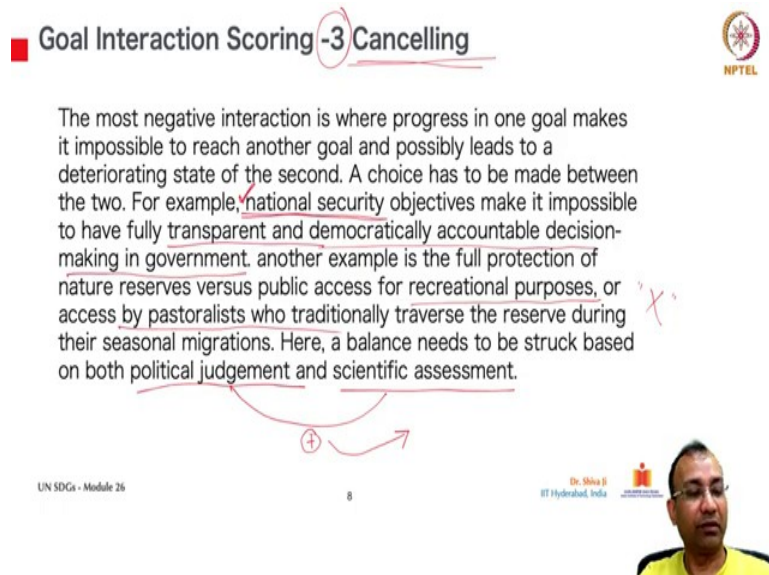
Plus minus 0 consistent there is no significant link between the 2 targets progress. So, this is this situation and minus 1 progress on one target constrains the options for how to deliver on another. Minus 2 progress on one target makes it more difficult to make progress on another. And minus 3 cancelling progress on one target automatically leads to a negative impact on another.

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So, we will see some more specific details about these seven labels, you can see them listed over here.

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So, minus 3 cancelling the most negative interaction is where progress in one goal makes it impossible to reach another goal and possibly leads to a deteriorating state of the second. A choice has to be made between the two. For example, national security objectives make it impossible to have fully transparent and democratically accountable decision making in the government.

Another example is the full protection of nature reserves versus public access for recreational purposes or access by pastoralists who traditionally traverse the reserve during their seasonal

migrations. Here, a balance needs to be struck based on both political judgment and scientific assessment. So, you see in both of these examples which are given over here it is a contradictory situation.

So, for example, cases of national security. So, some degree of privacy, some degree of secrecy it needs to be maintained in order to deal with such situations which are essential for national security situations. So, this comes in a contradictory situations that is why we are calling it at minus 3 level that is cancelling because one actually totally cancels out the second one.

What is the cancelling factor over here, a democratically and accountable decision making in the government. So, this has to be transparent, this has to be accountable, this should be publicly accessible to everyone, all the participants, all those stakeholders of the country but the essential nature of this being private and secret and all for the national security it comes in the contradiction. So, this is the situation which comes, makes it cancelling in nature.

The second example is given here for national reserves. The areas where human society need not go and disturb or bother the animals and plant life in that particular area. But for actually recreational purposes or maybe some other purposes, some movement must be actually given otherwise it will be a total no-go zone, that also will become a problem.

So, it cannot be a totally no-go zone but it has to be maintained in a proper if you see here politically judgment and scientific assessment. So, with the help of these 2, this decision actually needs to be maintained to facilitate access to national reserve regions. So, this interaction we saw at the level of cancelling.

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## ■ Goal Interaction Scoring -2 Counteracting



The pursuit of one objective counteracts another objective.  
For example, pursuing policies to boost consumption in order to promote economic growth may counteract the objectives to reduce waste and greenhouse gas emissions. Increasing human habitation in flood-prone areas or agriculture into drought-prone areas may increase important social targets in the SDGs but can lead to decreased resilience against climate-related events such as flooding or drought.

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The minus 2 that is counteracting. The pursuit of one objective contracts another objective. For example, pursuing policies to boost consumption in order to promote economic growth may contract the objectives to reduce waste and greenhouse gas emissions. Increasing human habitation in flood prone areas or agriculture into drought prone areas may increase important social targets in the SDGs but can lead to decreased resilience against climate related events such as flooding or drought.

So, if you see increasing human habitation in flood prone areas or agriculture into drought prone areas may increase important social targets in the SDG. So, the human intervention in such places is definitely going to help building the human society over there but again it kind of, it puts those people in danger also because what if these kind of natural catastrophes if they occur if they struck so they are going to take a toll on the human society life goods also.

So, it means such interventions of human habitation in these risky areas, risk prone areas may give you some negative interaction based on that situation. So, if this situation actually arises if it occurs in some time, so there will be some direct negative impact on it and that is falling under minus 2 at the level of counteracting. So, it means pursuing policies to boost consumption in order to promote economy growth may contract the objectives to induce waste and greenhouse gas emissions. So, in a way in a nature if you see this is counteracting, this is going to hinder with the any such initiatives any such interventions.

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## ■ Goal Interaction Scoring -1 Constraining



A mild form of negative inter- action when the pursuit of one objective sets a condition or a constraint on the achievement of another. For example, efficiency objectives for agricultural water use set conditions for how access to irrigation can be provided. and the climate change mitigation objective limits the options as to how to pursue energy access objectives. In the 2030 agenda, many targets impose constraints on others. these are important since they can help ensure that development strategies are sustainable over time, help achieve targets with minimum mitigation or rehabilitation costs for other objectives and help ensure that they respect boundaries of the natural resource base. Of course, ensuring that conditionalities are taken into account requires that these have been appropriately mapped.

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Now, coming down to the label minus 1 that is constraining. A mild form of negative interaction when the pursuit of one objective sets a condition or a constraint on the achievement of another. So, a mild format, the minus 3 and minus 2 labels we saw those are very high level of negative impact but this one is in a milder form.

For example, efficiency objectives for agricultural water use set conditions for how access to irrigation can be provided and the climate change mitigation objective limits the options as to how to pursue energy access objectives. In 2030 agenda many targets impose constraints on others.

These are important since they can help ensure the development strategies are sustainable over time, help achieve targets with minimum mitigation or rehabilitation costs for other objectives and help ensure that they respect boundaries of the natural resource base. Of course ensuring that conditionalities are taken into account requires that these have been appropriately mapped.

So, if you see this is well of course is the milder form of negative interaction, negative impact. But yes, it is in the negative side so there may be some impact, some negative relationship with from one variable to the another variable. So, but some level of checks and measures can be taken up to reduce or to minimize that negative impact.

So, as it is mentioned over here some conditionalities are taken into account requires some of that these have been appropriately mapped. So, this should be appropriately mapped SS and



control in order to minimize that negative interrelationship and bring it to the towards at least a plus minus 00 level, neutral level.

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### ■ Goal Interaction Scoring 0 Consistent



A neutral relationship where one objective does not significantly interact with another or where interactions are deemed to be neither positive nor negative.



So, next one we have come to the plus minus 0 0 that is consistent that means there is no direct impact of positive or negative dimension. A neutral relationship where one objective does not significantly interact with another or where interactions are deemed to be neither positive nor negative. So, very simple straightforward, so either no interaction of any nature positive or negative or having maintaining the same so that also kind of comes under this thing.

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### ■ Goal Interaction Scoring +1 Enabling



The pursuit of one objective enables the achievement of another objective. For example, providing electricity access in rural homes facilitates the pursuit of education for all, as it allows the rural poor who have to work after school to do homework at night with the aid of electric lighting. Outdoor electric lighting also increases safety in the streets, enabling more women to attend evening courses or school at night.





Then we are moving towards the positive side plus 1 that is enabling the pursuit of one objective enables the achievement of another objective for example providing electricity access in rural homes facilitate the pursuit of education for all as it allows the rural poor who have to work after school to do homework at night with the aid of electric lighting. Outdoor electric lighting also increases safety in the streets enabling more women to attend evening courses or school at night.

So, you can see the very apt example given over here is for the electricity and the level of education which is going to rise with the help of such facility given in the rural and urban areas, so far education so for all age groups even for kids and even for elderly if they are registered for improving their education levels so it is going to help them to do their assignments and read at night and work in the off duty hours even for the people who are working somewhere.

So, this is like a normal initiative which has a direct relationship if you see electricity supply and the level of education. And majorly it, I think it helps in the rural areas because city areas they still have some options of keeping power back up or maybe going for other power generating system such as digisets, etc. So, to facilitate a several such things, so education being one.

Another very critical service area is about health care. So, these days if we see hospitals they utilize number of equipment tools and machines etc. and test labs to facilitate health services to their user but in the event of no electricity supply this hospital is going to come to an operational halt which may create problem. So, if you see there is a direct relationship so regular supply of electricity will definitely improve a good supply of a good rendering of services of health care and other infrastructural things. So, that is a direct (( ))(14:28) enabling label.

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## ■ Goal Interaction Scoring +2 Reinforcing



One objective directly creates conditions that lead to the achievement of another objective. For example, strengthening resilience and adaptive capacity to climate-related hazards (13.1) will directly reduce losses caused by disasters (11.5). Providing access to electricity reinforces water-pumping and irrigation systems. the SDG targets and goals provide numerous possibilities for synergies.



The next we have at plus 2 level that is for reinforcing. One objective directly creates conditions that lead to the achievement of another objective. For example, strengthening resilience and adaptive capacity to climate related hazards will directly reduce losses caused by disasters providing access to electricity reinforces water pumping and irrigation systems there is digi targets and goals provide numerous possibilities for synergies.


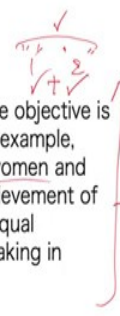
So, in this case you definitely you will see I suppose healthcare also should fall under this one in plus 2 level because if there is a regular and continuous power supply definitely it is going to have its positive impact on the infrastructure available to the people of that place, so they can avail such critical facilities anytime they want. And some other examples given over here reinforces, water pumping and irrigation.

So, definitely supply of electricity in modern society is essential for carrying out any and every our activities because we are so dependent on electricity for our every day and regular requirements.

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■ Goal Interaction Scoring +3 Indivisible

The strongest form of positive interaction in which one objective is inextricably linked to the achievement of another. For example, achieving "End all forms of discrimination against all women and girls every- where" (5.1) would in itself lead to the achievement of "Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life" (5.5).


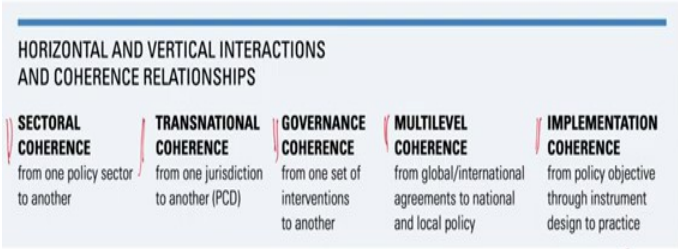


Next we have is for plus 3 at indivisible level. The strongest form of positive interaction in which one objective is inextricably linked to the achievement of another. For example, achieving end all forms of discrimination against all women and girls everywhere would in itself lead to the achievement of ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.

So, very apt example in this case also how are we going to achieve certain objective, certain aim. So, in this case ending all forms of discrimination against all women and girls everywhere is definitely very strongly connected and interrelated to this one ensuring women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life everywhere.

So, it definitely helps and boosts this relationship from this to the next one. So, it is kind of so interdependent so directly related that it is individual we cannot separate it out. If you are working on the first one directly and very very directly the second one also is taken care of because the aims ultimate aims and objectives of both are same only so whether you work for one or two it is going to serve the overall purpose of both of these which is almost common. So, in this case it becomes indivisible and very highly interrelated.


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**HORIZONTAL AND VERTICAL INTERACTIONS AND COHERENCE RELATIONSHIPS**


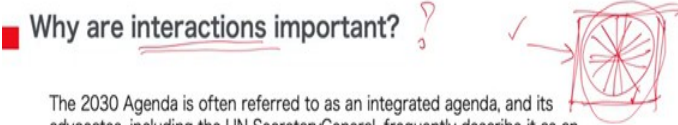
<b>SECTORAL COHERENCE</b> from one policy sector to another	<b>TRANSNATIONAL COHERENCE</b> from one jurisdiction to another (PCD)	<b>GOVERNANCE COHERENCE</b> from one set of interventions to another	<b>MULTILEVEL COHERENCE</b> from global/international agreements to national and local policy	<b>IMPLEMENTATION COHERENCE</b> from policy objective through instrument design to practice
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Horizontal and vertical interactions and coherence relationships that you can see over here. So, we have sectoral coherence from one policy sector to another, we have transnational coherence from one jurisdiction to another, then we have governance coherence from one set of interventions to another. Next we have multi-level coherence from global international agreements to national and local policy levels. And finally we have implementation coherence from policy objective through instrument design to practice. So, this is more or less towards the practice part.

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**Why are interactions important?** ?

The 2030 Agenda is often referred to as an integrated agenda, and its advocates, including the UN Secretary General, frequently describe it as an "indivisible whole". What does this mean in practice? First, in contrast to the conception of the Rio "pillars" of sustainable development, in the 2030 Agenda the social, environmental and economic dimensions of sustainable development are intertwined and cut across the entire framework. Indeed, while most of the 17 goals have a clear starting point in one of the three pillars, most goals actually embed all three dimensions amongst their targets (OECD, 2015). For example, SDG 2 "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture" contains targets related to social (e.g. malnutrition, and vulnerability), economic (e.g. agricultural productivity and financial services) and environmental dimensions (e.g. genetic diversity and climate resilience).



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Well why these interactions are important let us see. The 2030 agenda is often referred to as an integrated agenda and its advocates including the UN Secretary General frequently

described it as an indivisible whole. So, this 17 SDGs what we see they are so essential for our society and all of them are equally essential and important and that is why this whole wheel is one unit it is undivisible unit you cannot remove either of these 17 SDGs because that makes (19:17) that will render incompleteness and a huge gap.

So, that is why this is an indivisible whole. So, that is the term given to this. What does this mean in practice? First in contrast to the conception of the Rio “pillars” of sustainable development in 2030 agenda the social, environmental and economic dimensions of sustainable development are intertwined and cut across the entire framework. So, if you see even though these are 3 different aspects of sustainability but they are, they cannot exist in isolation so sustainability works in the combination of these 3 aspects and that is where this word comes intertwined and cut across the entire framework.

Indeed while most of the 17 goals have a clear starting point in one of the 3 pillars most goals actually embed all 3 dimensions amongst their targets. For example, SDG2 and hunger achieve food security and improve nutrition and promote sustainable agriculture contains targets related to social like malnutrition and vulnerability economic, agricultural productivity and financial services, environmental dimensions is the genetic diversity and climate resilience etc.

So, this is where it becomes important since the underlying foundations are also intertwined and they are composed often multiple aspects like sustainability aspects we are seeing ESEs, so ESE is a composition of this overall these 3 aspects over here and then it together it forms this sustainability, the loop of sustainability. So, it is an individual hole the moment I remove at least one of these the remaining 2 will be going to miss this third one and only after its addition it can be called as a complete format, complete structure.

That is why these interactions are important to understand because how the different components are going to function going to work and they will have some relationship some impact on the next ones that is why it becomes essential to understand the whole phenomena.

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## ■ Why are interactions important?



Second, there are significant interactions between goals. Staying with the food SDG example, a commonly discussed set of interactions lies in the "nexus" between food, water and energy (Weitz et al. 2014). For instance, water is required for energy production in cooling thermal power plants and generating hydropower; energy is required for water pumping and irrigation systems; and water is needed for irrigating agriculture. There are also competing resource requirements: for example, food production may compete with bioenergy production for the same land or water. However, the interactions with SDG 2 also stray into several other SDG areas, such as reducing food waste (12.3), health (3), sustainable business practices (12.6), conservation of marine areas (14.5) and rights to /control over land and resources (1.4).

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The second point here is there are significant interactions between goals, staying with the food SDG example a commonly discussed set of interactions lies in the nexus between food, water and energy. For instance water is required for energy production in cooling thermal power plants and generating hydropower, energy is required for water pumping and irrigation systems and water is needed for irrigation, agriculture.

There are also competing resource requirements for example food production may compete with bio energy production for all the same land or water. However, the interactions with SDG2 also stray into several locations. SDG areas such as reducing food waste, health, sustainable business practices, conservation of marine areas and right to or control over land and resources. So, these ones also if you see they carry some bearing and they are dependent on each other that is why also it becomes imperative to consider them.

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## ■ Why are interactions important?



In the policy arena, most discussions about coherence and interlinkages in the 2030 Agenda have focused on the existence of tradeoffs and synergies between sectors, and the need to map them out and identify ways to alleviate or remove tradeoffs and maximize synergies. However, this area currently has a weak conceptual and scientific underpinning, and no common framework to analyse the nature and strengths of these interactions, and the extent to which they constrain or enable policy and action. Indeed, there is a need to develop guidance and tools that can help policymakers and investors identify and manage synergies and tradeoffs across goals and targets. Before the stage of policy formulation, including the setting of context specific (such as national or local) targets and indicators, research needs to be conducted into the nature and dynamics of the interactions. Below, we introduce a more refined typology of interactions for use in empirical research into SDG interactions. Such research needs to be developed to provide a useable knowledge base for both policy level decision support and the design of implementation strategies.

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In the policy arena most discussions about coherence and interlinkages in the year 2030 agenda have focused on the existence of trade-offs and synergies between sectors and the need to map them out and identifies ways to alleviate or remove trade-offs and maximize synergies. However, this area currently has a weak conceptual and scientific underpinning and no common framework work to analyze the nature and strengths of these interactions.

And the extent to which they constrained or enable policy and action in these there is a need to develop guidance and tools that can help policy makers and investors identify and manage energies and trade-offs across globes and targets. Before the stage of policy formulation including the setting of context specifics such as national or local targets and indicators research needs to be conducted into the nature and dynamics of the interactions.

Below, we introduce a more refined typography of interactions for use in empirical research into SDG interactions such research needs to be developed to provide a usable knowledge base for both policy level decision support and the design of implementation strategies. So, very interestingly you can see over here how these linkages are playing their role at local, regional and national levels and how they are essential to be allowed to communicate and interact.