Sustainability Planning

Sustainability Planning Guidance for getting your critical values: quickly, clearly, effectively balanced and continuously[1]

Tom Gilb

Thanks To Pawel Nowak (Katowice): Initiator of Book.

1 http://www.sustainabletourism2017.com/sustainable-development-goals-tourism/. Cover Ill.

One-Page Overview of the Book Content.

One Liner

'Sustainability must be planned sustainably'.

Short Summary

'Sustainability Planning' is defined here as 'planning a set of competing human and other stakeholder values'. 'Sustainability Values' can be expressed as *degrees* of those values, in various dimensions (time, people, circumstances). To deliver sustainability goals we need *extremely clear* value-goal statements. Then we need 'smart design' or 'problem solving', to reach our goals, within our constraints.

Method Background

There are a wide variety of methods for planning sustainable futures.
Some are pretty good. But in our view all of them could be improved, so that we are more likely to achieve our value goals, quickly, cheaply, and with balanced priorities.

We (gilb.com, and professional friends and clients) have been using a well-developed planning method, 'Planguage' (Planning Language) which has a set of standards and facilities suitable for better sustainability planning, than you are currently doing. Planguage ideas can be used free, as a whole, or brought in piecemeal, immediately, to improve your current planning and plans. You can try out things that appeal to you, and when you see they work well for you, try more. One of our clients Intel [G/BB] (Erik Simmons) has 20 years of teaching and doing this planning method with over 21,000 employees, and his evaluation is simple "This Stuff Works" [1].

We will make use of the Planning Language, 'Planguage' and we will use the United Nations Sustainable Development Goals 2030[2] as examples: but the principles and ideas apply to *all* levels of sustainable development efforts. Hopefully YOURS.

Intended Audience:

Our Planguage ideas can be freely used by anybody who wants to improve any planning. They can be used by an individual planner to write a better Goal. They can be incorporated in existing planning standards and training. The reader can be the judge of whether Planguage ideas are useful, and cost-effective, for them. It is nice if you cite your sources, but we won't sue you if you fail to do so. The important thing is better sustainability value improvement. So if you *do* find that these methods help, please share the ideas and your experiences with us, and others. The world is filled with bad planning, and bad results. The sustainability issues are too important to mess up, with continued bad planning methods.

Our Special Contribution to the Sustainability Cause

There are many voices commenting in depth on the UN SDG (Ref. H, I, J, K, L). I agree with their analysis about lack of clarity and conflicting priorities. This book will go into more detail on exactly WHY the Goals and Targets are unclear, and *exactly what we can do* in practice to encourage UN and others to write much clearer Goals, to separate real Goals from mere suggested strategies, and to prioritize Goals and strategies logically. We will base our methodology on a Planning Language we have developed, so that there is a solid, free, methods-basis, which can be used, not just off-hand observations. I believe that this very-basic *clarification* of the stated Goals, is a pre-requisite to any intelligent political and academic discussion of the Goals.

[2] https://sustainabledevelopment.un.org

Sustainability Planning Principles

1. EXTREME CLARITY IS BASIC: Extremely *clear* goals are the basis for extremely good and relevant sustainability value improvement.
2. GENERALITY NEED NOT BE VAGUE: General sustainability-value goals *can* be decomposed, into extremely-specific, clear, and *measurable* goals.
3. 'MANY GOALS, MANY SOLUTIONS', NEEDS BALANCE: You will always have in mind many *concurrent* goals, and they will compete with each other, for resources: so you are going to have to balance and prioritize intelligently
4. BE CAREFUL TO ASK FOR WHAT YOU REALLY WANT: You need to be very conscious of the difference between 'Ends' (Value Goals) and 'Means' (Strategies for delivering the Ends), so that you really get your intended sustainability value improvements, no matter that the best strategies are surprising, and might emerge *later*, than your initial goal planning.
5. SIDE EFFECTS WILL 'GET YOU' LATER ANYWAY, SO CONSIDER THEM EARLY: There is nothing as simple as the 'right strategy' for a single sustainability goal: all strategies will have 'side effects' on most other competing sustainability goals, and they will impact a variety of constraints ('laws' for example) and costs ('maintenance costs' for example).
6. SUSTAINABILITY REQUIRES *ENGINEERING*: Sustainability is a ***systems*** *engineering* problem area: it is not suitable for narrow and emotional political slogans and arguments. You have to consider many factors in your environment, and you will need to quantify and measure, like other engineers and scientists do. If you are not 'up' for such discipline, then keep away from Sustainability, you might destroy the planet!
7. ESTIMATION POSSIBLE, KNOWLEDGE NEEDS MEASUREMENT: It is possible to get a pretty good overview of the potential results, and costs of all solutions for all sustainability goals: which helps your presentation, discussion, prioritization and decision-making. But final knowledge of how things work in the short and long-term will require continuous measurements, in a dynamic and complex situation.
8. PLAN TO LEARN FAST: The big trick in such a complex environment is not merely 'to plan well', but to 'plan to *learn quickly' what really works; and to continuously evolve strategies to meet changing and clarified needs*.
9. REAL RESULTS REQUIRE CLEARER PLANS: If your sustainability planning is left the way it is now, you will probably get disappointing results, and in a too-distant future. If you lead a change in the directions pointed out here, then you can expect, and prove, that you will get early measurable results in the short term, which will continuously improve, towards the longer term.
10. WIN FAST, ADD WINNINGS: The scope of most all sustainability efforts is overwhelmingly complex, so we need to use systematic methods to decompose into practical do-able detail in the short term, while never losing sight of the big picture.

Chapter 1. Clear Sustainability Goals

If a critical Goal is ambiguous or unclear, people will interpret it in different ways. Perhaps never as intended. Wrong solutions (aka strategies) will be developed, and the real goal will never be reached. Nobody will be sure of what it really is. Nobody will know how to measure that it has been delivered, or improved.

It is not a problem to make all critical sustainability development goals perfectly clear. The knowledge is available to you here and now [1, 3, 4, 6, 12]. But most people have not learned how. Most people make do with many quite-poor-practices for clarifying their objectives and goals.

Many people really do not care that they are so bad. But that is unacceptable when other people's life quality is at stake. You care, enough to read this, so we are writing to help you make your own sustainability planning much better.

Sustainable Development planning, and Sustainability Planning in general, are just the latest victims of a poor worldwide culture of unclear planning. We think that sustainability is too important to fall victim to poor planning cultures. So this book is going to explain how you might make your sustainability planning much better (about 100 times[3] better, or so).

We have written extensively about this subject in the book references [1, 3, 4, 6, 12] so we are going to try to keep this book short, by giving examples and ideas. But anyone who wants to teach, consult, or be expert in these methods is referred to those books for full technical detail.

We are going to illustrate better planning ideas by making use of the United Nations Sustainability Development Goals[4], and related publications.

We are not using it because it is not good stuff. It is as good as it gets. But it is highly public, and highly critical to get right. And we find that it can be improved: just as we believe *your* own planning can be correspondingly improved.

[3] 100X is not just a nice big number. It is about the measured and reported level of improvement of our clients using our methods, and a nice example is Intel see Terzakis ref. G/BB for convincing detail.

[4] https://sustainabledevelopment.un.org

Example of UN SDG 1

"End poverty in all its forms everywhere".

There is nothing wrong with this 'goal' if we recognize it for what it is, a high level, simplified, emotionally-appealing objective. We have a name for this, an 'Ambition Level'[5].

I am sure you, and the UN, can see that it contains about five, undefined and ambiguous words. And we have to do something about that, sooner or later, or nobody will actually agree on the unambiguous meaning of it. Ambiguity means people solve the wrong problem.

And this 'clarification attempt' has been done, but the question is 'how well' the UN and partners have *really* clarified it.

Here are some approaches one could use, and they are explored in this book:

1. Define each ambiguous term, unambiguously (end, poverty, all, forms, everywhere)
2. Decompose into a set of sub-goals (targets[6] is the term used by UN) where these define the higher level goal
3. Specify one or more measurable 'indicators of change' in the sustainability value
4. Specify a set of strategies, or actions, that we believe will help us reach the goal

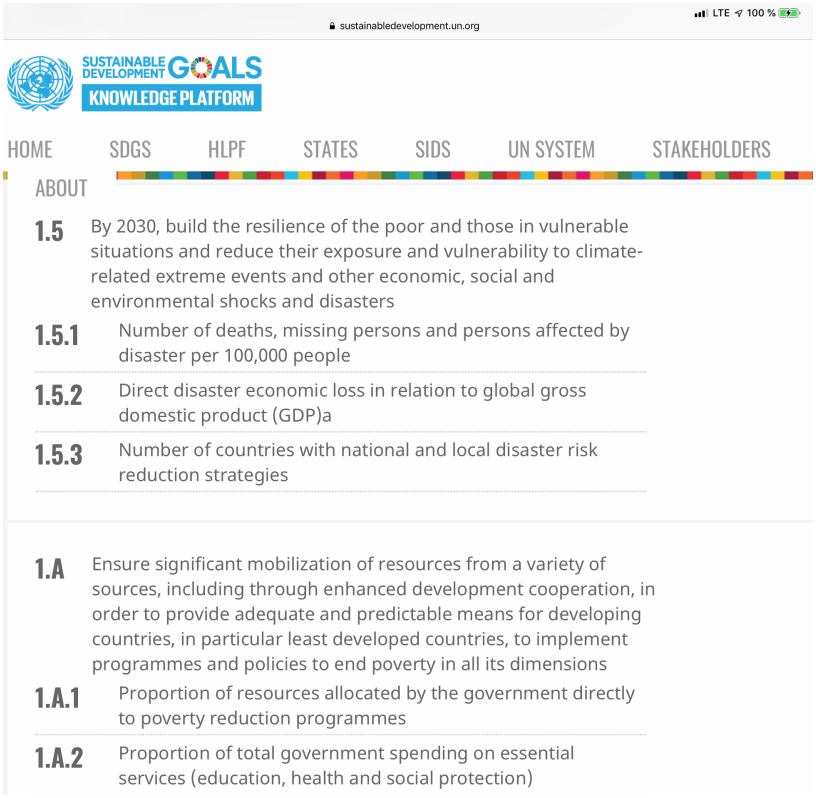

Figure 1.1: A selection of The UN 'Targets' and Indicators for SDG1 (End Poverty)

[5] Ambition Level is a Planguage concept, defined in the Planguage Glossary at the end of this book.

[6] https://sustainabledevelopment.un.org/sdg1#targets. Gives the specific UN SDG targets

Can you see the problems in this approach (Fig. 1.1 above), this desperate attempt to clarify a high-level ambition statement?

Let me spell it out, to leave no doubt in your mind.

1. Notice 1.5 and 1.A 20 and 28 pitfalls. By my rough count these statements contain 20 (1.5) and 28 (1.A) ambiguous and undefined words. Like 'resilience', 'exposure', 'ensure', 'significant', 'dimensions'.
    1. There is no hope of any 2 people on the planet understanding all such terms as intended by the author (UN).

    2. Two 'Fuzzys' (1.5 and 1.A) do not make a Clear Idea (SDG1, (End Poverty).

    3. If all (48+) ambiguous terms were *somewhere* defined, it might *help* reduce ambiguity.

    4. But there is no hint or pointer to such a glossary here.

    5. So everyone is on their own.

    6. Dictionary definitions will not be helpful.

2. In a desperate attempt to clarify or define, they specify a few 'measures' (Indicators 1.5.1 etc, and 1.A.1 etc). But guess what? Same ambiguity problem! What is a '*disaster*'? What are '*resources*'?
    If there were some UN statistics for *these* categories, they should be referenced.[7]

3. Notice the phrase in 1.5 *'in order to'* (provide adequate and predictable means to ...), then *'to implement programmes'*, then 'to end poverty'
    1. This is a messy mixture of ends and means, many levels of them.

    2. Phrases like 'in order to' and 'to (end poverty)' are what I call **'link words'**. They link a suggested ***means*** *(strategy, solution)* to a specified ***end***.

    3. The situation is that we have not defined 'end poverty' at all. We have suggested some specific strategies ('mobilization of resources', 'predictable means') to reach a badly-defined goal ('end poverty'). Premature specification of strategies to badly-defined problems is a bad planning idea.

    4. But we *cannot know* if these various nice-sounding ambiguous strategies are cost-effective, because we do not have a clear definition yet of 'end poverty', to judge them by.

    5. I could give a much-more-detailed analysis of all this poor planning specification, here, but hopefully you get this logic of what I am saying? If not, more detail will not help.

    6. I do intend to show exactly what we can, and must do, with this useless misleading planning. But I hope you agree we have a 'problem worth solving' for the UN, and perhaps even for your own Sustainability planning?

I do not demand perfection in unambiguous planning. But the ambiguity level above is a total disaster, and could 'claim lives'. At best, it can waste time, years, decades of poverty.

How much better do we need to be, before we are no longer guilty of criminal planning negligence?

---

[7] http://www.sdg-tracker.org is a source of statistics and measures, fairly directly related to these UN Goals (or Targets, or Indicators). But let me analyze them later. *Measurement* is one problem, but we have a greater problem of **good definitions** of our values and goals, which is a *logical prerequisite* for deciding on any useful measuring or statistics.

About 100X better is a good approximation, of how much better we should aim to become in planning planetary problems..

There is a point where there is no point in perfecting the planning, like Goals and Strategies, planning improvement will not make much difference. The diving in, and measuring and observing realities, is far more important. But we at least have to be good enough in our initial planning that we do not end up implementing totally useless strategies, and then observing useless indicators of their success or failure.

Let me make a point. I chose Goal 1 (Poverty) but the same problem is there for all other 16 Goals, as you can easily see, using the links provided above. An appendix will look at UN SDP Goal 9.

And the problems are the same problems everybody has, you too. Not because anyone is stupid, not because of lack of years of schooling. But because of lack of a specific 'new' culture of clear planning, which is not taught in most schools.

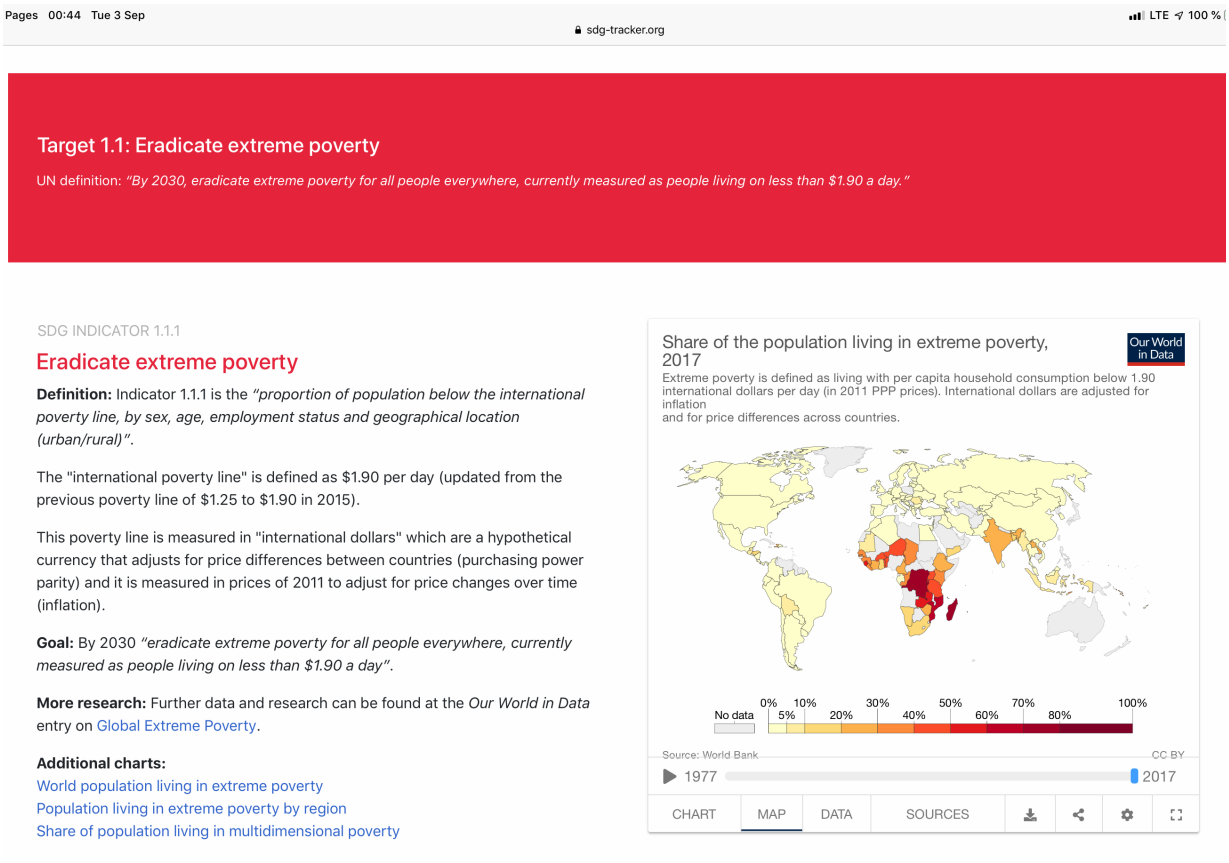

Figure 1.2: a slight leap forward to an attempt to introduce some measures and statistics related to SDG 1. Do you see any problems ? Example 'living on less than $1.90/day'. So animals living on that are in extreme poverty?[8]

[8] https://ourworldindata.org/grapher/share-multi-poverty So even these guys recognize multiple dimensions of poverty, not just income. Which indicator is useful?

What can we constructively do to improve a Goal like UN SDG 1 ('end poverty')?

Let us take a look at the UN SDG 1 again.

The Top Level says

End poverty in all its forms everywhere.

Figu
1.3

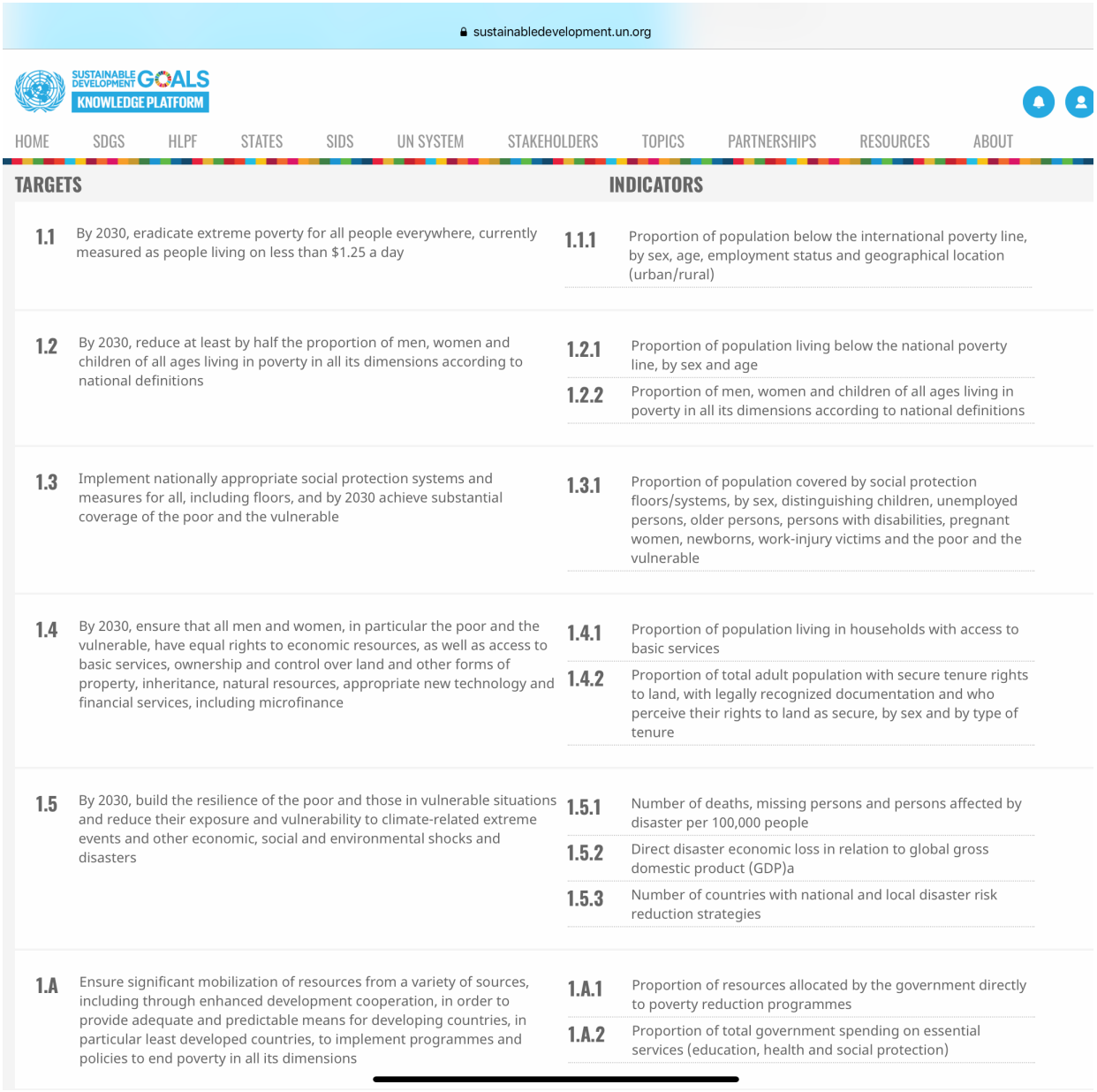

Figure 1.3 Overview of UN Goal 1 (Poverty), with Targets and corresponding Indicators.
(1.B is missing, not important for our purposes here, see it later figure 1.6)

‘Indicators’ are an attempt to find, perhaps existing, statistical information, that can tell us about past levels, and future improvements or changes.

Indicators are not yet important enough to ‘take a position on’ here, because we need *first* to sort out the unclear Goal, and Target statements themselves, before we can even discuss if the *indicators* actually reflect our Poverty Ideas.

If we use these indicators prematurely, then we risk managing the *wrong* Poverty ideas.

So, we are now going to focus on The Poverty definitions.

What values are we actually trying to improve?

Can we define, and clarify the Poverty Goal, without using the UN Suggested Targets at all?

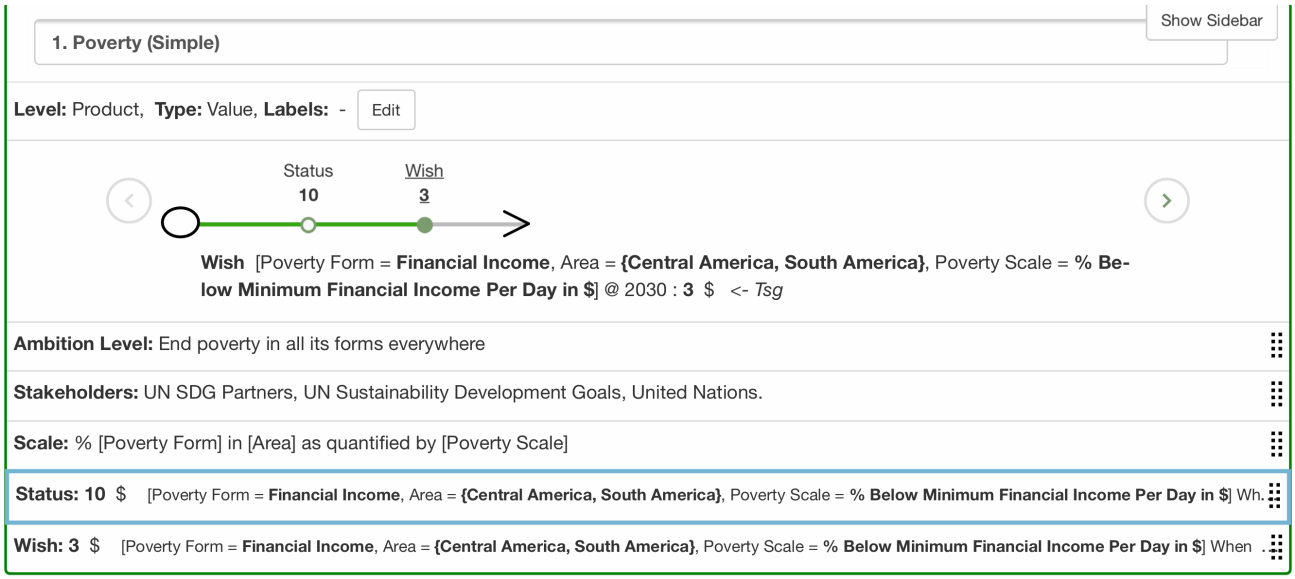

Figure 1.4 An attempt to define a general Scale of Measure, for the Poverty Goal.

It is theoretically *possible* to *quantify* (‘define a scale of measure’) the Poverty value alone, without decomposing it into a set of ‘Targets’, as the UN has done.

But it is clumsy and difficult to interpret.

The reason is that Poverty is not in UN plans, defined as one single dimension, which uses one consistent scale of measure (like money, weight, length).

The UN definition in Targets for Goal 1 Poverty, is quite clear about the fact that there are 7 entirely different poverty dimensions, needing 7 different scales of measure to quantify them.

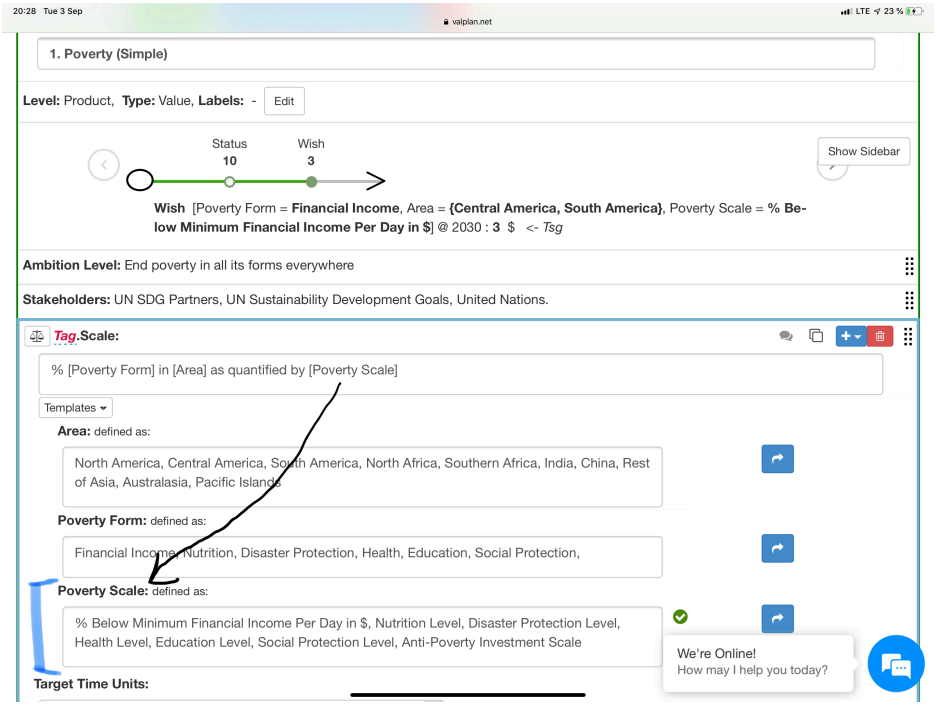

Figure 1.5 We could specify 7 different quantification scales, as a parameter, and then in our Goals, select one of them to use. But it is clumsy. And there is a better option below.

What use are the current 'Targets' (as defined in the UN Document), and how can we make them Better?

The UN 'Targets' for each Goal (see Figure 1.3, and 1.6), are not essentially 'targets to aim at', although they do include that aspect too. What the so-called Targets are primarily defining are different ***dimensions*** or ***attributes*** of the Goal.

Or put otherwise, they are saying that these 7 targets are our **definition** of the 'umbrella' Poverty Goal. The ***set*** *of targets* defines the umbrella Goal statement.

This is often an excellent way to define any complex idea, define as a '**set of things'**.

So if the UN were more systematic, then they would have said:

'Poverty' is **defined**, or detailed, as the set of these 7 Attributes'.

The process of deciding which future levels, of each of the 7 'Targets' we need to specify, is a quite separate process, from *defining the meaning* of that Target value.

The Scale defining the UN Target variable, is a logical prerequisite for putting any numbers as a 'target level' specification. A prerequisite for assigning a future Goal level for that Target 'area'.

One reason for defining the Scale (in Planguage) so carefully, and first, is that we need to be able to set a wide variety of different target levels. For example 'every 5 years', 'for different people', 'areas' etc. We will get into this in more detail below.

Right now there is only one UN *time horizon* (2030) and one *level* to be achieved at that date, for 'everything'.

Nice overview, but not good enough, to manage the real Global detail needed, and alluded to, in the documentation.

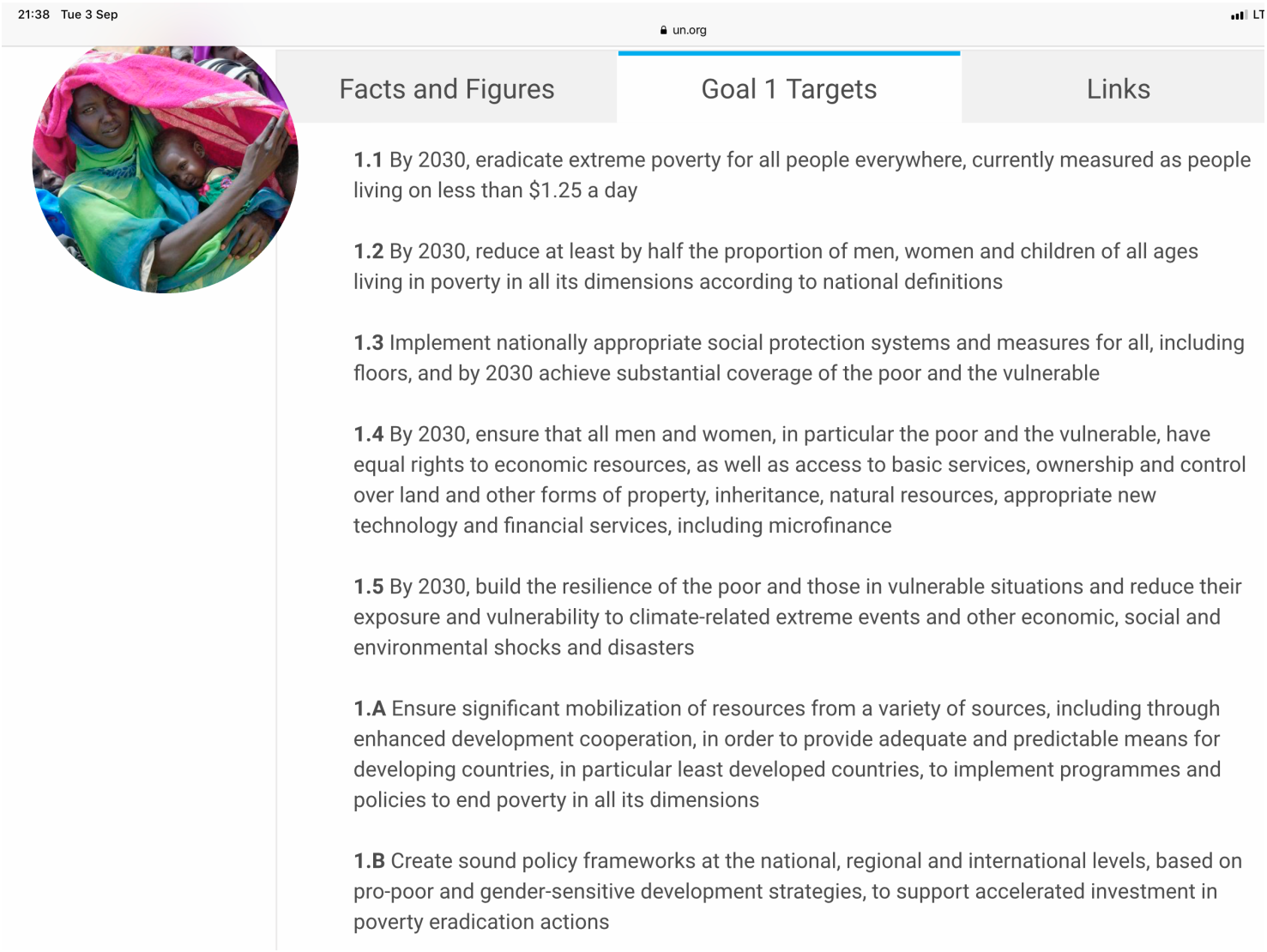

Figure 1.6 Targets for Poverty Goal. These so-called 'Targets' are actually more important for telling us about the critical dimensions of Poverty in the UN model. These Targets are not very good at clearly defining measurable trackable levels of the 7 Poverty sub-values.

Take a look at the unintelligible Target statements. Massively unintelligible.

Only one of them clarifies a numeric idea (if you get all people above $1.25 by 2030 then 1/7th of the Poverty Targets are reached).

The real problem here is that the authors and planners have not learned to express 6/7 of the Poverty attributes clearly and quantitatively. They are, by my standards, incompetent, and a danger to the poor.

Take a cursory look at the Targets 1.2 to 1.B. No Poverty level numbers at all! Where is the 'Target'? It is like an invisible archery target.

Figure 1.7 It helps the archer to have a clearly defined target, including higher and lower points (priorities) and the idea of 'failing to hit the target at all'. If the target is just 'somewhere over there', 'maybe the white circle, maybe not', we cannot deliver the Poverty-reduction values on time. Source Wikipedia and free use**.**

How many ambiguous words can you count in the Poverty Targets? (Fig. 1.6 above).

I count about 100, almost all of the non-trivial words: 'create, sound, policy, frameworks, poverty, dimensions, all, national'. And on and on.

This high level of ambiguity is not acceptable, in a serious sustainability plan.

If all this ambiguity were actually an 'evil plot' to make sure no improvement in these poverty aspects would happen, then this is the perfect sabotage of the UN plans.

I do not really think evil forces are at work here. But the *effect* is the same.

Do we agree on this point yet? The above UN planning is 'unsustainable'. It is not even ready for 'birth'.

We can easily do much better. We need to set a *standard* for the quality of a planning statement.

Something like: **no two people can interpret a plan differently, and none can interpret it wrongly.**

If you and the UN already knew how to do this, you don't need to read this book. And the UN plan would not display such embarrassingly poor intelligibility.

Well the UN has lots of interpreters. I am going to interpret these plans into a 'new' UN language: Planguage [1].

Let me take one of the Targets above and work on interpreting it. They are all equally unclear, so 'which one' does not matter, and what I am going to show you can be applied to all the Poverty targets, and all other targets, and to your own planning.

Is your own Sustainability planned as bad as the UN planning? It probably is, if you are honest with yourself. A simple test is counting the % density of the ambiguous words.

Anything above 1% ambiguous words is dangerous. Ambiguity-shame?

As the car bumper sticker said, "One nuclear bomb, can ruin your whole day"

One misunderstood word, in a plan of this magnitude will doom at least a million people to worse poverty for a year. Just guessing. But probably a good way to think about sustainability planning worldwide.

Do you have the time *now*, to learn to 'make plans better'?

Ok Let's take Poverty Target 1.5 as an example

"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**"

Figure 1.8. The Poverty Target 1.5. I have stated as an Ambition Level. I have made bold or underlined, terms needing definition because of their ambiguity.

I have made the clarification agenda visible. I then need to make sure that this jumble of nice words is better defined and structured. Like the example below.

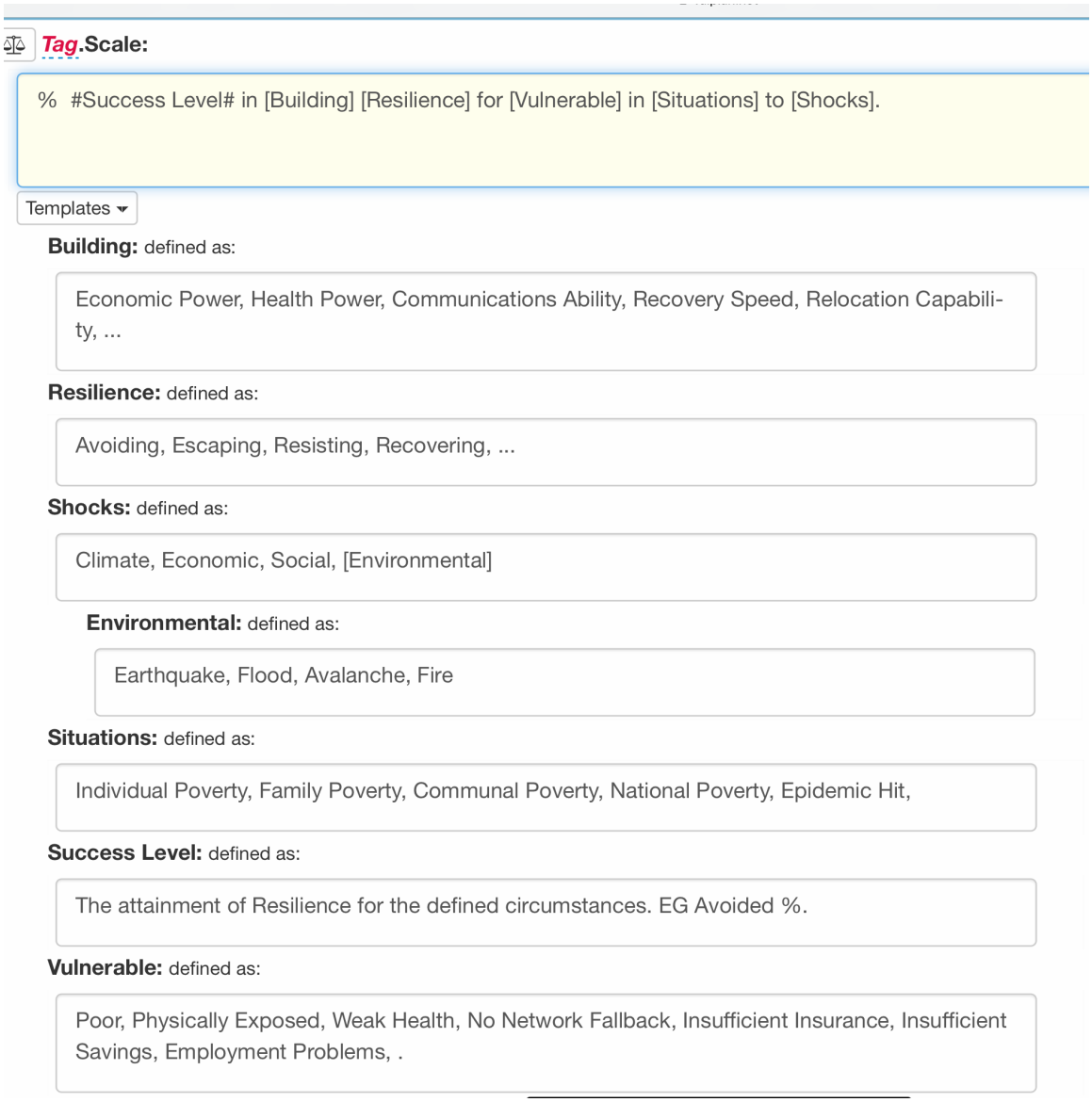

Figure 1.9 A Scale of measure for Target 1.5 (interpreted) is defined, and the ambiguous words are defined as sets of options, or attributes.

This is a process of definition, to reduce ambiguity. We can push the process as deeply as we need to[9]. Notice how we Defined 'Environmental' at a second level.

We have set things up here, with a **Scale** definition which can be *reused* for a variety of purposes such as:

1. Stating the current Status of a set of dimensions (see examples in Figure 1.14, 'Health.Status')
2. Setting a variety of future *improved* levels, not just the final (UN 2030) level
3. Setting constraint levels, worst-acceptable cases. Not merely *target* or *success* levels.
4. For selecting and prioritizing, more-critical sets of things (dimensions, attributes), which need early attention.

[9] so that nobody can misunderstand

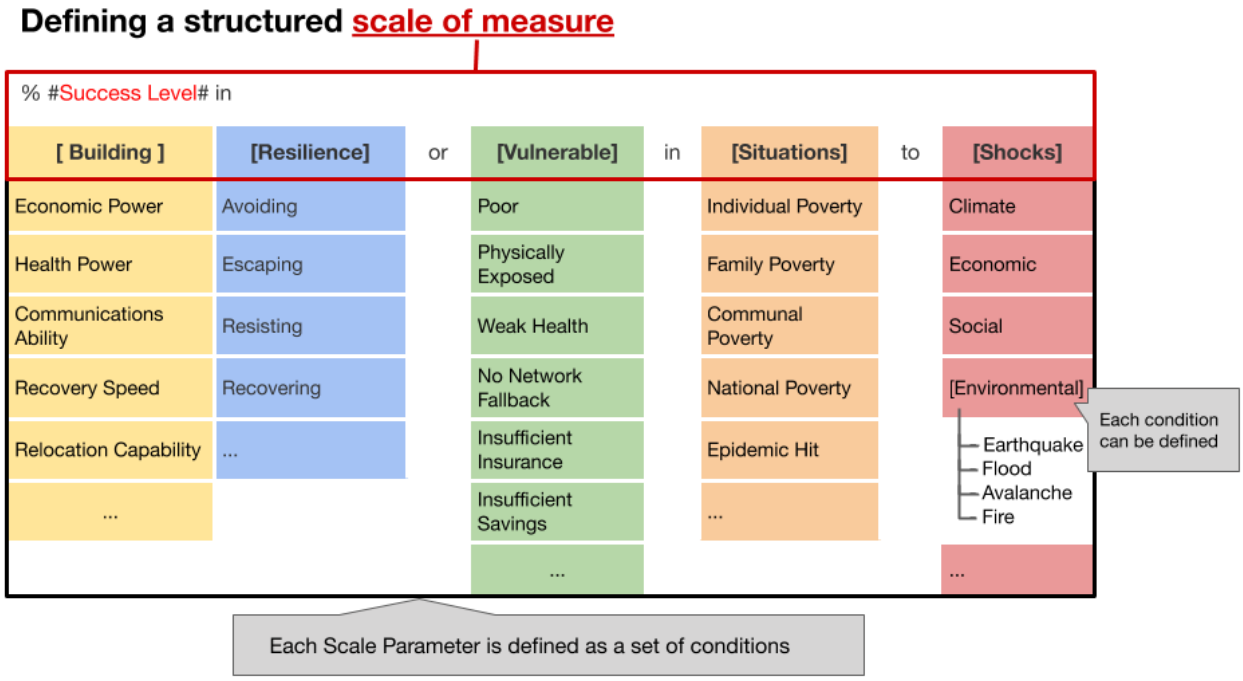

Figure 1.10. This example explains the structure of a defined Scale of measure, with 3 Scale-parameters (general dimensions, needing definition).
Graphic by anna.maria.karlowska@gmail.com, 2019

Each Scale-parameter is further defined, by more-specific sets of things, which **define** the Scale Parameters. These are called Scale Parameter *Conditions*. Example: *[Shocks] = {Climate, Economic, Social, Environmental}.*

When setting Goals, we can select *any* Condition combinations, or sets of one or more of them, to suit our purposes. For example, the set *'Recovery Speed, Recovering Physically Exposed, Epidemic Hit, and Social'*

This enables us to see the whole picture, the entire environment.

But we can select smaller slices of the total environment, that we want to specify Goals (numeric improvement levels) for, because they, in particular, are ‘more cost-effective' or ‘need to be done earlier’ than the longer-term deadline for *all* of the other items.

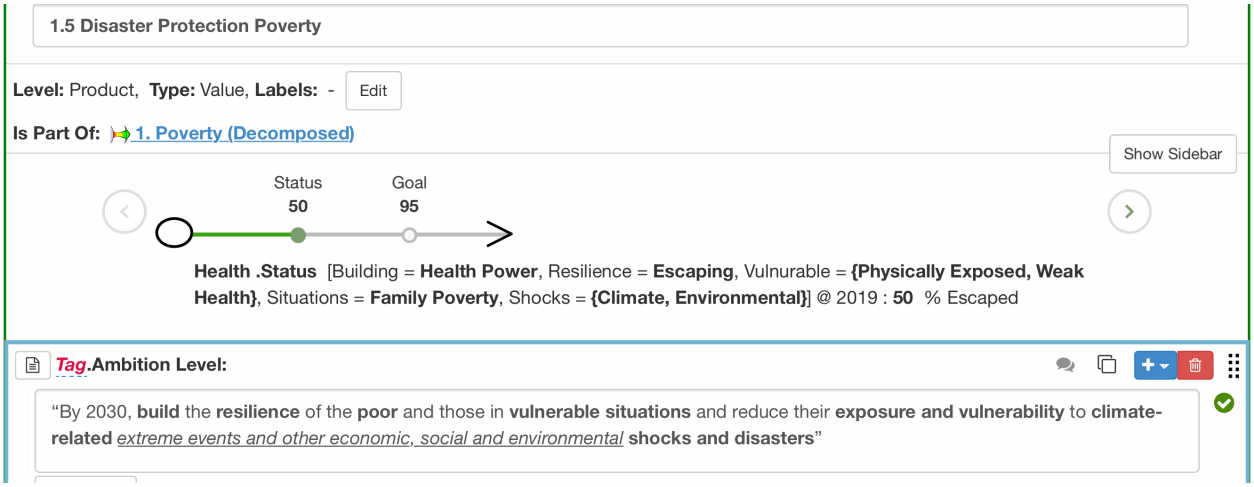

Figure 1.11 A summary of our Target '1.5 Disaster Protection Poverty'.

With the defined **Scale**, for Target 1.5 (Figure 1.9), which we have tagged '1.5 Disaster Protection Poverty', we can document the current level (50%, see Fig 1.11 above) and set a specific numeric Goal for 2030 (95%, for example)

This is a sub-set of all possible and all necessary Goals, we *can* choose to set.

It is very clear that, in this specified case, we are *only* dealing with the following Scale Parameter Conditions:

1. Health Power building
2. The Escaping resilience
3. The Physically Exposed, and Weak Health vulnerability
4. The Family Poverty situation
5. And the Climate and Environmental shocks
6. For the long term target level of the year 2030, where we plan to reach 95% 'escapes'

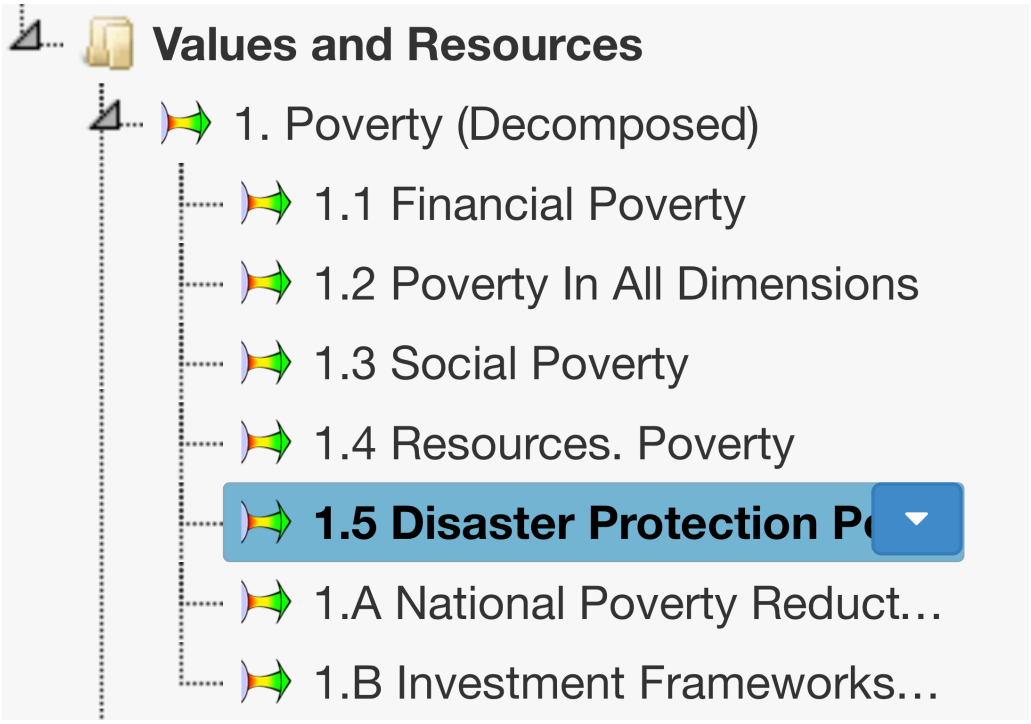

Figure 1.12. UN Sustainability Development Goal 1, Poverty. Defined by a set of 7 'UN Targets'.

Now we can, but not here, repeat this process, for all other sub-sets of 'Poverty'.

Notice in this 'UN Interpreter into Planguage' process: for greater clarity, we have used the following steps.

1. We assign a 'N*ame Tag'*, for permanent reference to each level of definition. Figure 1.12 has 8 name tags.

   This is a key to reuse, and standardization of definitions. It is not essentially different from the 1, then the 1.1, and 1.A assigned by the UN planners. And I have retained exactly those tags here. But I have added a more-descriptive tag to enhance readability. All Name Tags are written with Capitals, to signal that they are *formally defined* terms.

2. I have retained the exact original UN fuzzy *statements*, and separated them out as an Ambition Level (see Figure 1.11), with the UN URL Source specified. You might ask why we do not throw such incoherent stuff away. But our job is to 'interpret', not to essentially change, the formulations made by the 'powers that be'.

In a sense we are showing some respect and loyalty, to whatever our higher powers have decided. We position ourselves as 'clarifiers', and 'detailers'. We are not here to overturn power, or to criticize those who have worked out a rough draft. We are here to help those powers to *more effectively deliver the values they prioritize*. If they have time and inclination, they can also approve or amend our initial draft detailed 'translation' into Planguage.

3. The next step was to analyze the Ambition Level fuzzy statements for both *things that needed better definition* (like the 'Poor'), and for things that were *extra dimensions* (like types of people). I recommend and practice actually marking these things, for example in **Bold** (see Figure 1.8)**,** to give us a list of things, we somehow need to define better. Most of these, we then use, to create a Scale Parameter, and signal this with square brackets, for example [People Types].

4. For each [Scale Parameter] we need to define the 'set of things' of which it consists. These are in fact, yet another set of dimensions (People = Male, Female, Unspecified). Another level.

5. If one of these 'Scale Parameter Conditions' needs better definition, we define as needed, to the point that 'everybody understands the same thing, as intended'.

6. The 'Scale of measure definition', can be gradually improved by, for example, adding Scale Parameters, formally defined terms, and Scale Parameter Conditions, as needed. No need to have a complete set initially. Things change, and insights occur.

You can present this structure to domain experts, and ask them if they can tell you about new or better categories of Parameters or Conditions.

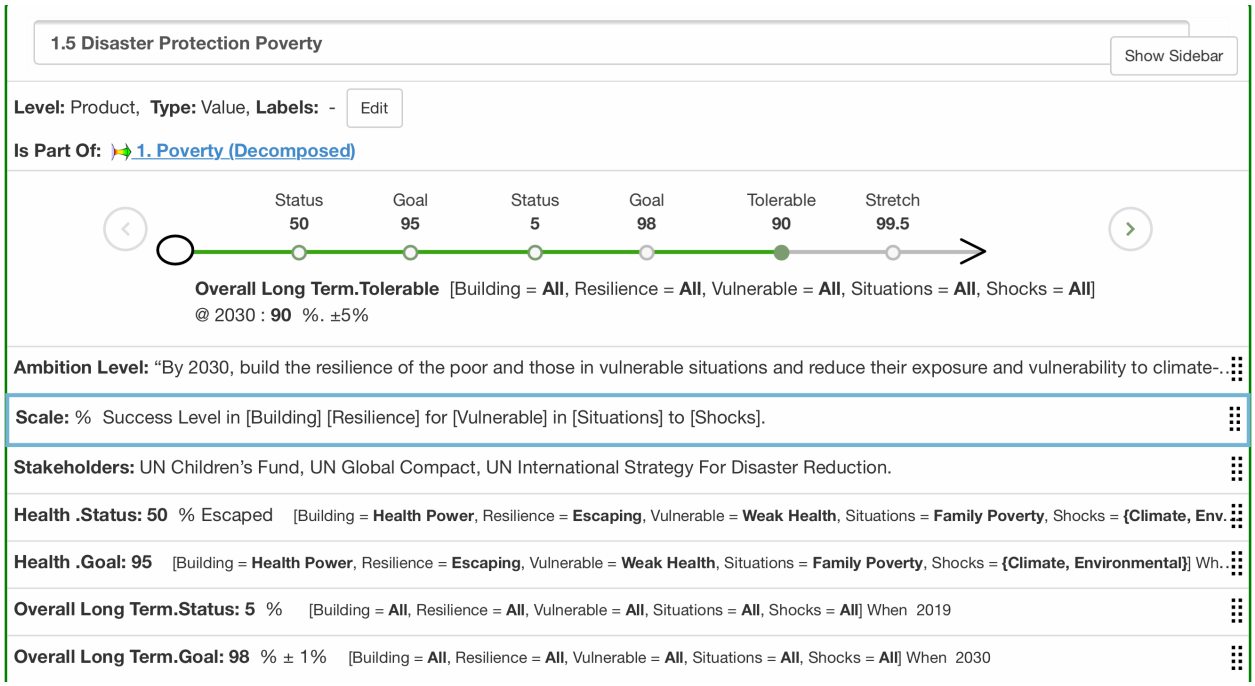

Figure 1.13. An overall summary of the 1.5 UN Target, as 'translated into Planguage' by us.

We added the 'Overall. Long Term' Status and Goal, which encompasses all the Scale Parameter Conditions. That encompasses the whole system for this Value (all Scale Parameter Conditions, for all Scale Parameters, for UN Target 1.5)

7. We reused the well-defined Scale, in this case for 4 different statements, 2 Statuses, and 2 Goals. The reuse of the Scale, is *implied* in Planguage. This leads to *consistency* (same Scale used for many purposes), and *better Scale definition,* because we are going to use it for many purposes. It is worth clear-and-detailed Scale definition, rather than oversimplified words or phrases.

See Figure 1.3 Indicators as an example. It is not too bad, they are trying. But it could be structured and defined for greater clarity. The Scale needs to be separated from the one or more levels of performance along that Scale. The UN example fails to do this, and assumes that only one level of performance, for 2030, needs to be stated. And even then it fails to specify most numeric levels. None in the Indicators, where a level belongs. Few in the Targets. And in the targets a lot of quite vague ideas such as 'Significant', and 'Substantial'. Messy.

I understand that we do not need to give exact final numbers for 2030. But one tactic we use is to give a *reasonable range* of numbers, to prevent 'total lack of responsibility' for results, and to give strategic planners better reference points to decide if their strategies are good enough to meet those numbers on time.

For example:

Tolerable: 30% ± 10%
Goal: 50% ± 5%
Stretch: 70% ± 15%

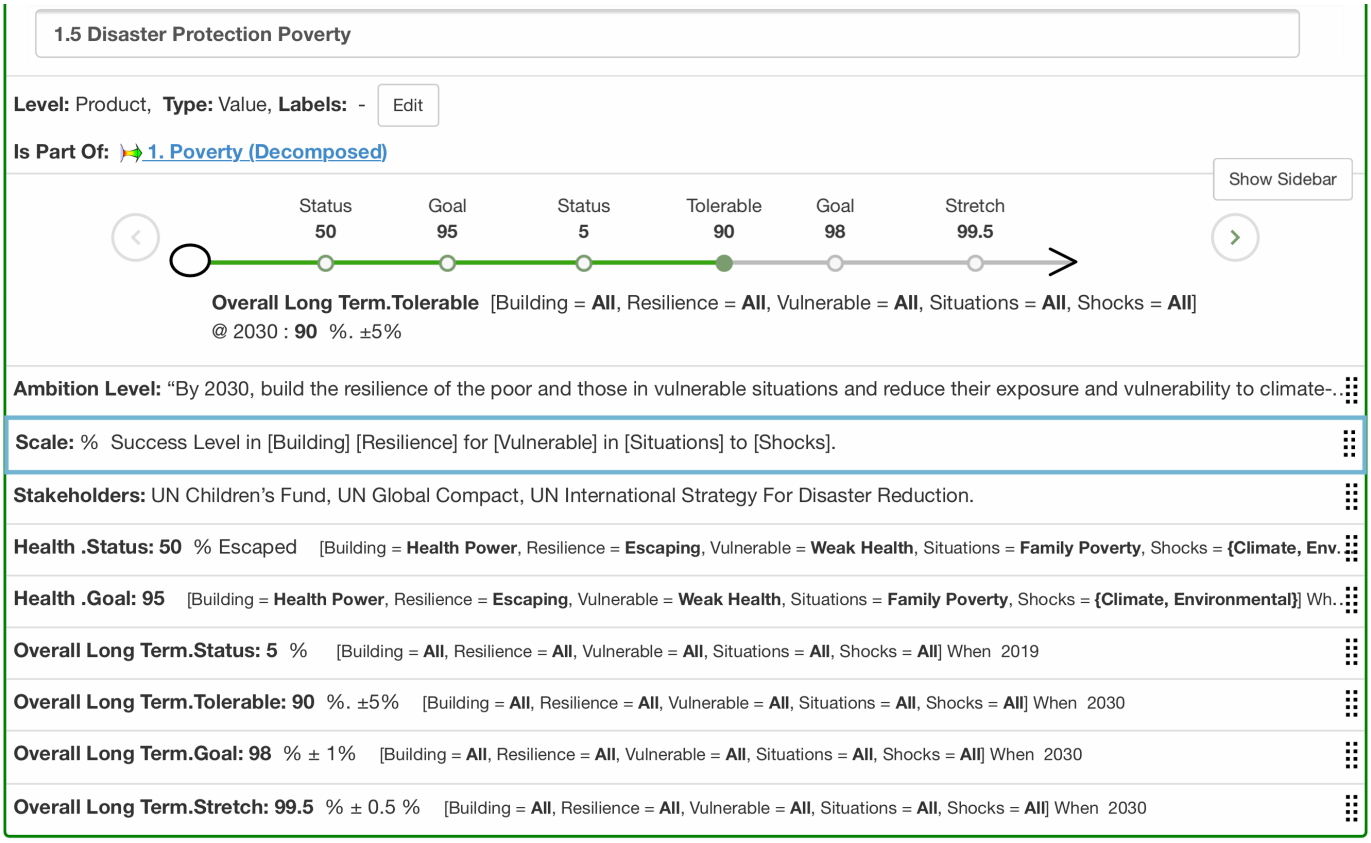

Figure 1.14. Extending our performance requirement specification.
Each requirement (Tolerable, Goal, Stretch) can have a range (±5%, ±1%, ± 0.5%), a 'Landing Zone' (Intel term).
In addition, the Tolerable statement sets a lower limit of expectation: a worst acceptable case. Below this level we have formally failed.
The Goal specification defines a successful level.
The Stretch level says, we are not demanding or expecting this level. We are not sure it can be done, so far ahead of time. But it would in fact have some stakeholder value if we can find a way to get to the Stretch level. So do not give up efforts when you get to the Goal level.

8. We pick up information about the central and critical **stakeholders** for *this* value. It was published as 'Links' in the UN document. But it has many uses, such as knowing who and where (in Documents) to consult, check consistency and completeness, and get approval from, or have them review your efforts.

9. You can digitally capture this type of specification, in any PC tool at hand, such as Word and Excel. But we prefer to use a Planguage specialized tool, valplan.net, which saves effort. It knows the rules of Planguage.
It can generate Reports, visualizations, and warnings from the base of data you build up

---

Did you understand what we are doing yet?

The process we are using, and this new planning language might seem alien to you, difficult even.

But like all new things you learn it takes a little effort, practice, and experience.

Some people might think this is complex; but it is not as complex as living in poverty.

Most people pick the planning essentials up in a day or two. Some might need longer.

This book does not pretend to give full training and detail. See the book References for that.

We are concentrating on using real UN Sustainability examples, and showing what *can* be done to 'make the *highly unclear*, *more* clear'.

We hope that if you find this interesting, you will somehow ensure that if so, *somebody* learns how to do this properly, where you work.

It is pretty simple stuff compared to playing the violin, or compared to messing up millions of poor families lives, by sloppy planning.

If we have clarified the Goal, quantified and structured, what do we do about measurement (the Indicators)?

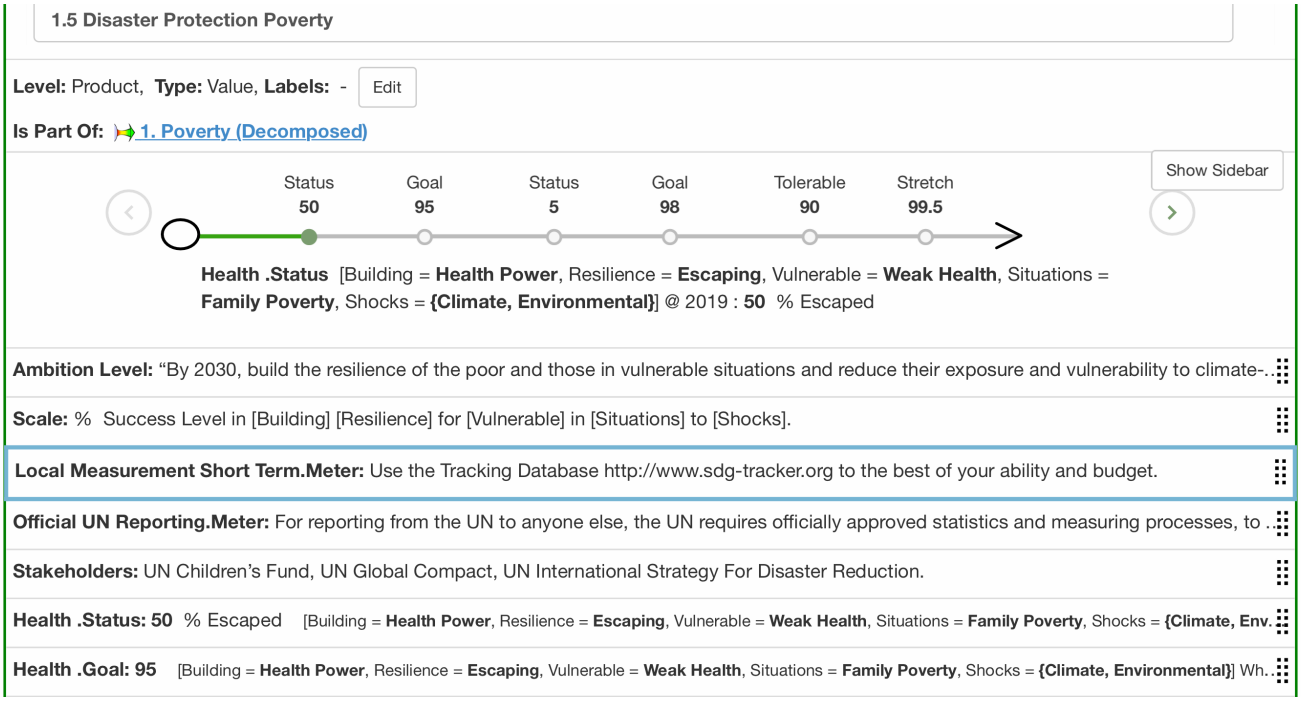

Figure 1.15 Meters: how we plan to measure results. See the 2 examples above, Local and Official. Both of which can measure on the defined Scale.

A defined Scale of measure defines our 'quantification' idea. But a **Scale** does not, and should not, define how we are going to actually measure, progress towards results.

We use the Planguage statement 'Meter' to specify and plan how we intend to measure progress towards our goals. There can be a need to have more than one type of Meter for different purposes.

Meters have a variety of qualities (accuracy, speed of measurement, confidentiality, security, respect, and more). Meters have a variety of costs associated with them. Some are practically free, some could be too expensive for purpose.

Designing your Meters requires consideration of these facts.

A Meter must be designed to measure what is defined by the Scale. This implies that the Scale definition must be agreed, and clear, before you can *seriously* detail your measuring process.

Sometimes it is good enough to use the meter to indicate that progress is probably being made, and it is not getting worse.

Sometimes you need to convince the world, the public, the politicians and the founders, that your efforts are worthwhile.

Chapter 2. *Background* Information About Sustainability Goals

What is the Goal specification *itself*?
And what *other* information about the Goal should we collect and make use of?

Figure 2.1 The '1.5 Disaster Protection Poverty' specification, enlarged with examples of even more 'Background Specifications'

Core Goals

The Core, or essential specification of a value objective, such as any of the UN Sustainable Development Goals, is the following:

1. The Scale of Measure
2. Any future performance level on that Scale (Wish, Goal, Tolerable, Stretch)

These statements are the essence of what we are after, the Stars. Everything else is the supporting cast.

We call everything else, 'Background Specification'

Background Specification

We add Background because it pays off. It has its uses. Background specifications should outweigh the effort to specify them.

In general the uses of background specifications, integrated into the objective, *added* to the Core specification are about the following project management processes: (some of which we will deal with in more depth later in this book)

1. Risk Management[10]
2. Priority Management[11]
3. Understanding Levels, Dependencies and Relationships[12]
4. Decomposition[13]
5. Quality Control and Quality Assurance[14]

(Hopefully these free private links will work, but in any case you can get the 'Value Planning' book for extensive detail. See. Book references)

Using the example Figure 1.16 above. Here are some simple samples, referring to only some of the specification parameters in the example above.

1. If we state known Risks, and Issues then there is an opportunity to mitigate them by planning
2. If we state the main critical Stakeholders, we can prioritize their needs.
3. If we state Dependencies, Stakeholders, and Assumptions we can understand the levels of concern above and below us, and decide to deal with them, early and up front, rather than reactively.
4. A Stakeholder list gives us an opportunity to decompose our efforts, by focusing on one priority stakeholder at a time.
5. Issues and Risks statements also warn us of potential *quality* problems, and to plan potential *mitigations*.

.

[10] Value Planning book, Chapter 7 Risk Management
https://www.dropbox.com/sh/fxvtya6gyvgwkfa/AAA5-vrLUt_z0h9EYt1ql3Uma?dl=0

[11] Value Planning book, Chapter 6 Prioritization
https://www.dropbox.com/sh/34llx1a7ckyagxl/AAA0pDzSxN5WmoP9lOKR0Mpca?dl=0

[12] Value Planning book. Chapter 3 Levels of interest
https://www.dropbox.com/sh/xbzn5s8imf9vla0/AAB8h-OFvQmJ_w3wNhrDxa9_a?dl=0

[13] VP Book. Chapter 5 Decomposition By Value
https://www.dropbox.com/sh/dc7v636m7w7vvgx/AABfMAW_FnJny23XZKQZQkF4a?dl=0

[14] VP Book.
Chapter 10 Quality Management
https://www.dropbox.com/sh/vjwybhqfxrvctk7/AAAdabECBSo5x-tSOI85R-1da?dl=0

In the UN Sustainable Development Goal specifications, a lot of this information is probably scattered in the large number of related publications, and in inaccessible and confidential places.

In Planguage we believe that important information needs to be collected, at least via URL Links, in *one single place*. Together with the Core Goals.

This information should be accessible to all Partners, and there are very many partners in this effort.

We go one step further. The Goals should exist, together with their Background specifications, in one single Master Version, updated, quality controlled, on the Internet, accessible to all valid approved partners. In this case the general public.

The specifications should be machine readable and intelligible, not merely text in documents, the machine should be able to understand exactly what it is reading.

The Planguage format with all Parameters standardized, and spelled out, is a pretty good start.

But machine intelligibility of databases can be done even better if we want to.

Right now this UN stuff is totally unstructured text. I do not think in this day and age that is good enough for an effort of this global scope. The whole point is that a great many partners constantly act on the Goals continuously. We need to enable that to happen. Enable the apps as it were.

One point worth making in the UN context is that well-defined structures, like Planguage, are a step in the direction of making the plans available in different languages.

There is no way we can use automatic translation of the Goals and Targets that I have seen and partly discussed in this book. They are unintelligible to humans, and translation will give 'Garbage Out'.

Planners should also be able to extract what they need currently, and present it with appropriate simplicity. For example 'just the Ambition Level'. We need not be overwhelmed by the large collection of information surrounding a single Goal.

Audiences and readers should be able to access more detail, as needed.

We need a better technical format to more-effectively work together over the long haul.

Maybe this is more than enough for many readers.

I hope you got my point about much clearer goals for sustainability projects.

This book will continue, for those readers who are ready for more such insights, or perhaps for you later, when *you* are ready. Keep this text around, and you will know when you are ready for more.

Imagine if *your* project, and the UN, had *really clear* objectives!

Maybe you cannot ditch school to protest against political inaction, but you can choose to make sure you have clear goals about critical world sustainability efforts? And if you don't, then I hope the kids will protest *your* inaction.

Other References

Note: as a rule detailed one-off references and their possible URLs will be given as a page footnote.

This list of references is for large complex sets of references which we may want to reference multiple times.

(A) Stakeholders.

Stakeholders
and their values
GilbFest 2017,slides
http://concepts.gilb.com/dl920

Paper:
Quantifying Stakeholder Values
INCOSe 2006
http://www.gilb.com/dl36

2016 Paper
Stakeholder Power:The Key to Project Failure or Success
including 10 Stakeholder Principles
http://concepts.gilb.com/dl880

(B). **"The Happy Project Saboteur**
Principles of Project Failure: How to sabotage a project, without anyone noticing you."
https://tinyurl.com/HappyITSaboteur (to Gilb Blog)
http://concepts.gilb.com/dl955 (to Gilb.com Library)
by Agent 20-7 Version 050619

(C) Mills, H. 1980. The management of software engineering: part 1: principles of software engineering. IBM Systems Journal 19, issue 4 (Dec.):414-420.
Direct Copy
http://trace.tennessee.edu/cgi/viewcontent.cgi?article=1004&context=utk_harlan

QUINNAN AND MILLS CLEANROOM
MIlls and Quinnan Slides
http://concepts.gilb.com/dl896
Excellent example of Early and great Value Agile 1970's!

(D) **HP**
Hewlett Packard Cases
HP Evo

AA. The Evolutionary Development Model for Software
by Elaine L. May and Barbara A. Zimmer
August 1996 Hewlett-Packard Journal
http://www.gilb.com/DL67

BB. Evolutionary Fusion: A Customer- Oriented Incremental Life Cycle for Fusion
by Todd Cotton
http://www.gilb.com/DL35

August 1996 Hewlett-Packard Journal

CC. RAPID AND FLEXIBLE PRODUCT DEVELOPMENT: AN ANALYSIS OF SOFTWARE PROJECTS AT HEWLETT PACKARD AND AGILENT (2001)
by
Sharma Upadhyayula
http://www.gilb.com/DL65

M.S., Computer Engineering University of South Carolina, 1991
And
Massachusetts Institute of Technology
January 2001

DD. Best Practices for Evolutionary Software Development
by
Darren Bronson
http://www.gilb.com/dl825

57 pages., 1999.

URI: http//hdl.handle.net/1721.1/80490

(E) DPP
Mays and Jones IBM SJ paper on Experiences
http://agileconsortium.pbworks.com/w/file/fetch/1527643/
Mays1990ExperiencesDefectPreventionIBMSysJ.pdf

(F) Raytheon Paper (2019 link)
https://figshare.com/articles/
Raytheon_Electronic_Systems_Experience_in_Software_Process_Improvement/6582863
DPP Experience.

(F) POWER TO THE PROGRAMMERS
“Power to The Programmers”, as held Krakow ACE Conference June 2014
Video: http://vimeo.com/98733453

Slides at Conference Prague
HTTP://CONCEPTS.gilb.com/dl841

(G) **Intel and Terzakis**
Intel Planguage Experiences
AA. Intel Report on SQC (Gilb methods used here <- E Simmons)
The Impact of a Requirements Specification on Software Defects and Other Quality Indicators by jterzakis@verizon.net
http://selab.fbk.eu/re11_download/industry/Terzakis.pdf
(SLIDES)

BB. Intel Experience with Planguage and SQC 2011
Erik Simmons, Intel, 2011, 21st -Century Requirements Engineering: A Pragmatic Guide to Best Practices, Erik Simmons PNSQC 2011 (Pacific Northwest Software Quality Conference)
http://www.uploads.pnsqc.org/2011/slides/Simmons_21st_Century_Requirements_slides.pdf

CC. This link gives Terzakis full Rio 2013 paper (Gilb annotated) and slides.
https://www.dropbox.com/sh/cs9hke3uvgg4gp3/AACadHeI95lZpHzVqGKXSXDra?dl=0

(H) **An (Other) geographical critique of development and SDGs**
Farhana Sultana
Syracuse University, USA

Dialogues in Human Geography
2018, Vol. 8(2) 186–190

DOI: 10.1177/2043820618780788 journals.sagepub.com/home/dhg

Geographers should engage with development and the Sustainable Development Goals (SDGs) by utilizing not only the theoretical and methodological tools from our various subfields but also through advocacy, expanding the role of public intellectuals and holding institutions and people to account. If we want emancipatory politics and transformations in development, we need to challenge and improve what is done in the name of SDGs, keeping central the issues of social justice and ethical engagement. This is perhaps the most critical thing geographers can undertake going forward in order to dismantle the master's current house.

"Liverman identifies some of these aspects of geographical contributions, as well as the importance of demonstrating the fallacy of relying heavily on quantifiable indicators, measurements, and aggregation, which the SDG suffers from, albeit less than the MDGs. Indeed, one of the aspects of the SDGs (in comparison with the MDGs), from the perspective of its proponents, is that the SDGs avoid the over- simplification, quantitative-driven, and simplistic goals of the MDGs. However, the 17 goals and dozens of targets are fuzzy, ambitious, often un-implementable and contradictory, and perhaps even hubristic. While the SDGs are supposed to be aspirational, they're open to interpretation, cap- ture, and subject to abuse by those with power. Also, the SDGs are supposed to be transformative, but exactly how that may be is still unknown."

(l) **Professsor Mitu Sengupta**
"Transformational Change or Tenuous Wish List? A Critique of SDG 1 ('End Poverty in All Its Forms Everywhere')"

Socialalternatives.com, ISSN: 0155-0306,Vol. 37:1 2018

TSG copy file "soc_alt_vol_37_1_small.pdf" (in Others Papers, Sustainability"

from the paper:
"The SDGs may be critiqued in several different ways. We may ask, for example, whether the giant sprawl of 17 goals and 169 targets that comprise the new agenda are actionable; about the types of policies and laws that they will spawn. We may ask questions about the process through which they were created; about whose voices were dominant and whose, perhaps, were left out. All of these are good questions. In this article, however, I will evaluate the SDGs – with a focus on SDG 1 ('end poverty in all its forms everywhere') – against the standard that is set out by its own authors. Based on a close reading of the goal, I will ask whether SDG 1 does, in fact, present a 'supremely ambitious' vision of a world without poverty, especially in light of what we know about poverty today and the means to eradicate it, and also in light of Agenda 2030's professed commitment to human rights.
I argue that SDG1 merits praise for making some clear advances over the MDGs' flagship poverty goal (MDG 1). However, the politically cautious language through which it is expressed puts at risk any genuinely 'transformational' visualisation of the future." *page 12.*

"Reflections on Sustainable Development Goals from the Perspective of Developing Countries: Transformative Change or Business as Usual?" In India's Social Sector and Sustainable Development Goals (SDGs): Critical Reflections, ed. R. Govinda. New Delhi: Routledge (forthcoming).

Ryerson University, Toronto, Canada. She has a PhD in Political Science from the University of Toronto, and a Master of Arts and Bachelor of Arts (Honours) in Political Science from McGill University.

(J) Jason Hickel
"The contradiction of the sustainable development goals: Growth versus ecology on a finite planet"

Sustainable Development. 2019;1–12. wileyonlinelibrary.com/journal/sd

Department of Anthropology, Goldsmiths, University of London, London SE14 6NW, UK
Correspondence
Jason Hickel, Goldsmiths, University of London, Department of Anthropology, London SE14 6NW, UK.
Email: jasonhickel@gmail.com

Abstract
"There are two sides to the Sustainable Development Goals (SDGs), which appear at risk of contradiction. One calls for humanity to achieve "harmony with nature" and to protect the

planet from degradation, with specific targets laid out in Goals 6, 12, 13, 14, and 15. The other calls for continued global economic growth equivalent to 3% per year, as outlined in Goal 8, as a method for achieving human development objectives. The SDGs assume that efficiency improvements will suffice to reconcile the tension between growth and ecological sustainability. This paper draws on empirical data to test whether this assumption is valid, paying particular attention to two key ecological indicators: resource use and CO2 emissions. The results show that global growth of 3% per year renders it empirically infeasible to achieve (a) any reductions in aggregate global resource use and (b) reductions in CO2 emissions rapid enough to stay within the carbon budget for 2°C. In other words, Goal 8 violates the sustainability objectives of the SDGs. The paper proposes specific changes to SDG targets in order to resolve this issue, such as removing the requirement of aggregate global growth and introducing quantified objectives for resource use per capita with substantial reductions in high-income nations. Scaling down resource use is also the most feasible way to achieve the climate target, as it reduces energy demand. The paper presents alternative pathways for realizing human development objectives that rely on reducing inequality—both within nations and between them—rather than aggregate growth."

(K) Article

Access or Accessibility? A Critique of the Urban Transport SDG Indicator

Mark Brussel 1, , Mark Zuidgeest 2, Karin Pfeffer 1 and Martin van Maarseveen 1*
1
Faculty of Geo-information Science and Earth Observation, University of Twente, PO box 217,
7500 AE Enschede, The Netherlands; k.pfeffer@utwente.nl (K.P.); m.f.a.m.vanmaarseveen@utwente.nl (M.v.M.)
Faculty of Engineering & the Built Environment, University of Cape Town, Private Bag X3, Rondebosch, 7701 Cape Town, South Africa; mark.zuidgeest@uct.ac.za
2
** Correspondence: m.j.g.brussel@utwente.nl; Tel.: +31-53-487-4497*
Received: 28 November 2018; Accepted: 27 January 2019; Published: 30 January 2019

Abstract:" Progress towards the UN Sustainable Development Goals (SDGs) is being evaluated through the use of indicators. Despite the importance of these indicators, the academic community has done little in terms of a critical reflection on their choice, relevance, framing and operationalization. This holds for many SDG domains, also for the urban sector domain of target 11. To partially address this void, we aim to critically review the UN methodology for the urban access indicator, SDG indicator 11.2. In discussing its conceptual framing against the background of paradigm shifts in transportation planning, we argue that this indicator has a number of shortcomings. The most important one is that it is supply oriented and measures access to transportation infrastructure, rather than accessibility to activity locations. As an alternative, we develop two accessibility indicators that show substantial variation in accessibility across geographical areas. We implement all indicators for the city of Bogotá in Colombia, using a geo-information based approach. Our results show that SDG indicator 11.2 fails to represent the transport reality well. Its supply oriented focus neglects transport demand, oversimplifies the transport system and hides existing inequalities. Moreover, it does not provide useful evidence for targeting new interventions. The proposed accessibility indicators provide a more diverse, complete and realistic picture of the performance of the transport system. These indicators also capture the large spatial and socio-economic inequalities and can help to target improvements in urban transportation."

Tom Gilb file ID: ijgi-08-00067.pdf

(L) ***Making the sustainable Development Goals consistent with sustainability***
Mathis Wackernagel, mathis.wackernagel@footprintnetwork.org*
Laurel Hanscom and David Lin
Global Footprint Network, Oakland, CA, United States

"The UN's Sustainable development Goals (SDGs) are the most significant global effort so far to advance global sustainable development. Bertelsmann Stiftung and the sustainable development solutions network released an SDG index to assess countries' average performance on SDGs. Ranking high on the SDG index strongly correlates with high per person demand on nature (or "Footprints"), and low ranking with low Footprints, making evident that the SDGs as expressed today vastly underperform on sustainability. Such underperformance is anti-poor because lowest-income people exposed to resource insecurity will lack the financial means to shield themselves from the consequences. Given the significance of the SDGs for guiding development, rigorous accounting is essential for making them consistent with the goals of sustainable development: thriving within the means of planet Earth."

Citation:
Wackernagel M, Hanscom L and Lin D (2017) Making the Sustainable Development Goals Consistent with Sustainability. Front. Energy Res. 5:18. doi: 10.3389/fenrg.2017.00018

www.frontiersin.org

T Gilb file ID: Making_the_Sustainable_Development_Goals_Consisten.pdf

Appendix. Additional Examples from UN SDG

Goal 9: Quantification and clarification example.

The following examples were the result of about a 1 hour exercise with my professional friend in the Construction Industry in Norway, Håkon . hakon.reisvang@i4technology.no

Figure App G9.1 UN Value Goal 9 Industrialization and Innovation has 3 quite distinct sub-values. Innovation and 2 others. So in our process to clarify and quantify G9 we decomposed into those 3 different sub-values. One of them, 'Foster Innovation', is what we decided to define first, and in detail, in the examples below.
The –> arrow is an icon for a value, which varies along a scale of measure.

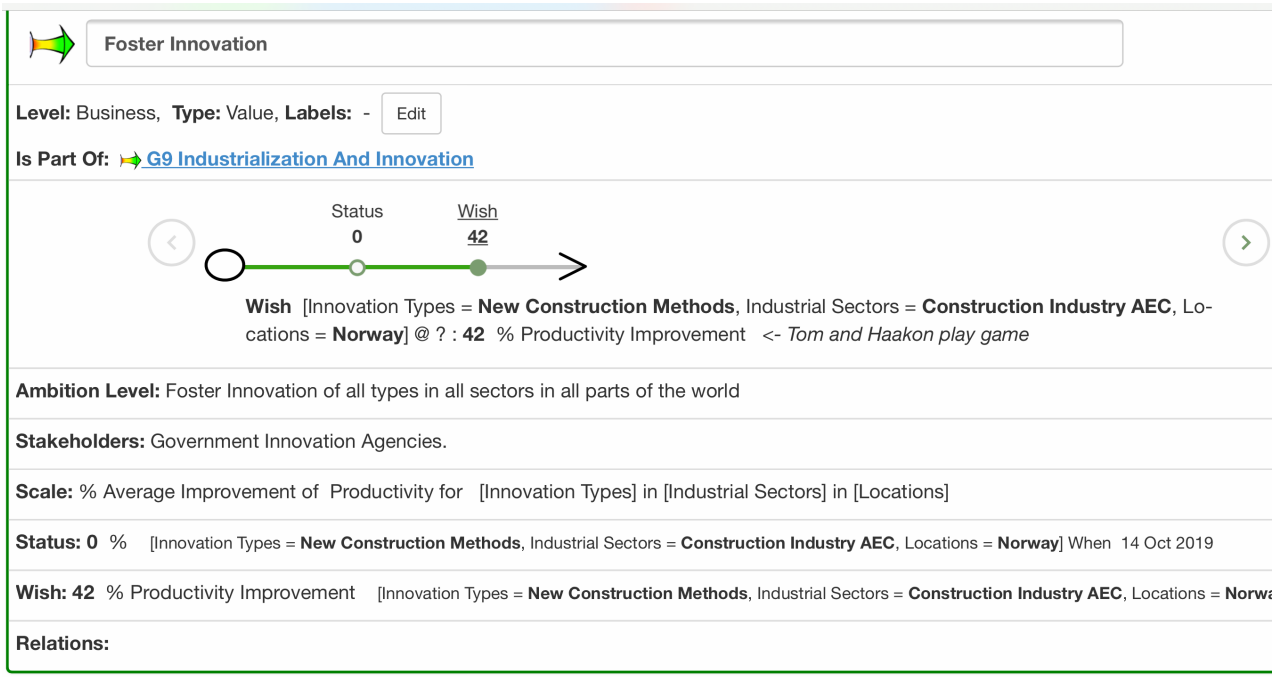

Figure App G9.2. The 1-line summary of the G9 sub-goal 'Foster Innovation'. Details of some of the 1-liners are in the figures below.

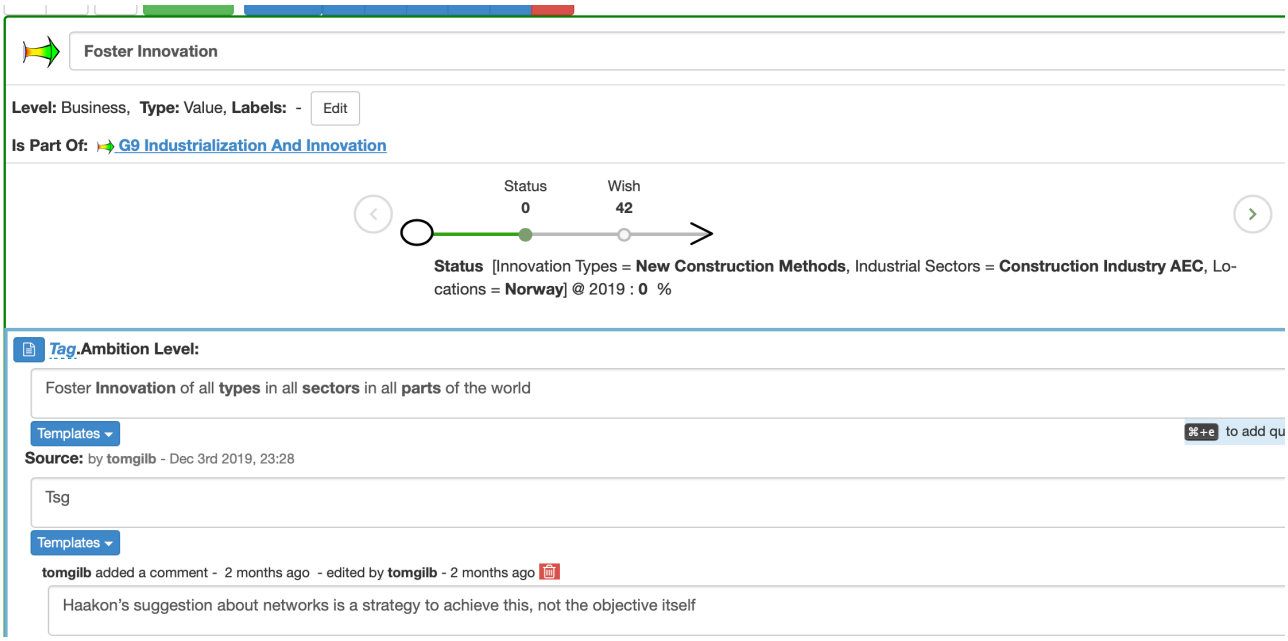

Figure App G9.3 The Ambition Level statement is analyzed, by highlighting in bold, certain dimensions or aspects of the ambition level.

Like 'types', 'sectors', and parts'.

These are then used to define Scale Parameters (Innovation Types, Industrial Sectors, and Locations).

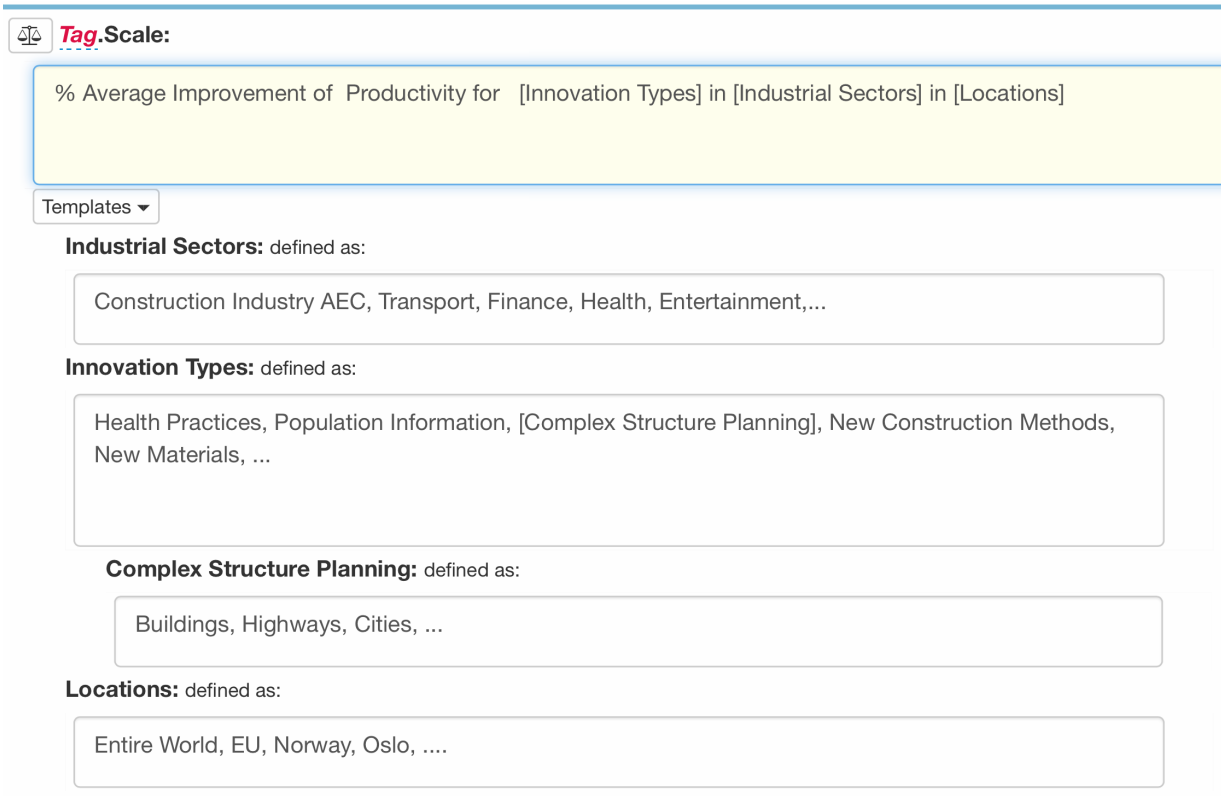

Figure App G9.4 The detailed definition of the 3 Scale Parameters.

Each one is defined as a set of Scale Parameter Conditions (like EU, Norway, ...). These can be easily enhanced as we gradually realize we need more conditions to model our future reality.

Notice the second level definition of [Complex Structure Planning].

The ... means we are just sketching an example, and if we had more time and insight we expect this set of conditions would be longer. But we do not have time in this quick example. '...' reminds people we are not pretending completeness.

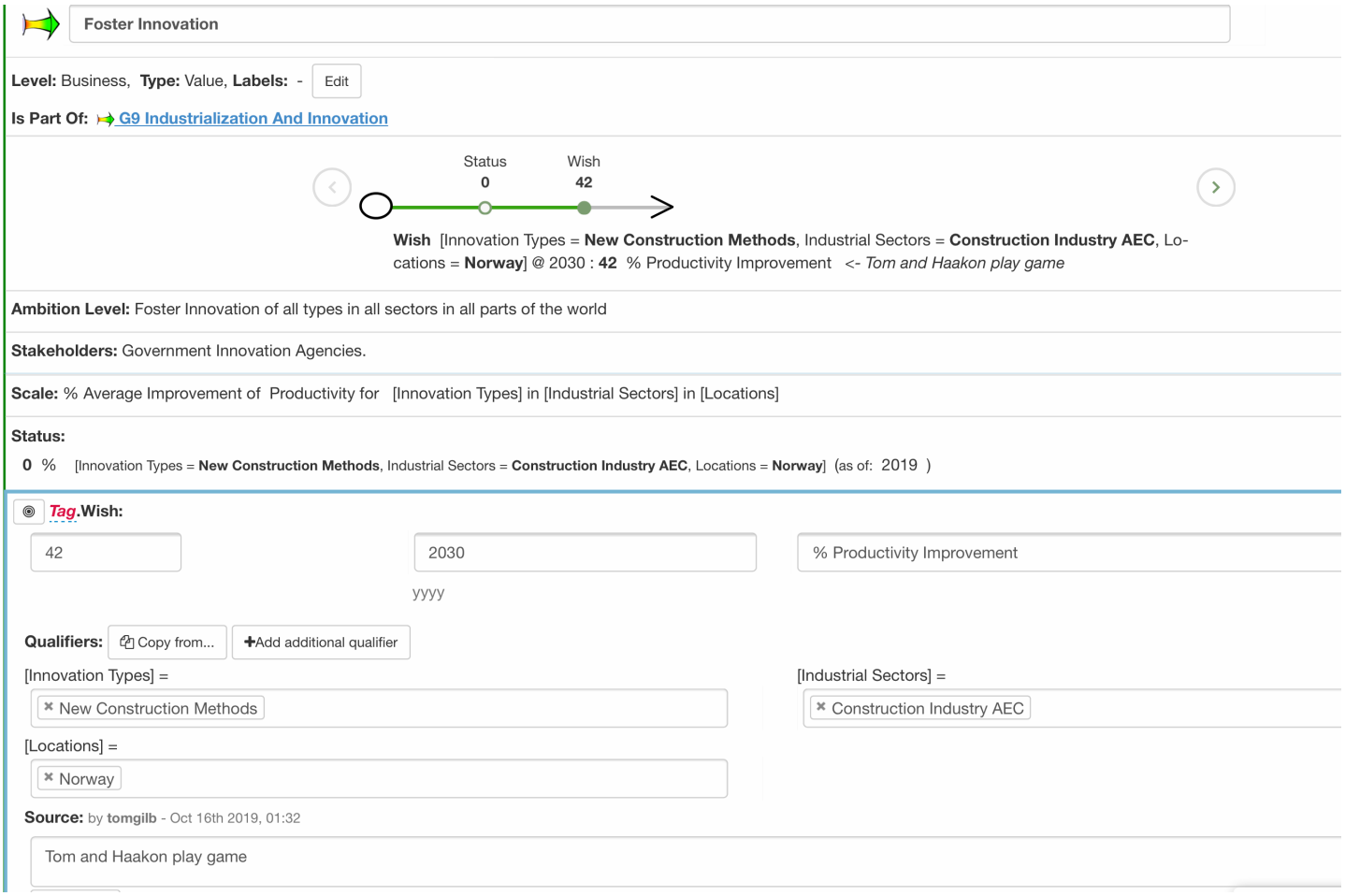

Figure App G9.5 : The Wish statement, specifies a particular level of goal value improvement (42% productivity improvement), at a particular time or deadline (2030), for the following Scale Parameter Conditions (New Construction Methods, Construction Industry AEC, and Norway).

This is a practical example of defining a clear goal. Narrow dimensions ('Norway'), quantified goal levels, and a deadline.

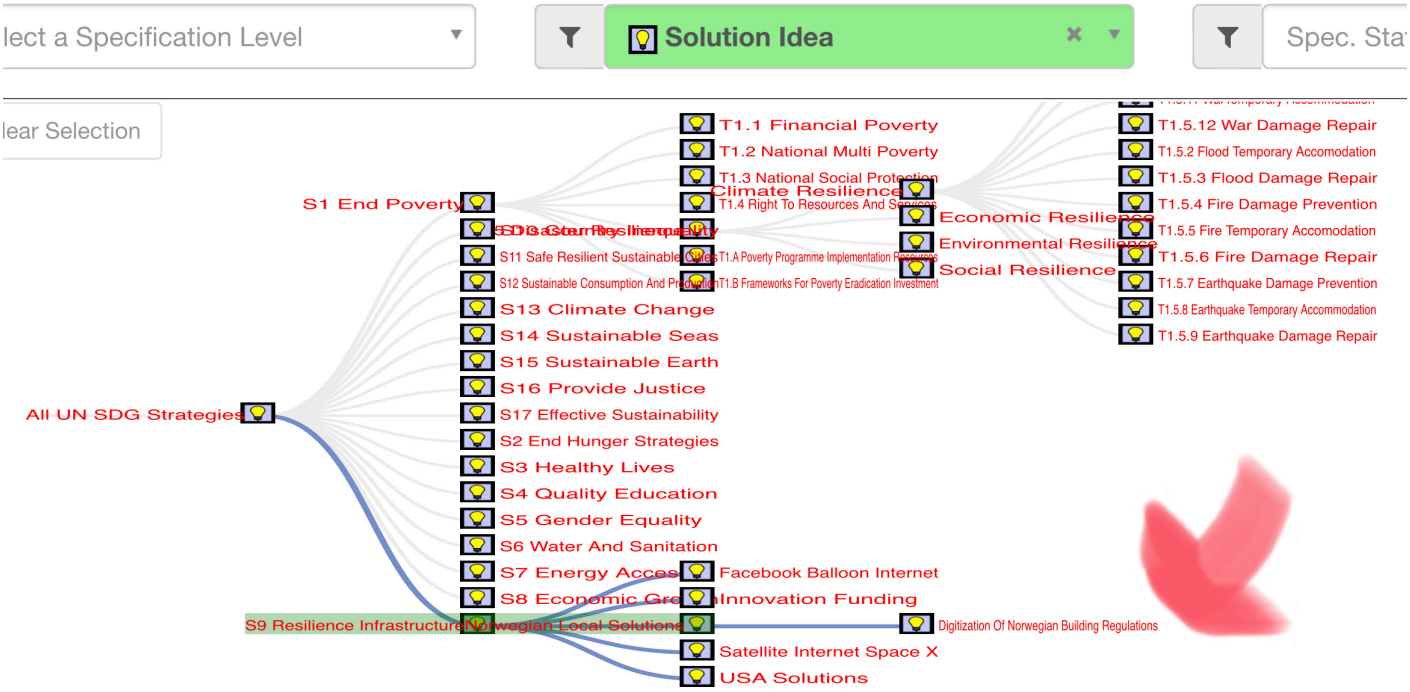

Figure App G9.6 Strategies for reaching the goals.

During the Wish formulation (Fig. App G9.5 above) and at the moment we narrowed down to 'Norway', Håkon told me that the Norwegian Construction National Official Rules were of an essentially different nature from USA rules. It became obvious that in order to deliver the Wish for Norway, we were going to need to digitize the Norwegian Rules.

This solution recognition was a bit early. We were just formulating one narrowed-down objective. But, rather than putting such decisions off until later, during strategy planning, I decided to capture it in the strategy set of ideas above, along with a few other things Håkon (local expert stakeholder for Norwegian Construction Industry) told me might be good strategies (Facebook Balloon Internet, Innovation Funding, Satellite Internet, and distinctive USA Solutions.

This is a form of 'brainstorming' ideas. We are not finally committed to them. But we are not going to forget about them either. They are until rejected, glued into the planning model.

At some point we need to detail these strategy ideas, and evaluate their necessity, and their relative cost-effectiveness, and riskiness. Then we can decide which ones to do, and which ones not to do.

The main task initially is clear and well-structured goal statements, which we can evaluate strategy ideas against.

During our session, about an hour, Håkon kept throwing in technical solutions in[52]. I had to keep reminding him that it was premature to suggest any technical strategy or solution unless we had, *both* clarified the critical goals, ***and*** also gotten agreement from the powers that be, that these goals were agreed upon by them. Something they could only realistically do if the goals were quantified, structured and unambiguously clear.

[52] almost everybody makes this mistake, as Einstein remarked. But I know Håkon recognized the logic of 'clear goals, THEN evaluate solutions' during this 1 hour session.

Last Page of the Book Itself.

Book Versions and Editing Notes

020919: Started drafting at Digerud Cabin after discussions with Pawel Nowak, who suggested the idea of the book, in order to improve sustainability planning.

130910 I seem to be done with my first complete draft of the book. Now I need to release it and get feedback to do more. 5th book this Summer too (5 in 2018).

180919 Added Sustainability papers, critical of the Goals, via Cecilia Haskins Other references H I J K, L etc., and a paragraph in the one page overview referring to the 5 references and explaining this book´s special role (clarification methods for goals before discussion of the goals)

151019 Added Goal. 9 examples in appendix . Minor word edited (eliminate hyphens)

031119 Major reread and edit of the text by Tom (about 300 changes, and adding Annas new scale parameter diagram