

Assessment of Cumulative Effects

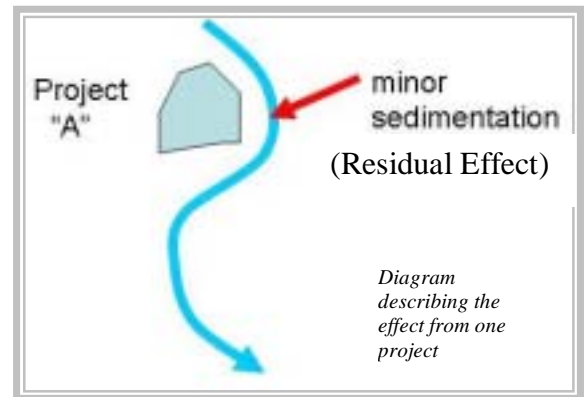
The combined impacts that accumulate from a series of similar or related individual actions, contaminants or projects

The *Yukon Environmental and Socio-economic Assessment Act* requires that assessors consider the significance of cumulative effects, when conducting an assessment of a project. Working within the context of the Act, assessors will be concerned with how the effects of a project may combine with effects of other projects and activities.

Though the Act does not provide a definition of cumulative effects, the concept is understood to be the combined environmental or socio-economic impacts that accumulate from a series of similar or related individual actions, contaminants, or projects. Although each action may seem to have a small impact, the combined effect can be significant.

Residual Effects

Residual effects are the effects that remain as a result of a project, after mitigation is in place. For example, a project may have several strategies to reduce overall surface runoff of sediment into a nearby stream. Even with these mitigations in place, a small amount of sediment may still enter the stream; this is a residual effect. Typically, residual effects associated with individual projects that have undergone assessment will have insignificant or negligible adverse environmental or socio-economic effects. In isolation, the residual effects of projects do not typically pose a risk of concern to the local environment or residents.



Multiple Residual Effects

When there are multiple effects impacting the same value, there is a greater risk of those effects interacting with each other and resulting in a cumulative effect. There are instances where several residual environmental effects occur within the same area. This is common in areas that are resource-rich and set within a particular geography (e.g. placer mining on specific rivers and creeks near Dawson). Multiple residual effects can also result in socio-economic effects. They typically occur within communities, subdivisions or other population centers that are experiencing or undergoing change.



Combining of Multiple Residual Effects

Residual effects can combine in one of two ways:

1) Additive effects are more common and better understood. An example is the additive concentration of sediment in a stream, which may have an impact on downstream spawning habitat (see diagram to right). With additive effects, the effect is equal to the sum of its parts (i.e. cumulative effect = a + b + c).

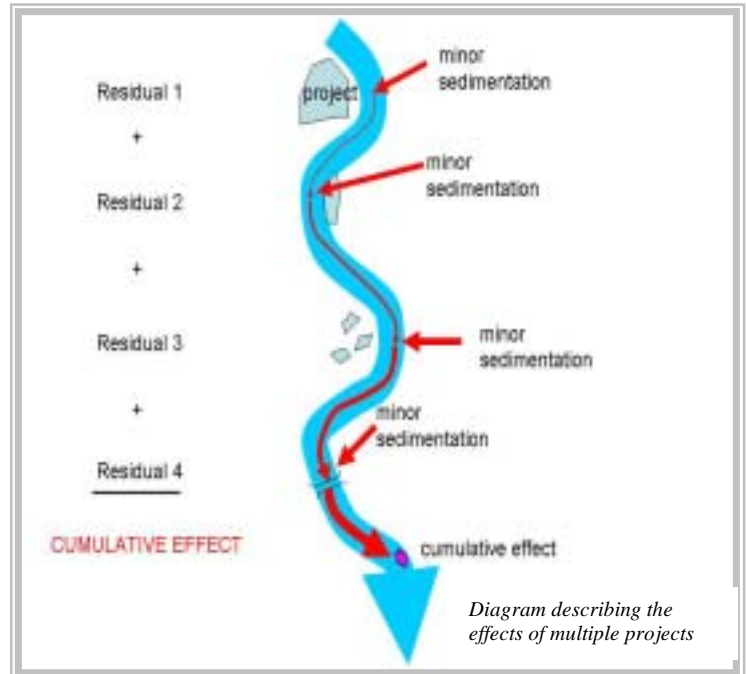
2) Some cumulative effects occur so that the effect is different than the sum of its parts. For example: (chemical a) + (chemical b) = (chemical c). These effects can often be harder to predict and measure.



Significance

It is the job of assessors to identify cumulative effects (i.e. the combining of residual effects) that may occur in relation to a project, and determine whether the effects are significant or not. If the assessor determines that there will likely be a significant cumulative effect as a result of a project after mitigation, a recommendation that the project not proceed will be developed. If no significant cumulative effects are expected, the assessor will recommend the project proceed (assuming no other significant effects have been identified).

The assessment of cumulative effects is best accomplished through the participation and sharing of information between concerned members of the public, experts, regulators and government decision bodies.



Further Information

YESAB is developing a document entitled *Yukon Environmental and Socio-economic Assessment Act – Guidelines for the Assessment of Cumulative Effects*.

Concise guides for proponents and the public will also be prepared and made available to all.

