

## Asset Integration Checklist

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## 04 Asset Integration Checklist

Integrated restoration projects and integrated revitalization programs integrate along two axes: 1) The twelve sectors of restorable assets, and 2) the four stakeholder groups (business, government, NGO/citizen groups, and academic). The Integrated Revitalization Guide offers two checklists to help strategists, designers, and planners quickly and easily ensure the maximum level of integration along both of these axes.

The Stakeholder Integration Checklist helps integrate stakeholder groups. With effective integration, a revitalization program should be less vulnerable to being held hostage to any particular stakeholder group, such as changing political regimes/agendas.

The Asset Integration Checklist (below) integrates the twelve sectors, by identifying three key factors for each of the sectors. Every project (new and restorative) should be audited according to these 36 factors to ensure that, wherever possible, each contributes to the restoration of other sectors affecting that community's or region's revitalization. There are three primary goals to this integration:

1. Create synergies among the component projects. This connection-building function helps ensure that your revitalization program achieves maximum efficiency from your restorative investments. For instance:
  - Let's say you're planning the restoration of a century-old urban industrial building. If it's on a contaminated site, you'll obviously be integrating two sectors: Historic and brownfield. A far less obvious agenda would be watershed restoration: Many urban projects don't consider that they are part of a watershed. But, as you audit your project according to the 24 factors below, you come across factor W1, which is "increasing the quantity and quality of the water recharging the aquifer." You realize that you can do this via permeable paving in your parking lot, and by putting a "green" (planted) roof on the building. Voila! Your historic/brownfield restoration project is now integrated with the regional watershed restoration program.
  - Let's say your watershed is in need of restoration. The Ecosystem factors will help you avoid planting it with a monoculture of exotic, fast-growing trees that provide little or no shelter or food for wildlife (and will also lead to restoring the streams in a way that increases fish populations, thus stimulating tourism). The Agriculture factors might lead to planting the watershed with a high proportion of native fruit and nut trees. Besides increasing food for wildlife, this renewed "wild edibles" resource can produce unexpected economic and cultural benefits.
  - One of the primary factors that attracts tourists to an area is the chance to sample unique local cuisine, and "recipes from the past". Rural residents could harvest these fruits, berries, and nuts, turning them into traditional food items (breads, deserts, etc.) that can be sold to local restaurants, at roadside stands, or even by mail via websites. [Visit the Amish communities of Pennsylvania to see this in practice.]
  - Another benefit of this approach is that many nut trees produce extremely valuable wood, which can stimulate the renewal or expansion of a local woodcrafting industry. This value-added approach helps the area achieve maximum income from their natural resources, rather than simply selling raw materials (like lumber) to be turned into consumer products elsewhere. What's more, the high value of the trees makes selective harvesting economically viable, thus preventing future clearcutting and concomitant watershed damage.
2. Create effective phasing for your revitalization program. This sequencing function helps ensure that all projects are funded, and that they executed in the best possible order. This is important because small-but-essential projects are often shunted aside by huge ones (and eventually forgotten), and because the successful restoration of one asset often depends on the restoration of another.
  - An example of the former problem might be a project to restore an oyster reef or a bed of submerged aquatic vegetation (SAV), which might cost only a few thousand dollars. It's easy for such projects to be shoved aside and eventually

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forgotten during an estuary restoration program, when the most critical project is a \$500 million-dollar renovation of the metropolitan area's stormwater/sewer system. But without such small projects, the estuary isn't likely to ever to be restored to the desired level of water quality and biological diversity.

- An example of the latter problem would be if the above-cited estuary restoration program decided to do the oyster reef and SAV programs first, because the funding for the sewage system renovation hadn't come through yet, and the estuary restoration program managers wanted to have something useful to do with the little money that's available. This would seem to be good news at first, since it means the "little programs" won't be delayed and forgotten. But what if it was primarily the raw sewage discharges from the antiquated combined stormwater/sewage system that killed the oysters and seagrass in the first place? Does it make sense to try to re-establish the oysters and SAV before that situation is remedied?
3. Create relevance, or "alignments of interest" among diverse stakeholders. There is a separate Stakeholder Integration Checklist in this Integrated Revitalization Guide. However, the 36 factors that integrate the renewal of your various built and natural assets can also help multiple stakeholders perceive how the renewal of assets with which they normally don't concern themselves can help them achieve their own agendas.

## The 36 Integrating Factors

### Natural Assets

#### Ecosystem sector:

NE1: Increase native biodiversity.

NE2: Increase ecosystem connections (decrease landscape fragmentation).

NE3: Increase quantity/quality of habitat (adding protected areas, removing invasives, etc.).

#### Innovation Factors:

INE1:

### Watershed sector:

NW1: Increase quantity and quality of water recharging the aquifer.

NW2: Increase cloud formation and quality of water flowing out of the watershed (increase tree cover, decrease erosion, etc.).

NW3: Increase quantity and quality of water available for local use by humans and wildlife.

#### Innovation Factors:

INW1:

### Fishery sector:

NF1: Increase water quality in estuaries, reefs, coastal, and riparian zones.

NF2: Decrease unsustainable harvesting techniques/locations/quantities.

1. Increasing alternative sources of food/employment--such as through restorative agriculture--is one possible approach.

NF3: Increase quantity and quality of breeding habitat: Streams/rivers (e.g. dam removal), coastal wetlands, reefs, etc.

#### Innovation Factors:

INF1:

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## Agricultural (farming/ranching/aquaculture) sector:

[ ] NA1: Increase quantity & quality of topsoil / decrease loss of resources (soil, water, nutrients, etc.) to runoff, wind, etc.

1. One measurement of soil quality would be biodiversity of soil community. This measure has the advantage of discouraging unsustainable quantities or types of pesticide/herbicide/fertilizer.
2. These factors will drive farmers/ranchers towards crops that require fewer inputs and less soil disturbance, such as fruit and nut trees, berries, etc.

[ ] NA2: Increase native pollinators. This is achieved via habitat restoration in buffer zones, and by discontinuing use of unnecessary and/or inappropriate pesticides.

1. Besides increasing wildlife habitat, this has the bonus of addressing the current ear mite crisis in the honeybee industry: As commercial pollinator services are less able to serve the needs of farms and orchards, native flies, bees, ants, birds, butterflies and other pollinators become crucial to successful crops.

[ ] NA3: Increase crop diversity and value. This provides a revenue model that better supports smaller, family-owned farms, which helps cut down on landscape fragmentation as these farms are sold for residential and commercial development. This will often involve the restoration of “heritage crops and breeds” that are on the verge of disappearing. Both factors tend to:

1. Drive farmers/ranchers away from over-dependence on growing monoculture crops for raw materials to be sold in bulk to middlemen at very low prices.
2. Drive farmers/ranchers towards high-income crops (such as organic produce, closed-system aquaculture, etc.) that can be sold at higher prices into local markets, and/or processed on the farm for the end user, which adds even more value.
3. In post-catastrophe situations, “increasing crop diversity” often means restoring the diversity of crops that were grown immediately prior to the catastrophe (such as war). Too often, post-catastrophe rebuilding efforts take the easy way out, importing readily-available (on the open market) non-traditional seed that is not adapted to local conditions and/or not supportive of cultural heritage. Proper restoration of agricultural economies often involves the more labor-intensive process of collecting localized seed from farmers and/or seed banks. National seed banks should establish backup repositories outside of the country, since they are often destroyed or looted during conflicts.
4. Integrated catastrophe restoration strategies should take measures to prevent further damage to agriculture, such as providing bottled gas to prevent the destruction of orchards for emergency firewood, distributing food rapidly enough to avoid the consumption of seed supplies by a desperate populace, etc.

### Innovation Factors:

[ ] INA1: Restoring appropriate agricultural functions to an environment (such as urban) where they are rare or absent. Example: Setting up nurseries for native plants to supply a large-scale, ongoing environmental local restoration effort. These nurseries could be designed to serve at least four functions: economic (the plants have to be bought somewhere: these nurseries could provide local employment, possibly for elderly, disabled, or disadvantaged populations); biological (large-scale restoration projects often have difficulty obtaining native seedlings at the right times or in the right quantities); aesthetic (the nurseries could add greenspace to an urban environment); and educational (the nurseries could help educate students and the general public about the issue of native vs. invasive plants).

## Examples of Integration with other Sectors:

- Integrating Agricultural Restoration with Catastrophe Restoration: In post-catastrophe situations, rapid restoration of employment opportunities and entrepreneurial activities is essential to reestablishing social stability (factor C3). However, disaster aid often undercuts local agricultural economies by disrupting normal food production/distribution, and by introducing non-traditional crops. One method of rebooting local agricultural economies is by supplying starter seed and temporary economic support to small-scale farmers who will grow crops purely for the production of seed, rather than food, since native/localized seed is often in short supply following cataclysms. This helps rebuild stable rural economies while simultaneously restoring proven, traditional, appropriate practices. It also helps avoid further disruption of local economies via excessive food imports.

## Built Assets

### Brownfield sector:

- [ ] BB1: Increase ratio of private to public funding of brownfields. This is an indicator of the level of integration of the public and private sectors in the redevelopment process.
- [ ] BB2: Maximize diversity of potential land use for former brownfields. This is an indicator of the degree of decontamination, since the cleaner the property becomes, the broader the spectrum of potential uses.
- [ ] BB3: Implement institutional controls (such as deed restrictions) or engineering controls (such as a landfill cap). These controls help prevent recontamination, and/or help reduce impact of residual contamination. Ideally, the project would also contribute to the implementation of a local institutional control program, or help advance / improve the quality of such a program.

### Innovation Factors:

- [ ] IBB1: Remediation technologies using non-toxic and/or non-fossil-fuel energy sources (such as phytoremediation). These are more desirable than those technologies that contribute to new pollution, depletion of non-renewable resources, air pollution, and/or global climate change.
- [ ] IBB2: Design/build/operate: Vertically-integrated projects, where the remediator and the redeveloper (and maybe even the ultimate tenant) are one and the same, there is more ability to ensure that the property is reused in a way that doesn't recontaminate it if institutional controls have not been implemented.

### Infrastructure sector:

Note: Despite the disparate nature of the many subsectors of infrastructure (power, transportation, water, sewer, solid waste, telecommunications), we've attempted to identify 3 measurable aspects that would apply to all of them, since all forms of infrastructure share the characteristic of facilitating flows. If these work, we will flesh-out restorable assets for each of the subsectors in future iterations of the IR Guide.

- [ ] BI1: Increase infrastructure integration.
  1. Examples include integrated water/sewer management (to eliminate combined sewer overflow, increase water reuse, etc.), running power and telecommunications lines through water and sewer pipes, etc.
- [ ] BI2: Decrease lifecycle costs. This motivates the redesign of inefficient infrastructure systems and the use of leading-edge technology, rather than merely renovating old designs.
- [ ] BI3: Decrease pollution from infrastructure use/operation. Transportation, water, sewer, power, and solid waste infrastructure all have significant air, water, and/or ground pollution impacts. Restoring them should reduce these emissions.

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**Innovation Factors:**

[ ] IB11:

**Heritage sector:**

[ ] BH1: Increase property value and productive economic activity (jobs, housing, tax revenues, etc.)--and that of surrounding properties--via restoration and/or adaptive reuse of authentic historic structures and properties. This increases the capacity of the built environment you already possess, in a way that does not necessitate the creation of new infrastructure (though it might necessitate infrastructure renewal).

[ ] BH2: Increase use of--and awareness of--existing restored or renovated structures or properties of cultural or historic value. This reconnects the renewed properties you already possess with social and economic functions, enhancing their value, while often stimulating renewal of other nearby assets (infrastructure, parks, etc.). Most properties that are being redeveloped or renewed have a story: That story--as well as the restoration process--should be dramatically interpreted for the public, thus enhancing their appreciation of both the property and the investment in its renewal.

[ ] BH3: Ensure that the design of new structures enhances the historic character of the place, and location of new structures enhances value/use of historic areas.

1. The former can be accomplished by adopting the architectural vernacular, or by contrasting with it in a harmonious manner. The goal is a pleasing aesthetic that feels authentic for the area, not simply the construction of “fake heritage”: New buildings which mimic old ones, thereby (possibly) detracting from their unique value, while (possibly) contributing to a sameness that stifles an area’s evolution and robs it of vitality.
2. The latter can be accomplished by locating the new structure where it will make historic structures/neighborhoods more viable, by increasing the quantity and/or quality of the traffic in the area (pedestrian normally preferable, vehicular if that’s what’s needed).

Note: As with most of these linking factors, if there are aspects of the project that cause a devitalizing effect--such as locating a new structure where it will draw people away from a historic downtown--then this “checkoff” is effectively nullified.

**Innovation Factors:**

[ ] IBH1: Extra value if the project is instrumental in helping the community remove/modify zoning, codes, and other local requirements that inhibit adaptation of historic structures for new uses.

1. Look at the impact of seismic codes, fire codes, etc. on older buildings and their use.

**Catastrophe Sector:**

Includes use of revitalization programs to prevent catastrophic community decline; use of natural or manmade catastrophes to stimulate redevelopment (such as technological leapfrogging of infrastructure, community redesign, etc.); use of potential economic catastrophes (such as military base closure) to stimulate revitalization; recovery from armed conflict; etc. The goal here is integrated catastrophe restoration: Too often, disaster recovery efforts focus almost exclusively on physical (usually urban) infrastructure. While this is--in fact--usually the most critical need, catastrophe revitalization efforts often miss their target by forgetting (or under-funding) restoration efforts related to rural needs in general, and social / environmental aspects in particular.

[ ] BC1: [SILVER LINING EFFECT] Catastrophe recovery/reconstruction designers take the time to research ways in which the catastrophe could be used to correct long-standing problems that were inhibiting revitalization prior to the catastrophe. Examples:

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1. Between 1950-1980, many major highways were built along industrial waterfronts. With the decline of industrial use of waterfronts--and the corresponding waterfront redevelopment trend that started in the 80's and accelerated in the 90's--many communities found that these highways were preventing effective revitalization of their waterfront, because they isolated citizens from the water. The vast investment in these roads made it difficult to propose removing them (as in Toronto for the past two decades with the Gardiner Expressway). This problem is sometimes "solved" by natural disaster, as with the earthquakes in San Francisco (Embarcadero & Central freeways), and in Seattle (Alaskan Way Viaduct), where the communities took the time to question whether they should be rebuilt, and what could be done if they weren't.

1. It should be noted that some far-sighted communities, such as Boston, "bit the bullet" and charged ahead with the removal of revitalization-obstructing infrastructure without waiting for a disaster to damage the highway for them.

[ ] BC2: [SOCIAL ENVIRONMENT] Crime is reduced, freedom and security of populace is increased, education and other social services are enhanced in quality and/or quantity. Implementation of the project is done in a way that uses the natural bonding effect of catastrophes to public/private dialogue on development issues. Examples:

1. In the wake of violent conflict (such as civil war), restorative justice processes are enhanced.

2. A redeveloper might voluntarily include more units of affordable housing after engaging the community in a dialogue about their needs.

3. The issue of displacement via gentrification is addressed, and broadly-acceptable solutions implemented (such as via TIFs).

4. To the degree allowed by the deadline (often tight during disaster recovery), all significant stakeholders are effectively made aware of the intentions and goals of reconstruction project. There has to be enough lead time to allow for any necessary design or process modifications when stakeholders identify aspects of previous community design that they do not wish to have rebuilt as they were.

[ ] BC3: [ECONOMIC ENVIRONMENT] New business creation is increased, growth of existing businesses is enhanced, jobs are increased, and/or tax revenues are increased (not solely by tax rate hikes). It includes the use of integrated revitalization to prevent catastrophic community decline in communities that are currently in good shape.

#### **Innovation Factors:**

[ ] IBC1: Incremental catastrophe restoration. Incremental catastrophes (such as urban blight, biodiversity decrease, buildup of toxins in the overall environment, etc.) tend to exist in two forms: Impending (not quite at crisis point, but clearly on the way), and existing crises (though they are sometimes unrecognized). Since people tend to rapidly adjust to incremental changed environments, projects that "stick their finger in the wound"--thus awakening awareness of the problem and creating a sense of urgency to remedy important problems--have extra value, since they will be aiding in revitalization beyond their project boundaries.

## **SOCIOECONOMIC ASSETS**

Note: The four sectors of Socioeconomic Assets listed below were added in May of 2006, and are in an early stage of development. Not all of the key factors (points of integration) have been identified and/or agreed-upon. We invite your input on everything in this I.R. Guide, but feedback on this socioeconomic section would be especially appreciated at this point.

### **Social Services sector:**

Restoration of police/justice/military, healthcare, shelters, etc.

[ ] SS1 - Protection: Enhance restoration of law enforcement, justice, and military services.

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[ ] SS2 - Healthcare: Enhance quality/quantity of healthcare (where appropriate, restore traditional health practices).

- Many forms of traditional medicine are being actively suppressed by industrialized medicine, while others are not receiving research support due to intellectual property issues (they are not patentable, and so aren't worth investing in or they are patented and the cost for their use is prohibitive.) Renewal of interest in health practices that have been tested and proven for centuries (sometimes millennia) can provide low-income people (many of whom, in United States, lack health insurance and must pay out of their pocket) with safer, affordable alternatives to surgery and (often toxic) drugs. Traditional medicines (often food or diet-based) are also an excellent point of integration with other restoration agendas, such as the restoration of native plants and heritage varieties of food crops.

[ ] SS3 - Aid: Enhance assistance programs, such as for abuse victims, immigrants, refugees, children, homeless, unemployed, etc.

### **Economic sector:**

Restoration of entrepreneurship, finance, land tenure/access, productivity.

### **Educational sector:**

Restoration of K - higher schooling, scientific (and other) research, skills/technical training

### **Cultural sector:**

Restoration of traditions/language/cuisine, worldview/religion, arts/crafts/games.

[ ] SC1 - Traditions: Enhance restoration of traditions, cultural history, languages, cuisines, etc.

- Regarding cuisine: In this age of fast, industrialized foods, many ancient foods and recipes are dying out. Renewing interest in them can be an excellent starting point for both children and adults into an exploration of their heritage, since few things are more universally needed or appreciated than food. Cuisines are also an integrating point between cultural heritage and the natural environment: Renewed interest in traditional diets can help support the restoration of native plants and heritage varieties of crops and livestock.

[ ] SC2 - Spiritual: Enhance (where appropriate) restoration of culturally important worldviews/religions.

[ ] SC3 - Aesthetic: Enhance knowledge of and support for traditional crafts, games, and artistic endeavors.

- Encouraging public tolerance for the alternative lifestyles often enjoyed by artists. It's a well-documented fact that those living unconventional lifestyles are often the first to move to distressed urban areas, and that the ensuing aggregation of their artistic offerings and Bohemian lifestyles draws higher-income residents who purchase, renovate/restore homes and businesses in the area, often triggering socioeconomic revitalization. [Read Richard Florida's *The Rise of the Creative Class* for more insight into this dynamic.]
- Handicrafts are often physical connections to both natural and cultural heritage. Revitalizing them can lend economic and public support for the restoration of natural and other social resources, while providing vital income sources to people who might have few other employment options, due to physical or mental handicaps, or due to social marginalization (such as not speaking the dominant local language).
- Many culturally-important forms of amusement are dying out, being unable to compete with commercialized sports constantly seen and promoted on TV. Renewing the practice of such fun activities can be an excellent starting point for getting children more interested in their heritage.
- Many ancient forms of shelter construction are dying out, many of which were developed for specific environments and offer superior performance, maintainability, and health benefits over the one-style-fits-all modern housing that is

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often forced on traditional cultures. Restoration of traditional building techniques offers many points of integration with other restoration agendas, such as restoration of watersheds (i.e. forests, restoration of ecosystems (such as native reeds, palms, etc.), and restoration of traditional agriculture (use of fibrous farm waste in building materials). Traditional shelters also provide a physical environment more conducive to sustaining or restoring cultural heritage.

Note: Cultural renewal does not imply mere conservation of knowledge. Traditional practices should not become static or frozen in the past. Historic knowledge should be documented accurately, but revitalizing these arts, skills, and disciplines also means revitalizing the practice of them, which automatically leads to their change and evolution.

### **Regarding use of information technology for Asset Integration:**

The purpose of the **36 factors** is to identify the actual and potential interactions among all of your restorable assets. This complex web of relationships can be far more easily tracked and managed with the aid of appropriate information technology:

- Project (and/or program) management software: This is ideal for creating a critical path that keeps track of how each restoration project affects the others, so that they can be funded and implemented in the best possible order. Done in the wrong order, the renewal of one asset can be undermined by another asset, whose renewal should have preceded it.
- GIS software: This is ideal for creating and updating a complete inventory of restorable assets in a community or region. Once the GIS database is populated, the spatial relationships of each of the 12 sectors of restorable assets can be graphically illustrated, which is a tremendous aid to visualizing and planning an integrated revitalization initiative.

The Integrated Revitalization Guide will eventually morph into a rating system that can be used to award restoration projects and revitalization programs that exhibit the most integration. This will help communities identify companies and developers that do the best work, while helping companies and developers identify the best communities for their restorative investments. We've added "Innovation Factors" to each sector in anticipation of this next phase, so we can encourage and reward efforts to improve the processes and technologies of restorative development.

Extra points should be awarded to encourage innovation, both in processes and in technologies, that lead to significantly greater efficiency, effectiveness, and/or environmental benefit. Points should be subtracted for any aspect of a project that diminish any of these restorable assets. Another aspect of innovation that should earn extra points, concerns using your project to design and/or test better metrics or measurement technologies for all of the restorable assets in this I.R. Guide.