Lessons from Repurposing Abandoned Mines (AMAs) in South Korea

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1) This presentation does not reflect the official views or positions of the INSS.

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2. Case Study 1: Jeongseon
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“I was an Industry Warrior.”
Restructuring the Coal Industry Policies and Legislation
Government Intervention

Major Industries Lost International Competitiveness
- e.g.: ship building, automobile manufacturing

Market Failure
- Failed to predict future demands and market supplies of coals
- Sudden transformation of energy market from fossil fuels to alternative energy/renewable energy and little preparation

Government Intervention and Legislation
- Intervention cost vs. benefits
- Determining the extent of interventions and methods
Restructuring Coal Industry Policies

Declining Coal Industry Competitiveness in the 1980s

- Coal was replaced by petroleum
- Mine costs increased

Abandoned Mine Areas: Social Issues

- Lack of alternative industries led to structural unemployment
- Regional economic collapse, loss of spatial competitiveness

Launch of Restructured Coal-Industry Policy in 1989

- Prevent social conflicts arising from abandoned mines
- Rebuild coal industry
Special Act on the Development of Abandoned Mine Areas

Advance the economy of abandoned mine

- Balanced development and enhanced lives for the residents
- Governors shall designate the abandoned Mine Areas

Seven abandoned Mine Areas Designated

- 1996: Taeback, Samcheok, Jeongseong, and Yeongwol, Gangwon
- 1996: Mungyoung, North Gyeongsang
- 2000: Boryoung, South Chungcheong
- 2001: Hwasun, South Jeolla
7 Abandoned Mine Areas Designated for Economic Development

Yeongwol, Jeongseon
Taebaek, Samcheok
Boryoung
Mungyoung
Hwasun

Case Study 1 – Jeongseon

Kangwon Land Casino and Ski Resort
Gangwon Land Casino and Ski Resort
- Gangwon Land, a public company, was established in 1998
- A small casino opened in 2000
- The current casino opened in 2003
History of Mine Museum & Dongwon Corporation Sabuk Mining Station
Art Gallery
Samtan Art Mine
Photos of Mining and the Industrial Era in South Korea
Archives at Samtan Art Mine

Employment Contract and Records
Miners’ Shower Room Now Used as an Exhibition Space

Mine Repurposed as a Winery
Case Study 2 – Boryoung
Boryoung has several abandoned mines, which the Korean government has allocated funds to rebuild; the coal industry has been replaced by agriculture and tourism
- “Cool wind bath” place, resorts
- Mushrooms, salted seafood (jutgal), ginseng
# 2019 Budgets for Rebuilding Abandoned Mine Projects in BoRyoung

<table>
<thead>
<tr>
<th>Projects</th>
<th>Budgets (EUROS)</th>
<th>Total</th>
<th>AMDF</th>
<th>City</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>33 projects</td>
<td>11,509,230</td>
<td>10,017,692</td>
<td>884,615</td>
<td>614,307</td>
</tr>
<tr>
<td>1 Constructing Boryoung Mushroom School</td>
<td>1,461,538</td>
<td>576,923</td>
<td>884,615</td>
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<td></td>
</tr>
<tr>
<td>2 Supporting Mushroom Cultivation Infrastructure</td>
<td>472,307</td>
<td>330,769</td>
<td>141,538</td>
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<td></td>
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<tr>
<td>3 Resident Healthcare Promotion Program</td>
<td>7,692</td>
<td>7,692</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Small Town Gender Equality Test Program</td>
<td>38,461</td>
<td>38,461</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Constructing Small Town Mini Sports Park</td>
<td>92,307</td>
<td>92,307</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Constructing Small Town Mini Sports Park 2</td>
<td>423,077</td>
<td>423,077</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7 Remodeling National Flower Arboretum</td>
<td>307,692</td>
<td>307,692</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Building Forest Skyline Walking Course Facilities</td>
<td>769,230</td>
<td>769,230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Monorail Construction in Sungju Mountain</td>
<td>1,307,692</td>
<td>1,307,692</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Roof Reform Projects in Abandoned Mine Areas</td>
<td>230,769</td>
<td>230,769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-32 (Omitted)</td>
<td>(Omitted)</td>
<td>(Omitted)</td>
<td>(Omitted)</td>
<td>(Omitted)</td>
<td></td>
</tr>
<tr>
<td>33 Developing Roads to Link Peach Orchards</td>
<td>192,307</td>
<td>192,307</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AMDF : Abandoned Mine Development Fund
Cool Wind Bath Places

Resort
Mushroom Greenhouse
Salted Seafood
*(Jutgal)*
Mountain Ginseng Greenhouse
Comparative Analysis: Key Findings and Further Research
## Population Trends In Abandoned Mine Areas (AMAs)

<table>
<thead>
<tr>
<th>Province</th>
<th>City/County</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2017</th>
<th>Decrease Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gangwon</td>
<td>Taebaek</td>
<td>59,374</td>
<td>54,164</td>
<td>55,241</td>
<td>51,400</td>
<td>44,733</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Samcheok</td>
<td>83,791</td>
<td>75,592</td>
<td>67,957</td>
<td>67,131</td>
<td>67,860</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Yeongwol</td>
<td>47,720</td>
<td>43,732</td>
<td>36,979</td>
<td>34,880</td>
<td>36,936</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>Jeongseon</td>
<td>53,831</td>
<td>46,048</td>
<td>41,017</td>
<td>35,804</td>
<td>36,002</td>
<td>33%</td>
</tr>
<tr>
<td>South Chungcheong</td>
<td>Boryoung</td>
<td>122,541</td>
<td>109,423</td>
<td>96,992</td>
<td>97,091</td>
<td>100,922</td>
<td>18%</td>
</tr>
<tr>
<td>South Jeolla</td>
<td>Hwasun</td>
<td>63,772</td>
<td>72,006</td>
<td>67,629</td>
<td>61,825</td>
<td>60,566</td>
<td>5%</td>
</tr>
<tr>
<td>North Gyeongsang</td>
<td>Mungyeong</td>
<td>92,204</td>
<td>90,778</td>
<td>70,813</td>
<td>68,692</td>
<td>70,016</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>523,233</td>
<td>491,743</td>
<td>436,628</td>
<td>416,823</td>
<td>417,035</td>
<td>20%</td>
</tr>
</tbody>
</table>

Sources: Statistics Korea Census
Findings 1

1) Population Loss
   - For the last 20 years (1997–2017), overall 20% decreased in the abandoned mine areas (523,233–417,035)

2) Big Divide
   - Greatest Population Loss in Ratio: Samcheok (47%)
   - Slightest Population Loss in Ratio: Hwasun (5%)

3) Jeongseon and Boryoung (Visited Sites)
   - Jeongsun: 33% (53,831 → 36,002) – Above the Avg.
   - Boryoung: 18% (122,541 → 100,922) – Below the Avg.
# Financial Independence Ratio In Abandoned Mine Areas (AMAs)

<table>
<thead>
<tr>
<th>Province</th>
<th>City/County/ District</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gangwon</td>
<td>Taebaek</td>
<td>29.91</td>
<td>26.29</td>
<td>30.63</td>
<td>29.89</td>
<td>29.64</td>
</tr>
<tr>
<td></td>
<td>Samcheok</td>
<td>21.40</td>
<td>18.01</td>
<td>20.47</td>
<td>17.66</td>
<td>18.39</td>
</tr>
<tr>
<td></td>
<td>Yeongwol</td>
<td>21.36</td>
<td>20.77</td>
<td>21.60</td>
<td>20.17</td>
<td>19.95</td>
</tr>
<tr>
<td></td>
<td>Jeongseon</td>
<td>21.99</td>
<td>28.68</td>
<td>31.21</td>
<td>31.70</td>
<td>29.59</td>
</tr>
<tr>
<td>South Chungcheong</td>
<td>Boryoung</td>
<td>20.33</td>
<td>19.90</td>
<td>20.89</td>
<td>21.26</td>
<td>21.43</td>
</tr>
<tr>
<td>South Jeolla</td>
<td>Hwasun</td>
<td>23.74</td>
<td>22.67</td>
<td>21.03</td>
<td>21.67</td>
<td>21.13</td>
</tr>
<tr>
<td>North Gyeongsang</td>
<td>Mungyeong</td>
<td>19.5</td>
<td>20.16</td>
<td>19.88</td>
<td>18.27</td>
<td>21.97</td>
</tr>
<tr>
<td>Average of AMA</td>
<td></td>
<td>22.60</td>
<td>22.35</td>
<td>23.67</td>
<td>22.95</td>
<td>23.16</td>
</tr>
<tr>
<td>National Average</td>
<td></td>
<td>50.3</td>
<td>50.6</td>
<td>52.5</td>
<td>53.7</td>
<td>53.4</td>
</tr>
</tbody>
</table>

Source: Ministry of Administration and Safety, “2018 Summary of the Integrated Finances of Local Autonomous Governments”
Findings 2

1) Low Financial Independence Ratio
   - In 2018, the ratio of AMA ranges from 18.39% to 29.64%, which is far below of national average of 53.40%
   - Despite increases of nation-wide financial independence ratio since 2014 (50.3%→53.4%), decreases occurred in big parts of AMA (e.g. Samcheok, Yongwol, Hwasun)

2) Samcheok, Worst-Case Scenario?
   - Greatest population loss (47%) & Lowest financial independence Rate (18.39%)
Findings 3

3) Jeongseon and Boryoung (Visited Sites)

− In 2018, in comparison to 2014, some improvements are found in the financial independence ratio of AMA in overall (22.60% → 23.10%),

− However, some defeats are found in the most of AMA (e.g. Samcheok, Yongwol, Hwasun)

− Jeongseon and Boryoung, along with Mungyeong have improved their financial independence rate

− Particularly, Jeongseon has shown the greatest improvement (21.99% → 29.59%) (Perhaps from the improved revenues of Kangwon Land and the development of other local attractions?)
Further Research

1) **Samcheok**, shown greatest population loss & lowest financial independence ratio, needs to be investigated further in terms of the unique local needs to understand the AMA development policy failure.

2) **Hawsun** of the least loss of the population needs to be investigated in terms of the attraction cause of the population.

3) **Mungyeong**, made improvements in financial independence ratio along with Jeongseon and Boryoung, needs to be investigated to understand the development cause.
Challenges & Policy Recommendations
Challenge for AMAs

Limited Effect on Regional Economy
- Tourists largely stay at the Kangwon Land Resort
- Little benefit for native residents, incl. miners and their decedents

Little Opportunity for Job Training
- As a result, difficult to obtain jobs for miners in the tourism industry

Imbalance of Local Development
- Mine museums have financial difficulties due to few visitors
- Tourists rarely visit Jeongseon downtown areas and instead mostly stay at the Kangwon Land Resort due to little tourist attraction
Recommendation for AMAs(1)

Designate UNESCO World Heritage Sites
- The abandoned mine areas bear the legacy of Korean industrialization
- Designation as World Heritage Site will attract tourists and stimulate the economy

Develop Alternative Industries
- Agricultural industry projects: e.g. mushroom and salted seafood production
- Manufacturing businesses: e.g. furniture and computer components

Promote positive images
- Attract health care centers and operate healing programs to avoid bad images such as gambling and poverty.
Recommendation for AMAs(2)

Following UN sustainable development guidelines

- Understand “Industry 4.0” and its impact on the mineral and energy industries

Preparing for South and North Korean Cooperation

- Understand the state of the North Korean mineral and energy industry
- Support the development of the North Korean mineral and energy industry
- Restart Dancheon Mine of North Korea Development Projects
- Share information and experiences from abandoned mine area projects in South Korea as North Korea seeks to rebuild their mining industry in the future
Q & A

Thank you!

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