

## NATIONAL LEGISLATION GOVERNING COMMERCIAL SPACE ACTIVITIES

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### 1. INTRODUCTION

Through much of the 20<sup>th</sup> century, space exploration and development was dominated by governments. Increasingly, however, private for-profit firms began investing in commercial space development. In its early years, commercial activities in outer space were dominated by satellite communications, particularly telephone and television communications. More recent commercial activities have focused on remote sensing and global positioning. The mining of asteroids and other near-Earth celestial bodies has not yet begun. Space tourism and the transportation of passengers in space are but embryonic.

Global space activity of governments and private companies grew to \$314 billion in 2013.<sup>1</sup> Private-sector commercial space activity is growing at a brisk pace, while governmental activity is declining. Between 2012-2013, commercial space products and services revenue grew 7%; commercial infrastructure and support industries grew by nearly 5%; while government spending decreased by almost 2%.<sup>2</sup> Space investment is a major part of the infrastructure of communications – both telecommunications and broadcast – of weather and geological monitoring, and of defense.<sup>3</sup> Thus, commercial development of outer space is outpacing governmental activities in space. As private firms launch commercial space activities, the legal obligations and liability exposure of space-faring States proliferate as well.

A growing number of States are becoming space-faring nations. Many are enacting national space legislation, establishing governmental space regulatory institutions and giving them jurisdiction to license private actors and ensure compliance with regulatory requirements.<sup>4</sup> They promulgate laws regulating space activities in order to fulfill their international obligations, to protect their citizens from harm, to protect their treasuries from liability, and to encourage and foster the development of commercial space activities.<sup>5</sup> Further, with the absence of an international regulatory regime addressing safety and navigation of aerospace vehicles, a growing number of space-faring States see the need to fill that regulatory void with domestic legislation.<sup>6</sup> Though a number of commentators

have urged the International Civil Aviation Organization [ICAO] to regulate the safety and navigation of aerospace vehicles, to date, it has declined.<sup>7</sup> Moreover, the world community has failed to draft a single multilateral treaty addressing space issues since 1979. That abstinence too inspires the promulgation of domestic space legislation.

The U.N. General Assembly has encouraged States to “consider enacting and implementing national laws authorizing and providing for continuing supervision of the activities in outer space of non-governmental entities under their jurisdiction.”<sup>8</sup> The rapid emergence of national space legislation is the fastest growing area of Space Law.

### 2. INTERNATIONAL OBLIGATIONS

Space Law consists of a growing number of international multilateral and bilateral agreements and conventions, U.N. resolutions, decrees by international organizations, national legislation and regulations, and court decisions.<sup>9</sup> Five multilateral conventions, drafted in a dozen years, place numerous obligations upon States.<sup>10</sup> They require States to adhere to principles of international law, assume responsibility and liability for activities in space (whether governmental or non-governmental), authorize and supervise the activities of their nationals in space, and notify and register their space objects.

Among requirements imposed by the Outer Space Treaty of 1967 are the following:

- States must carry on space activities in accordance with principles of international law;<sup>11</sup>
- States bear international responsibility for national activities in space and on the moon and celestial bodies, including activities of both governmental and non-governmental entities;
- States must authorize and supervise the activities of its nationals in space;<sup>12</sup>
- States that (a) launch, (b) procure the launch, or (c) from whose territory or facility an object is launched, are internationally liable for damage to another State

or its national or juridical persons by such object in the air or in space;<sup>13</sup>

- States on whose registry an object is launched must retain jurisdiction and control over the object and any personnel thereon;<sup>14</sup>
- States must avoid harmful contamination and adverse environmental consequences from the introduction of extraterrestrial matter; if it believes an activity or experiment by it or its nationals in space would potentially harm or interfere with activities of other States in space, it must consult with such States before proceeding;<sup>15</sup> and
- States must inform the UN Secretary General of the “nature, conduct, locations and results” of its activities in space.<sup>16</sup>

Several of these provisions also are elaborated upon by the Liability Convention of 1972.<sup>17</sup> Building on Article VII of the Outer Space Treaty, the Liability Convention imposes liability upon a launching State (i.e., the State that launches, procures the launch, or from whose territory or facility a space object is launched)<sup>18</sup> to pay compensation for personal injury and property damage caused by its space objects on the surface of the Earth, or to aircraft.<sup>19</sup> The Convention establishes a two-tier liability regime,<sup>20</sup> providing that the “launching State” is absolutely liable for damage caused by its space objects on the surface of the Earth or to an aircraft in flight,<sup>21</sup> and liable in negligence<sup>22</sup> for damage<sup>23</sup> caused to a space object of another State or to persons or property on board.<sup>24</sup> Where there is more than one launching State, they shall be jointly and severally liable for the damage they cause.<sup>25</sup>

Hence, by ratifying or acceding to either the Outer Space Treaty of 1967, or the Liability Convention of 1972, the launching or launch-procuring State becomes potentially liable for damages caused by itself and its commercial launch sector.<sup>26</sup> A ratifying State accepts absolute liability for damage on the ground or to aircraft in flight outside its territory when a launch takes place from its territory or facilities, or when it procures a launch from another State.<sup>27</sup> A State incurs fault-based liability for damage caused in outer space.<sup>28</sup> In addition to these multilateral conventions, additional legal obligations are imposed upon States through customary international law,<sup>29</sup> an array of United Nations Security Council and General Assembly Resolutions,<sup>30</sup> and a growing body of “soft law.”<sup>31</sup>

Further, the Chicago Convention of 1944 – which established the International Civil Aviation Administration to harmonize State regulation of aircraft safety and navigation in – may apply to vehicles transporting space objects through air space.<sup>32</sup> But to date, ICAO has promulgated

no Standards and Recommended Practices governing aerospace vehicles or rockets, though in time, it may.<sup>33</sup>

### 3. STATE REGULATION OF SPACE ACTIVITIES

As a consequence of the aforementioned international obligations and the liability exposure created thereby, as well as a desire to protect the health and safety of their citizens, their property and the environment, a growing number of States have promulgated national legislation to regulate commercial space activities. As one source notes, “Since a government can only act on the basis of laws or respective regulations, the establishment of national space laws is the most effective way of providing the State with the means to authorize and supervise non-governmental space activities.”<sup>34</sup> At least twenty-six States – about 14% of the members of the United Nations – regulate space activities. Among the States that have enacted national space legislation are Algeria,<sup>35</sup> Argentina,<sup>36</sup> Australia,<sup>37</sup> Austria,<sup>38</sup> Belgium,<sup>39</sup> Brazil,<sup>40</sup> Canada,<sup>41</sup> Chile,<sup>42</sup> the People’s Republic of China [PRC],<sup>43</sup> Colombia,<sup>44</sup> France,<sup>45</sup> Germany,<sup>46</sup> Italy,<sup>47</sup> Japan,<sup>48</sup> Kazakhstan,<sup>49</sup> Netherlands,<sup>50</sup> Nigeria,<sup>51</sup> Norway,<sup>52</sup> Russian Federation,<sup>53</sup> South Africa,<sup>54</sup> the Republic of Korea [South Korea],<sup>55</sup> Spain,<sup>56</sup> Sweden,<sup>57</sup> Ukraine,<sup>58</sup> United Kingdom,<sup>59</sup> United States,<sup>60</sup> and Venezuela.<sup>61</sup> Hong Kong also regulates space activities.<sup>62</sup>

The United Nations Committee on the Peaceful Use of Outer Space [COPUOS] recommends that, “Space activities should require authorization by a competent national authority; the authorities and procedures, as well as the conditions for granting, modifying, suspending and revoking the authorization should be set out clearly to establish a predictable and reliable regulatory framework ...The conditions for authorization should be consistent with the international obligations and commitments of States, in particular under the United Nations treaties on outer space...”<sup>63</sup>

Governmental oversight of space activities is essential to protect public safety, property, and the environment, and to fulfill State obligations under international law. Licensing becomes the bedrock of governmental regulation of commercial space activities.

### 4. THE LICENSE AS A PREREQUISITE TO SPACE OPERATIONS

A growing number of States require a license as a prerequisite to space activity. Many require a permit for each individual launch of a space object, while some require separate licenses for an overseas launch or re-entry. Most

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