Canadian Firefighting Bucket Dominates World Market

When the Bambi Bucket® went into production 27 years ago, its Canadian inventor, SEI Industries founder Don Arney, couldn’t have possibly foreseen that his big orange bucket would become a brand name synonymous with helicopter fire fighting worldwide.

Arney’s legendary bucket has been pictured on more footage around the world than any other firefighting tool, with the exception of the helicopter itself.

International news cameras have long zeroed in on the distinctive orange globe delivering a dense column of water onto a raging fire below.

It’s an image that has been broadcast from natural disasters like Hurricane Katrina to enormous fires like the ones that savaged Australia in 2007.

Today, the Bambi Bucket is used in more than 110 countries worldwide and it all began with the first prototype dangling from an apartment balcony.
Inventing the Bambi Bucket

At the time the Bambi Bucket was invented, there were three dominant types of helicopter buckets already on the market and they all had limitations that caused major frustrations for forest fire control agencies and helicopter operators.

One type of bucket was made of solid fiberglass, another was all plastic (like a big Rubbermaid pail) and the third had a metal frame and canvas sides.

A big deficiency of these bucket types was that they were not collapsible which meant that they had to be flown to the fire site on the hook of a helicopter which slowed the aircraft down. The other option was to transport the bucket by vehicle resulting in more logistical effort and slower response times.

Another major deficiency was the dump valves – the older buckets used either upward opening butterfly valves or upward opening plunger valves (like a drain plug in a bathtub).

These valves were slow to open which made it difficult for the pilot to hit the target below plus the water broke up into a spray that reduced the impact of the water drop on the fire. Instead, forestry agencies wanted a solid column of water exiting the bucket.

All of the earlier buckets also had actuating mechanisms (either hydraulic or electric) for opening and closing the bucket valves which led to frequent failures and high maintenance due to constant immersion in water.

In addition, all of the old buckets had to lift their dump valves through the water in the bucket in order to open. This required a lot of power which translated into a high demand for electrical energy. In turn, this resulted in complicated hookups inside the helicopter.

In contrast, the Bambi Bucket uses gravity to open its dump valve, needing almost no electrical power and allowing it to be instantly hooked up to any helicopter using a standard power plug.

Today, with its revolutionary valve and many other innovative features, Bambi Bucket still controls more than 90 per cent of the world market — even 27 years after the launch of the first bucket.

About SEI Industries

It was the Bambi Bucket that first established SEI Industries into the design, manufacturing, marketing and commissioning of engineered industrial fabric products.

Today, SEI’s product lines are popular in the aviation, remote site, environmental and firefighting industries.

SEI operates from a 48,000 sq. ft. manufacturing facility in Delta, B.C. and, as an ISO 9001:2008 certified company, it consistently engineers its products to ensure the highest levels of quality based on many years of experience developing successful product innovations.
Unique Tool, Unique Advantages

Invented in Canada, the Bambi Bucket has become the worldwide leader in firefighting buckets, thanks to its many unique features.

- **Folds up and can instantly collapse** into a compact shape (like a set of golf clubs) for easy transport inside the helicopter to the fire.
- **Easy operation** allows the operator to simply hook the Bambi Bucket to the helicopter and fly away. As soon as the weight of the bucket is taken up by its suspension lines, the Bambi Bucket pops open like an umbrella.
- **Using a revolutionary valve**, the weight of the water carried in the bucket forces the valve inside out through a hole in the bottom of the bucket. This happens in a fraction of a second which makes the water dump much more accurate.
- **Discharging a solid column of water** (not a spray) means less water evaporates on its descent plus it delivers more impact force.
- **With a helicopter-mounted, pilot-operated system**, the Bambi Bucket control mechanisms are not subjected to water immersion, making it far more reliable.
- **Almost no electrical power is required** since the Bambi Bucket uses gravity to empty the bucket. This allows for simple electrical connections to the helicopter.
- **With variable drop capacity**, the Bambi Bucket product line provides a variety of next generation valves that offer medium and heavy lift helicopters greater pilot flexibility in regulating the amount of water that the Bambi Bucket carries. With this system, the pilot can regulate the capacity of the Bambi Bucket by shedding load to meet operating conditions, conduct split drops or extend drops over a larger area.
- **Powerfill technology** allows the Bambi Bucket to fill in otherwise unsuitable dipping sites by bottom-filling in remote water sources closer to the fire. This increases fire response times and minimizes helicopter fuel consumption and transit times. This amazing system allows pilots to fill from water sources as shallow as 18 inches in less than one minute.
- **Sacksafoam foam injection systems** mix liquid foam concentrate with each water load in the bucket which changes water properties to reduce evaporation and provide more effectiveness against aggressive fire behavior. These powerful foam drops meet agency and end-user requirements for more effective utilization of fire suppressants in aerial firefighting.
- **Mission Tracker technology** uses GPS to collect, monitor and display real-time and logged event data. The display shows customized drop reports that are overlaid on Google Earth maps. These summary reports can display costing for the number of drops, fuel usage, water volumes, retardant/foam volumes and total cost per gallon dropped, allowing helicopter fleet operators and wildfire management agencies to monitor key performance indicators and use the closest available resource more effectively.
Before the Bambi Bucket was invented, each bucket manufacturer offered a very limited number of bucket sizes which meant that many helicopter operators had to use a bucket that was either too small or too big.

In developing the Bambi Bucket, SEI decided to offer a range of models so that any helicopter could use the right one for its lifting ability.

Bambi Buckets are now made in 20 different sizes ranging from the smallest 72 US Gallon (270 liter) bucket, to the 2,600 US Gallon (9,840 liter) version.

Because of this model size diversity, SEI is able to supply pilots operating everything from a small Robinson helicopter right up to the heavy lift, twin rotor Chinooks. SEI even has a twin Bambi system, used on the world’s biggest helicopter – the Russian Mi 26.

Today, despite the onslaught of competition, SEI remains the industry leader by enhancing the existing Bambi Bucket product line with a dedicated research and development team.

Since 1982, SEI has continued to grow using its valuable experience to respond to helicopter operators and wildfire management agencies worldwide that are looking for a safe, efficient and cost-effective tool that can withstand the on-going, daily rigors of arduous fire-fighting. It’s no wonder they choose the Bambi Bucket.