These words or phrases have similar uses, but the grammar is not quite the same. On the other hand is a conjunctive adverb. It is used to compare two situations or two people and to show that there is an important difference between them.

In many Middle Eastern countries, it is quite common for parents to find suitable brides and grooms for their children. On the other hand, arranged marriages are unusual in the West.

I like living in the city. My wife, on the other hand, prefers the countryside.

The same idea can be expressions using the conjunctions while and whereas.

While arranged marriages are quite unusual in the West, they are quite common in many Middle Eastern countries.
I like living in the city, while / whereas my wife prefers the countryside.

While / whereas English has just five vowel sounds, some languages have 30 or more.
There are just five vowel sounds in English. On the other hand, some languages have 30 or more.

As you can see, there is an important difference between these three sentence connectors. While and whereas are conjunctions. They connect two clauses. On the other hand is not a conjunction. It goes at the beginning of the second clause and is usually separated from the rest of the sentence with a comma.

It can also go in the middle of the sentence. In that case we use two commas to set it off.

In many western countries, the elderly live in retirement homes run by health professionals. In India, on the other hand, they live with their children and grandchildren.

Other conjunctive adverbs that can be used to express same or similar ideas are: nevertheless, however and in contrast.